GLOBAL RESEARCH CONFERENCE 2020

16TH – 18TH OCTOBER 2020
VIRTUAL CONFERENCE

STRATEGIC PARTNERS:
# Table of Contents

Welcoming Remarks and Officiating Ceremony of Global Research Conference 2020  

 Welcoming Remarks by Conference Chair  

 Keynote Speaker :  
 Associate Professor Dr Masoud Mohammadian  
 Dean, School of Information Technology & Systems  
 Faculty of Science & Technology  
 University of Canberra, Australia  

 Invited Speaker :  
 Prof. Dr. Amlan Chakrabarti  
 Director School of Information Technology University of Calcutta, India  

 :  
 Prof. Dr. Siti Eshah Mokshein  
 Department of Educational Studies Faculty of Human Development  
 Universiti Pendidikan Sultan Idris (UPS I), Malaysia  

 :  
 Assoc. Prof Dr. Muhammad Sadiq Ali Khan  
 Chairman  
 Department of Computer Science University of Karachi, Pakistan  

 :  
 Assoc. Prof Dr. Bhagwan Das  
 Department of Electronic Engineering, Quaid-E-Awam University Of Engineering Science, And Technology (Quest), Nawabshah, Sindh, Pakistan  

 Industrial Invited Speaker :  
 Mr. Fazrul Izwan Hassan  
 Chief Technology Officer Sedania As-Salam Capital  

 General Information :  
 List of Abstracts  

 3  

 5  

 8  

 10  

 14  

 17  

 18 - 141
Distinguished guest, ladies and gentlemen.

Greetings and welcome everyone.

I am very proud and happy to join you for the opening Global Research Conference GRaCe 2020 which is hosted by Department of Research and Industrial Linkages, Universiti Teknologi MARA Cawangan Terengganu in cooperation with Universiti Tun Hussien Onn Malaysia and Universiti Pendidikan Sultan Idris, Malaysia. Although we are not able to implement a physical opening ceremony due to the prevailing pandemic of COVID-19 safe distancing guidelines, this virtual gathering is considered as one of the most significant and memorable forms of gathering too. This virtual gathering marks another important milestone in UiTM long standing effort to encourage vigorous and transdisciplinary research to address real world problems with practical knowledge and solutions. The sharing of best practices in this event offers new insights that can ensure research and publication sustainability through interesting discoveries.

As an academician and industrial practitioner, conducting researches and providing new knowledge are important in solving various problems faced by the community. Those contributions are vital to contribute to betterment of society particularly in this digital era. As we all know, the purpose of conducting a research is to inform action, prove theories, and contribute to developing knowledge and innovation in a field or study. Our study should seek to contextualize its findings within the larger body of the research. Thus, researches conducted must always be of high quality in order to produce knowledge that is applicable outside of the research setting.

For non-professionals who value learning, conducting researches equips them with knowledge about the world and skills to survive and improve their lives. Among professionals and scribes, on the other hand, finding an interesting topic to discuss or to write about should go beyond personal experience. Determining either what the general
public may want to know or what researchers want others to realize or to think about can serve as a reason to do a research. Therefore, research and publication are considered as essential components in generating knowledge.

As many changes we face today, we need to be committed to proactively see the research opportunities to produce the best solution to the public and community. Yet, for those who like to learn, whether they are members of a learning institution or not, doing research or publication is not just an imperative, but a need. This implicates that, no research, no right to speak.

Dear ladies and gentlemen,

Conference is one of the platforms for the researchers to share their findings not only for our country and community but also to the whole world. Thus, through Global Research Conference, we are proud to announce that UiTM Cawangan Terengganu aligns with the aspiration of Ministry of Education and our Vice Chancellor as well to create the impactful research collaboration with international universities and industries.

Therefore, we are excited to see the dedication and the resilience of the researchers from various institutions and industries to share their research findings in our conference, GRaCe 2020.

Here, I would like to thank our collaborators and strategic partners Universiti Tun Hussein Onn Malaysia, Universiti Pendidikan Sultan Idris, and Instrumentation and Petroleum Services Asia Sdn Bhd for the expert’s contributions and the extraordinary job that you have done for GRaCe 2020.

Also, a special thanks to the advisor of the conference, our Deputy Rector of Research and Industrial Linkages, Dr. Haji Rosman Mahmood, the Conference Chair Ts. Dr. Nurulnadwan Aziz, the Vice Chair Mohd Helmy Abdul Wahab from UTHM, the Technical Program Chair Dr. Suhazlan Suhaimi from UPSI, and to all the energetic GRaCe 2020 team members. Thank you so much for the great cooperation to the success of GRaCe 2020.

Not to forget, I would like to thank everyone; participants, keynote speakers, invited speakers, special session chairs, and sponsors for your general supports and virtual presents. I sincerely appreciated the knowledge, ideas, and innovations shared at this year in GRaCe 2020. I am very sure that all the participants will have the fruitful and rewarding experience here and I would like to sincerely wish this event for the success in achieving its goals. On that note, I hereby declare the Virtual Global Research Conference 2020 is officially opened.

Thank you.
Good morning ladies and gentlemen,

Dear colleagues,

I would like to extend my warm welcome to all of you to the third gathering of Global Research Conference which it was previously known as Graduate Research Conference. The 1st Grace was held in 2016 at Taman Tamadun Islam Kuala Terengganu, Malaysia and it is followed by the 2nd physical conference of Grace at Institute of Leadership and Development (ILD), Nilai Malaysia. For this year, as concerns increased over the pandemic of coronavirus infections (COVID-19), the committee has decided to move GRaCe 2020 from a physical to virtual conference and take GRaCe 2020 to the next level where we re-branding it to the Global Research Conference instead of Graduate Research Conference.

To achieve UiTM goals and target setting by Ministry of Education, Malaysia, we have setup the GRaCe 2020 as SCOPUS indexed conference. Therefore, we only receive research papers that meet the criteria of SCOPUS indexed journals with the theme “Hybridizing Transdisciplinary Research towards Digital Society 5.0”.

Ladies and gentlemen,

In GRaCe 2020, we have gone through some tough experience. Thus, I would like to express my gratitude to several parties for making GRaCe 2020 a successful conference.

First of all, a million thanks to our supportive Rector, Assoc. Prof. Ts. Dr. Mazidah Puteh and our Deputy Rector of Research and Industrial Linkages Dr. Haji Rosman Mahmood as our advisors. Thank you so much for the full supports and trust in ensuring GRaCe 2020 as an indexed conference, a reality.

To Associate Professor Dr Masoud Mohammadian, from University of Canberra, Australia, thank you so much for accepting our invitation as a keynote speaker. Despite his tight schedule, Associate Professor Dr Masoud Mohammadian is still willing to share with us his thought.
To our invited speakers, Prof. Dr. Amlan Chakrabarti, Director School of Information Technology University of Calcutta, India, Prof. Dr. Siti Eshah Mokshein from Department of Educational Studies, Faculty of Human Development, University Pendidikan Sultan Idris, Assoc. Prof Dr. Muhammad Sadiq Ali Khan from Department of Computer Science, University of Karachi, Pakistan, and Assoc. Prof Dr. Bhagwan Das from Department of Electronic Engineering, Quaid-E-Awam University of Engineering, Science, and Technology, Pakistan, thank you for accepting our invitation and for the support given to GRaCe 2020.

Also, to our industrial invited speaker Mr. Fazrul Izwan Hassan, Chief Technology, Sedania As-Salam Capital, thank you so much for your valuable thought sharing in GRaCe 2020.

To all the special session chairs from all over the world, thank you so much for being ambassadors in representing GRaCe 2020.

A remark of high appreciation goes to our strategic partners and collaborators; Universiti Tun Hussein Onn Malaysia, Universiti Pendidikan Sultan Idris, Terengganu Government State, Instrumentation and Petroleum Services Asia Sdn. Bhd. (IPSA), and Scientific Innovation Research Group (SIRG) from Beni-Suef University, Egypt. Thank you so much for the support and cooperation particularly in terms of expertise.

Not to forget, to my energetic and supportive crew members who have been working since October 2019 to ensure the quality conference, quality reviewing process, and quality papers selection, through the deepest of my heart I would like to thank you so much and only Allah s.w.t is able to grant the best to all of you. This is a teamwork. I congratulate you, and everybody associated with these efforts, for getting so much done so quickly in ensuring all the hard works since the beginning of the conference setting until all the papers will successfully be published, soon.

To all the GRaCe 2020 presenters and participants, thank you so much for the support and your participation.

Ladies and gentlemen,

GRaCe 2020 started its Call for Papers on 5 November 2019 and the official deadline for Paper Submission was on 1 Jun 2020.

Basically, GRaCe 2020 offers three main tracks which are Recent Practices and Innovations in Science, Engineering, and Technology, Challenges and Innovations in Social Science, and Holistic Education for Digital Society 5.0. In addition, to enhance the GRaCe 2020 to the international level, we also provide special sessions which led by the special session chairs who came from all over the world including Ukraine, Jordan, Morocco, Argentina, India and various experts from Malaysia as well. From that, we have received 21 special sessions that focus on specific research areas such as Machine...
Learning and Pattern Recognition in Intelligent Systems and Robotics, Emerging Business, Accounting, and Economics Development for Digital Society 5.0, and Quranic Informatics.

Praise to the Almighty Allah SWT, because of His Blessing, GRaCe 2020 was managed to receive two hundred and 88 submissions from various researchers of all over the world including New Zealand, India, Indonesia, Thailand, Australia, Iraq, Philippines, Saudi Arabia, Jordan and many more countries. I am proud to share that we also received a paper from our university Vice Chancellor (VC) Prof. Emeritus Datuk Ir. Dr. Mohd Azraai Kassim. Thank you so much Prof for your support to GRaCe 2020. Besides, a few papers received from a number of famous scholars including Prof Dr. Masoud Mohammadian, from University of Canberra, Australia, Prof Ismail Musirin, Prof Norman Masrek, Prof Aziz Deraman and other familiar scholars, thank you so much.

For a note, the selected papers have gone through double blind reviewed led by the experts from various universities worldwide. After the review process, we selected only 80% to be submitted to SCOPUS indexed journals and rejected the papers that do not meet the SCOPUS criteria. This is to ensure that we meet the standard of our policy to have only high-quality papers presented in GRaCe 2020.

Ladies and gentlemen,

Insha Allah we will maintain our key performance to be acknowledged as an indexed conference. This is to provide Universiti Teknologi MARA Cawangan Terengganu with wider networking and align with the academic agenda for all scholars.

Finally, ladies and gentlemen, I would like to invite all scholars, researchers, academicians, and industrial practitioners to join GRaCe 2020 through our official YouTube channel and to stay in touch with us for GRaCe 2022.

With that remark, I end my speech, thank you so much and may Allah bless us all.
Associate Professor Masoud Mohammadian graduated with a PhD degree from the University of Central Queensland and an MSc degree from the University of Central Queensland, Australia and his undergraduate degree at the Flinders University, Australia.

He taught various undergraduate and postgraduate courses in the areas of computer science and information systems at Edith Cowan University, Monash University and University of Canberra for almost 5 years before joining the University of Canberra in late 1998. Besides teaching, he has been actively pursuing research related to neural networks, fuzzy logic, evolutionary computing, optimization, data analytics, modelling of complex adaptive systems, decision support systems and data security and privacy and their applications in industrial, financial and business problems which involve real time data processing, planning and decision making. His current research also concentrates on the application of computational intelligence techniques for learning and adaptation of intelligent agents and web-based information filtering and data mining.

He completed several consultancies with industry. He was the scientific advisor to Solve IT Pty Ltd as he is the scientific advisor to Complexica Pty Ltd and iCognition Pty Ltd. I was a visiting professor at the Purdue School of Engineering and Technology Indiana University – Purdue University Indianapolis in USA, and at the Faculty of Electrical Engineering and Computer Science at the University of Toronto and at the at the University of York in Canada.

To date, he has edited over 22 books and conference proceedings in Computational Intelligence and Intelligent Agents. He has chair and co-chaired over 19 international conferences in Computational Intelligence, Intelligent Agents and has written more than 150 refereed publications in the form of books, book chapters, journal articles and conference papers. He has been a keynote speaker at a large number of international
conferences in Computational Intelligence, Intelligent Agents, Control, Modelling and optimization.

He has chaired fourteen international conferences on computational intelligence, intelligent agents and software engineering. Associate Professor Masoud Mohammadian has twenty-eight years of academic experience and he has served as program committee member and/or co-chair of a large number of national and international conferences. He was the chair of IEEE ACT Section and he was the recipient of awards from IEEE from USA and Ministry of Commerce from Austria and several awards for his academic services in Australia.

He has received many national and international awards from Australia, Austria and United Sate of America. He has received an honorary professorship from Amity University in Indian in 2018.

He is a member of editorial board and review board of several international journals.
Amlan Chakrabarti is a Full Professor in the A.K. Choudhury School of Information Technology at the University of Calcutta. He is also the Dean, Faculty of Engineering and Technology of his university. He is an M.Tech. from University of Calcutta and did his Doctoral research at Indian Statistical Institute, Kolkata. He was a Post-Doctoral fellow at the School of Engineering, Princeton University, USA during 2011-2012. He is the recipient of prestigious DST BOYSCAST fellowship award in Engineering Science (2011), Indian National Science Academy (INSA) Visiting Faculty Fellowship (2014), JSPS Invitation Research Award (2016), Erasmus Mundus Leaders Award from EU (2017) and Hamied Visiting Professorship from University of Cambridge (2018) and Siksha Ratna Award by Dept. of Higher Education Govt. of West Bengal (2018). He has also served in various capacities in various higher education organizations both at national and international levels.

He has received multiple project grants in the areas of Security in Cyberphysical Systems, IoT, Embedded System Design, VLSI Design, Quantum Computing, Computer Vision and Data Science from various national and international agencies (DST, DRDO, MietY, UGC, DAE, Ministry of Social Empowerment, WB-DST, TCS etc.). Till date he has graduated 9 Ph.D. students.

He has published around 140 research papers in referred journals and conferences. He is a Sr. Member of IEEE and ACM, Distinguished Speaker of ACM, Secretary of IEEE CEDA India Chapter, Vice President of Data Science Society and Life Member of CSI India.
Prof. Dr. Siti Eshah is an exceptionally gifted educator at the Department of Educational Studies, Faculty of Human Development, Sultan Idris Education University. She did her Doctoral research at University of Iowa, USA. Prof Eshah, who specialises in statistics in research, has published in more than 90 research papers in referred journals and conferences. She has graduated nine PhD and 17 master's degree students. Her research interest include instrument development and validation, program evaluation, teachers and teaching service, special education, education and gender, and achievement trends in education.
Dr Muhammad Sadiq Ali Khan is an associate professor who acted as Head of Department at the Department of Computer Science, University of Karachi, Pakistan. He obtained his Bachelor in Computer Engineering and Master of Science in Computer Engineering with Specialisation in Computer Networks, both from Sir Syed University of Engineering and Technology, Karachi. He did his PhD in Computer Science at University of Karachi, Pakistan. Dr Muhammad Sadiq Ali Khas who specialises in computer science, has published in more than 40 national and international publications and also presented more than 12 papers at the international conferences. He is currently supervising a few PhD candidates and has graduated two PhD and one master’s degree students. He also has supervised more than 60 projects including advance security camera system, face recognition security system, and RFID attendance system for staff and students since 2001. His research interests include data communication and networks, network protocols, computer and network security, artificial intelligence, and system analysis and design.
Dr. Bhagwan Das received his Ph.D. in Optical Communication from Universiti Tun Hussein Onn Malaysia in 2017. Dr. Bhagwan Das succeed in achieving a patent and 8 copyrights for his research and innovation. Dr. Bhagwan Das is the recipient of BEST MAN INVENTOR 2016 award given by International Federation of Inventors Associations (IFIA), Geneva, Switzerland. He won COMMERCIAL AWARD given by Universiti Tun Hussein Onn Malaysia (UTHM) in 2016. He also received SPECIAL AWARD from Malaysian Research & Innovation Society (MyRIS) in iMIT SIC 2017 at UUM, Kedah, Malaysia. Dr. Bhagwan Das has won eight gold medals in international innovative competitions for his research work. He has presented his research and innovation work in Denmark, Sweden, Spain, France, Italy, Switzerland, Turkey, Dubia (UAE), Singapore, Malaysia, China, Cambodia, and in Vietnam. Dr. Bhagwan Das has more than 12 years combined experiences of teaching and industry. He has published three book chapters with world’s well-known publisher i.e. Springer and IGI Global. He has published more than 80 articles in reputed ISI impact factor journals and in conferences having indexing in SCOPUS, WoS, El Compendex (Elsevier) and etc.

He is member of professional bodies such as Pakistan Engineering Council, Pakistan Engineering Congress, Senior Member-IEEE (USA), IFIA (Switzerland), SCIEI (Hong Kong), IAENG (Hong Kong), Internet Society (USA). Dr. Bhagwan Das appointed as nominated International Program Committee member in ICOCI 2015 (WoS indexed conference), SCDS 2015, 2016 (Published by Springer). He is the member of Technical Program Committee and Reviewer of several Scopus, Springer and WoS indexed conferences. He has served as reviewer for many WoS and Scopus indexed journals. His area of research includes optical system design, optical signal processing, and energy efficient optical communication. Currently, Dr. Bahgwan Das is working as Associate Professor, Department of Electronic Engineering, QUEST, Pakistan.
Fazrul Izwan graduated from Universiti Utara Malaysia in Information Technology (majors in Artificial Intelligence) in 2002. He has been in software development field in 16 years specialized in R&D, telecommunications, and financial services system.

In 2002, he joined MDeC as an Intern and Executive doing research in Smart School, Shared Services Center and Business Process Outsourcing. He then joined Digital Networked Solutions (Diginets), as an R&D System Analyst doing the research in IP-based monitoring camera for banks.

In 2006, he joined IDOTTV Sdn Bhd (now known as Sedania Technologies) as a Senior Manager in Quality Software Development for 5 years doing system development for telecommunication system for Celcom, Telkomsel (Indonesia) and AKTEL/ROBI (Bangladesh).

In 2010, he joined a Dublin-based company in Kuala Lumpur, Openet Telecom, as a Team Lead, producing in-house testing tools for telecommunication systems for AT&T, Bell Canada, and Cisco.

In 2013 until present time, he joined Sedania As-Salam Capital as Chief Technology Officer overseeing all technology direction and development to fintech products branded as "As-Sidq" and "Ifinex" to major Islamic banks in Malaysia.

COMMITTEES

Advisory Board
Assoc. Prof. Ts. Dr. Mazidah Puteh
Dr. Haji Rosman Mahmood

Chairman
Nurulnadwan Aziz, UiTM

Deputy Chair
Mohd Helmy Abd Wahab, UTHM
Nik Mohd Norfadzilah Nik Mohd Rashid

Secretary
Azlina Jaafar, UiTM

Treasurer
Norsuhada Mohamad, UiTM
Azlina Jaafar, UiTM
Nurulnadwan Aziz, UiTM

Technical Program Chair
Suhazlan Suhaimi, UPSI

Webmaster
Nur Iratul Ikma Rashid, UiTM

Sponsorship Secretariat
Mohamad Sabri Yaakob, Kemaman Bitumen Company Sdn Bhd

Review and Journal Publication
Yunita Awang, UiTM
Suhazlan Suhaimi, UPSI
Mohd Helmy Abd Wahab, UTHM
Asadullah Shaikh, NAJRAN UNIVERSITY (SAUDI ARABIA)
Fatimah Nur Mohd Redzwan, UiTM
Nurul Huda Kamarulzaman, UiTM
Nurulnadwan Aziz, UiTM
Special Session
Mohd Helmy Abd Wahab, UTHM
Nurulnadwan Aziz, UiTM
Suhazlan Suhaimi, UPSI

Keynote and Invited Speaker
Mohd Helmy Abd Wahab, UTHM
Nurulnadwan Aziz, UiTM
Suhazlan Suhaimi, UPSI

Technical Editor
Nuruladilah Mohamed, UiTM
Nurulnadwan Aziz, UiTM

Promotion and Publicity
Fatimah Nur Mohd Redzwan, UiTM (Head)
Nurulnadwan Aziz, UiTM
Mohd Helmy Abd Wahab, UTHM
Suhazlan Suhaimi, UPSI

Virtual Parallel Session
Mohd Helmy Abd Wahab, UTHM
Azlina Jaafar, UiTM
Nurulnadwan Aziz, UiTM
July 1, 1975 is a history that witnessed the establishment of UiTM Dungun Campus in Sura Gate, Dungun, Terengganu. The Temporary Campus has an area of 17 acres which is a relic of an Iron Ore Company leased from the Terengganu State Economic Development Corporation (PERMINT).

At that time there were 22 wooden buildings used as administrative buildings, lecture rooms, libraries and student dormitories. While some buildings such as the Union Club, Sungai Udang and Sungai Buaya are used as student dormitories.

Renovation of additional buildings and construction at Sura Gate was also done to meet the needs of students and staff at that time. The renovation includes 5 old buildings used as lecture rooms, Resident Staff and surau houses and 2 old stores used as a dining hall and 2 laboratory blocks and a student recreation center.

Although the permanent campus at Sura Hujung was built in 1982, the Sura Gate campus is still used for Secretarial Science Studies and Hotel & Restaurant Service Certificates. On April 30, 1998, after operating for almost 23 years, the Sura Gate campus was finally returned to the state government completely. Accordingly, all student activities and placements are centered on the Sura Hujung campus leaving various sweet and bitter memories.

On 19 October 1978, the foundation stone of UiTM Dungun Campus was completed by Almarhum Sultan Ismail Nasiruddin Shah at Sura Hujung. This area covers 1,306,536 square meters which is 342,536 square meters in the area bordering the South China Sea and 964,000 square meters in the Seberang Sura hill area.

The development of the permanent campus at Sura Hujung is implemented in stages through several phases. As a result of the implementation of these 4 phases and physical development in the 6th and 7th Malaysia Plans, now UiTM Dungun Campus has developed the entire area along the coast and 500.00 square meters across the lake.
LIST OF ABSTRACTS

AI ADOPTION IN THE PRINTING INDUSTRY: AN FVM PERSPECTIVE

Muhammad Yusuf Masod, Siti Farhana Zakaria, Ruslan Abdul Rahim

Faculty of Art & Design, Universiti Teknologi MARA (UiTM), Malaysia

Abstract: AI, an Industry 4.0 enabling technology, comprises software for adoption via Enterprise Systems (ES). Despite its application in high-profile areas, AI’s utilisation in the print manufacturing sector is still scarce. Competitiveness and advances in this sector urgently require higher value-added processes, including digitisation, incorporation of advanced manufacturing technologies and efficient resource utilisation. As this paper will outline, challenges in organisational adoption of AI demands systematic assessment of the fit and viability of software implementations in heterogeneous, concurrent and integrated systems while accounting for the performance, efficiency, stability and sustainability of the sector. As such, we develop a working framework for further assessment based on multiple theories and case studies, with particular attention to the Fit-Viability Model (FVM).

Key words: AI technologies adoption and implementation, Fit-Viability Model, printing industry, Industry 4.0.

PRODUCTIVITÉ: MANAGING ACADEMIC PROCRASTINATION

Vinothini Kasinathan, Aida Mustapha, Yana Azia Muhammad Adib, Khalida Shajaratuddur Harun

School of Computing, Asia Pacific University of Technology and Innovation, Malaysia
Faculty of Computer Science and Information Technology, Universiti Tun Hussein Onn Malaysia, Malaysia.

Abstract: Academic procrastination is known to be as one of the common habits among college students. They are not able to manage time effectively due to reasons such as spending too much time on non-essential activities, misplaced priorities or over scheduling, a mobile application is proposed to manage reminders to students for important deadlines. This paper presents an iOS application to manage time and academic procrastination called the Productivité that is designed for college students. The main function in Productivité is to allow users to plan with Calendar, use Pomodoro timer and To-do list. The application is developed using the Swift program, with the XCode IDE and Firebase Realtime database. Productivité is evaluated via a User Acceptance Test by 31 random participants among college students. Overall, the evaluation revealed that 75% the respondents agree on the importance of such procrastination management system. It is hoped that students will be encouraged to better manage their time and procrastination habit.

Key words: procrastination, time management, planning, iOS platform.
THE PERCEPTION OF UITMCPP STUDENTS ON PLAYING VIDEO GAMES AND HOW THIS MOTIVATES ENGLISH GRAMMAR, VOCABULARY AND COMMUNICATION ENHANCEMENT

Noraziah Mohd Amin, Mohamad-Noor Salehuddin Sharipudin, Mohd Saifulnizam Abu Bakar

Academy of Language Studies, Universiti Teknologi MARA, Cawangan Pulau Pinang, Pulau Pinang, Malaysia, School of Multimedia Technology and Communication, College of Arts and Sciences, Universiti Utara Malaysia, Sintok, Malaysia
Department of Computer Science and Mathematics,
Universiti Teknologi MARA, Cawangan Pulau Pinang, Pulau Pinang, Malaysia

Abstract: Since technology has become prevalent in most people’s lives nowadays, playing video games is undeniably considered a favourable activity. Video games can be efficient tools and useful resources for language learning. Considering this possibility, it is vital for the issue of learning a language, particularly English via playing video games to be investigated. The topic of video games and language learning is examined from the perspective of how such games can inspire players to learn English grammar, improve their English vocabulary and practice English communication. For data collection of the present study, 100 Universiti Teknologi MARA, Cawangan Pulau Pinang (UITMCPP) students participated in the questionnaire survey. It was discovered that 84% of the respondents agreed that they feel motivated to improve their English grammar when they do not understand the storylines of the video games, perhaps because they need to know the grammar in order to understand the storylines in the games. 88% of them feel very motivated to learn new English vocabulary that they find in video games. Clearly, playing video games can contribute to positive effects on the students’ English language learning. The results of this study can support the objectives of this research pertaining to language learning through games. Most respondents apparently have positive perception towards video games as reliable sources of motivation in learning, improving and practicing English. Also, they seem to have positive experiences in learning and improving their English in the contexts of autonomous learning and social interactions while playing video games.

Keywords: Video games, grammar, vocabulary, communication, language learning

FACTORS INFLUENCING CAREER CHOICE AMONG FINAL SEMESTER UNDERGRADUATE STUDENTS OF A BUSINESS MANAGEMENT FACULTY IN A MALAYSIAN PUBLIC UNIVERSITY

Muhamad Khalil Omar and Muhammad Hafiz Aziz

Faculty of Business and Management, Universiti Teknologi MARA, Cawangan Selangor, Puncak Alam Campus, 42300 Bandar Puncak Alam, Selangor, Malaysia
Faculty of Business and Management, Universiti Teknologi MARA, 40450 Shah Alam, Selangor, Malaysia

Abstract: The topic of undergraduates and recent graduates’ career choice have spark interest of many people these years. This paper aims to study the factors that influence students’ career choices. Among the variables included in this study are personality, parents or guardians, peer groups, career guidance counsellors, environment, opportunity, and economic considerations. The targeted population was 436 final semester undergraduate students at the Faculty of Business and Management, UiTM Puncak Alam. Email questionnaires were distributed to the respondents using a census in order to ensure good response rate. A minimum sample of 205 was identified. This study used a multiple regression analysis to identify the relationship between personality, parents or guardians, peer groups, career guidance counsellors, environment, opportunity, economic considerations, and career choice. Findings revealed
that only five (5) variables significantly influence students, which are personality, parents or guardians, peer groups, career guidance counsellors, and environment while and economic consideration factors were not significant. However, peer groups showed a negative relationship with students’ career choices. Besides, the result of independent sample t-Test revealed that there is a significant difference between the mean group of residency during the study in regard to career guidance counsellors and opportunity. Thus, it is recommended that every parties involved have a significant role in assisting students in making viable career choice in gaining experience and knowledge from relevant industries.

**Keywords:** Career Choice, Undergraduate, Students, Personality, Career Guidance Counsellors, Environment, Economic Considerations

**IMPLEMENTATION OF FAULTY SENSOR DETECTION MECHANISM USING DATA CORRELATION OF MULTIVARIATE SENSOR READINGS IN SMART AGRICULTURE**

Ahmed Dhahir Malik, Khaldoon Ammar Omar, Ansar Jamil, Mohd Helmy Abd Wahab

University Tun Hussein Onn Malaysia, Malaysia

**Abstract:** Through sensor networks, agriculture can be connected to the IoT, which allows us to create connections among agronomists, farmers, and crops regardless of their geographical differences. Faulty sensor detection is critical in IoT. When a sensor becomes faulty, missing data and/or bad data is provided to the control and management systems, which may lead to potential malfunction or even system failures. Because of this, a sensor fault detection mechanism must be implemented in an IoT system to eliminate this potential fault. This paper focuses on the implementation of a faulty sensor detection mechanism using data correlation among multivariate sensor readings, which is called Multivariate Faulty Sensor Detection Mechanism (Multi-FSDM) in a smart agriculture system. The smart agriculture system is attached with multi-variate sensors, which are moisture, temperature, and water sensor. These sensors are connected to Arduino UNO, which is equipped with an ESP8266 Wi-Fi module for internet connectivity. ThingsBoard is selected as the IoT cloud platform. The sensor readings are collected periodically and send to the cloud via the internet. Multi-FSDM calculates the correlation between each sensor reading to determine the health condition of each sensor. When all sensors are in good condition, all sensor readings are correlated with each other. However, when any sensor becomes faulty, sensor readings become uncorrelated. Once uncorrelated sensor readings occur, this means a faulty sensor is detected. Based on the findings, it is proven that Multi-FSDM can detect each sensor state on the smart agriculture system either in a good or faulty condition. When a sensor becomes faulty, Multi-FSDM detects and determines the faulty sensor successfully.

**Keywords:** Faulty sensor detection; smart agriculture; multivariate sensors; IoT.

**DESIGN AND DEVELOPMENT OF I-DIETKIDS COURSEWARE FOR HEARING IMPAIRED CHILDREN GUIDED BY COURSEWARE ENGINEERING METHODOLOGY.**

Norizan Mohamad, Nur Fatin Shafiqah Mohd Asri, Hayati Adilin Binti Mohd Abd Majid, Sharifah Nurulhikmah Syed Yasin and Hasiah Mohamed

Universiti Teknologi MARA, Malaysia
Abstract: Designing and developing a multimedia courseware requires a structured approach and many novices are not aware of this. This paper discusses on the design and development of i-DietKids courseware which is guided by the Courseware Engineering Methodology (CEM). CEM is a model-based approach that has been applied mainly to aid those who are new to courseware design and development. The CEM methodology contains four models; first, the pedagogical model that is related to the courseware pedagogical features. Second, the conceptual model that deals with the design of the courseware in the aspect of software engineering features; third, the interface model that concerns with the graphical interface of the courseware, and finally the hypermedia model that related to the navigational concerns of the courseware. Every single model deals with the various aspects of the development process. Usability testing was conducted on i-DietKids courseware and the result has shown a very promising and feasible consumption in the educational setting. It is hoped that this i-DietKids courseware will be used to continuously educate hearing impaired children on the importance of nutritious food intake.

Key words: Courseware Engineering Methodology, hearing impaired children, multimedia, nutrition education.

STRESSORS AND PSYCHOLOGICAL WELL-BEING AMONG STUDENTS IN A PUBLIC UNIVERSITY IN MALAYSIA

Siti Rapidah Omar Ali, Nur Shafini Mohd Said, Khalid Amin Mat

Faculty of business and Management, Universiti Teknologi MARA Cawangan Terengganu, Kampus Dungun

Abstract: Considerable stress can lead to range of issues that adversely influence a student’s well-being. Mental illness among youth is apparently a major problem worldwide nowadays. This study tried to examine the relationship between stressors and individual well-being among undergraduate students. A sample of 350 self-administered questionnaires were distributed to undergraduate students in a public university in East Coast of Peninsular Malaysia. The study has adopted simple random sampling method. Pearson correlation has been used to analyze the relationship between independent variables and dependent variable. Finding shows that all the stressors’ elements have positive relationship with the psychological well-being with very low correlation. Social support stress indicates moderate, positive correlation with the psychological well-being. Multiple regression analysis displays that only social support stress significantly influences psychological well-being while other three variables have been found not significantly influenced psychological well-being. Hence, only hypothesis three was accepted while the others were rejected.

Keywords: Stressors, Psychological, Well-being, public university

EXPLORING FILIPINO STUDENTS’ CRITICAL THINKING SKILLS: BASIS FOR ENHANCEMENT OF SCIENCE LABORATORY CLASS DELIVERY

Ryan Villafuerte Lansangan, Antriman Vipinosa Orleans

Junior High School Department, University of Santo Tomas, Manila, Philippines

College of Graduate Studies and Teacher Education Research, Philippine Normal University Manila, Philippines

Abstract

In today’s knowledge-based and rapidly changing society, developing students’ critical thinking skills in instruction is a vital concern in almost all science curricula. To acquire meaningful learning, learners
need to develop skills in choosing suitable information, gauging the integrity of information, and crafting sound decisions. With this, creating productive learning spaces that stimulate critical thinking has become a challenge among educators and teachers. It is, therefore, the objective of this undertaking to explore the critical thinking profile of Filipino students in science laboratory classes as a means of generating insight for possible curricular enhancement. Utilizing a descriptive survey research design, results revealed that openness to different ideas is the most practiced aspect of critical thinking among Filipino students while the planning and organization of information disclosed as the least. Furthermore, the importance of gathering information to support position is the most agreed factor, while the strategies in thinking of a problem in an experiment as the least. Findings, hence, suggest that the necessary facets of critical thinking strategies be explicitly structured in the science curriculum framework, especially encapsulating it in the design of the content and performance standards.

**Keywords:** critical thinking, science laboratory classes, curricular enhancement

---

**THE INFLUENCE OF SELF-EFFICACY AND INDIVIDUAL ENTREPRENEURIAL ORIENTATION ON TECHNOPRENEURIAL INTENTION AMONG BUMIPUTRA UNDERGRADUATE STUDENTS.**

Wei-Loon Koe, Ramesh Krishnan, Nurul Ezaili Alias

Faculty of Business and Management, Universiti Teknologi MARA, Cawangan Melaka

**Abstract:** Malaysian government has implemented various programs to encourage entrepreneurship among Bumiputra youths. However, the number of young Bumiputra entrepreneurs is still far below the expectation. The fourth industrial revolution (IR 4.0) and 5G technology has highlighted the importance of technopreneurship. Unfortunately, technopreneurship is still considered new and many challenges remained. This study was geared towards identifying the factors influencing technopreneurial intention among Bumiputra students in Malaysia. It used self-administered questionnaire to survey 138 Bumiputra undergraduate students from a public university in Malaysia. It developed a research model which integrated self-efficacy theory and individual entrepreneurial orientation (IEO) concept. Based on the analyses performed, it found that information and communication technology (ICT) self-efficacy and two elements of IEO (i.e.: risk-taking and pro-activeness) positively and significantly influenced technopreneurial intention. However, innovation did not influence technopreneurial intention significantly. As such, this study suggested that higher learning institution should realize the importance of technopreneurial education in developing competitive technopreneurs among Bumiputra youths. Furthermore, students should be given more opportunities to pro-actively search for business opportunities, handle actual business to learn risk management and attend ICT courses to increase their ICT capabilities.

**Keywords:** intention; students; technopreneurship; university.

---

**#BAJET2020 ON TWITTER: ISSUES, PERSONALITIES AND SENTIMENT**

Ismail Sualman, Nurul Hidayah Mohd Noar

Centre for Media and Information Warfare Studies Faculty of Communication and Media Studies
Universiti Teknologi MARA, Malaysia
Abstract: The tabling of a budget is an anticipated political event. The 2020 Budget is the second proposed by the new government in Malaysia. The event was not only reported live by news media, but the discussion of the budget also expanded to the social media sphere with apparent critiques and comments by social media users. Now, having tabled the budget, attention has shifted towards the delivery of the manifesto through the budget, whether issues addressed in their campaigning days are pacing into implementation. In view of this, the objective of this study is to identify the issues, personalities, and sentiments revolving around the discussion of the 2020 budget on Twitter. The dataset was collected under the hashtag #Bajet2020 on Twitter from 11th October 2019 to 14th October 2019. A qualitative content analysis was used to identify issues and personalities, while sentiment analysis was used to analyse the sentiment towards the issue. This study has found that topics such as burdens faced by young people, affordable housing, petrol subsidy, long-term prosperity of the Rakyat, income of the majority, tax system, and abolishment of tolls were among the issues discussed on Twitter. It was discovered that the majority of the sentiments surrounding the issues were negative. In addition, the study has found that the majority of the personalities mentioned were political leaders. The findings of the study suggest that there is a need for management of reputation and impression by political institutions in the sphere of social media.

Keywords: Social media, political communication, budget, economy, sentiment

CONSTRUCTING DECISION RULES FROM NAÏVE BAYES MODEL FOR ROBUST AND LOW COMPLEXITY CLASSIFICATION.

Nabeel Al-A’araji, Safaa O. Al-mamory, Ali H. Al-Shakarchi

Ministry of Higher Education, Baghdad, Iraq, University of Information Technology and Communications, Collage of Business Informatics, Baghdad, Iraq,
University of Babylon, Collage of Information Technology, Hillah, Iraq,

Abstract: Classification is a vital branch of data mining which is utilized by many applications. A large spectrum of classifiers has been described in the literature. One attractive classification technique is a Naïve Bayes (NB) which has been relayed on probability theory. NB has two major limitations: First, it requires to rescan dataset and applying a set of equations each time need to classify instances which is an expensive step if a dataset is relatively large. Second, NB may remain difficult for non-statisticians to understand the deep work of a model. On the other hand, Rule-Based classifiers (RBCs) have been used IF-THEN rules (henceforth, rule-set), which are more comprehensible and less complexity, for classification tasks. To elevate NB limitations, this paper presents a method for constructing a rule-set, which is served as RBC, from NB. The constructed rule-set can mimic the classification capability of NB, provide a visual representation of the model, express rules in the fidelity form with acceptable accuracy and easier to interpret and adjust from the original model. Hence, the rule-set will provide a comprehensible and lightweight model than NB itself. Experiments of the constructing rule-set have been conducted on (Iris, WBC, Vote) datasets. Coverage, Accuracy, M_Estimate, and Laplace are crucial evaluation metrics that have been projected to rule-set. In some datasets, the rule-set gets surprised accuracy results that reach 95.33 %, 95.17% for Iris and vote datasets respectively.

Key words: Classification, evaluation metrics, naïve bayes, rule-based classifier, rule-set.

SENSE OF COMMUNITY AS SUSTAINABLE APPROACH FOR SPORT’S EVENT

Norol Hamiza Zamzuri, Siti Suriani Maon, Nor Azira Shafika Bakri, Nur Imanitasha Hussain
Faculty of Business and Management Universiti Teknologi MARA 40300 Puncak Alam Selangor
Department of Postgraduate and Professional Studies Faculty of Business and Management Universiti Teknologi MARA 40450 Shah Alam Selangor

Abstract: This paper attempts to bring forward the idea of conceptualizing factors that leads to sense of community among volunteers. These factors are seen prominent in highlighting the role of volunteer as it benefit youth as volunteer. Several measurements are identifies to measure these dimensions and important as factors that lead to volunteer commitment. Multiple linear regression was used in analyzing the data with 109 volunteer involved during Raja Nazrin Shah Marathon in 2019. Most of the volunteers were from Kuala Kangsar, Perak. This study resulted that sense of community and individual benefit contributes to volunteer commitment while community and social costs are not the contributor for the volunteer involvement during the event. This study only limited to a case study during Raja Nazrin Shah Event, yet more study can be replicated to further understand the role of volunteer commitment in event’s industry.

Keywords: Authentic, volunteer, event management, experience, management, motivation, community

THE COINTEGRATION OF MACROECONOMIC VARIABLES TOWARDS DISTRIBUTION YIELD OF REAL ESTATE INVESTMENT TRUSTS (REITS) IN MALAYSIA AND SINGAPORE: THE INVESTOR PERSPECTIVES.

Syamiza Nazaruddin, Surianor Kamaralzaman, Halimahton Borhan, Fatimah Setapa, Mohd Faizal Basri
Faculty of Business Management, Universiti Teknologi Mara Shah Alam
Faculty of Management and Economics, Universiti Pendidikan Sultan Idris

Abstract: The purpose of this study is to identify the cointegration of macroeconomic variables such as economic growth, income, interest rates, inflation, and money supply toward Real Estate Investment Trusts (REITs) distribution yield in Malaysia and Singapore. The study used the Multiple Linear Regression and Cointegration Test to examine the influence of selected variables of this study. Ordinary Least Square method was used to determine the relationship between gross domestic product (GDP), real personal income (RPI), overnight policy rate (OPR), consumer price index (CPI) and money supply (M3) toward REITs distribution yield in Malaysia and Singapore. The result of correlation analysis showed that all correlation coefficients for variables in Malaysia are significant whereas only CPI and M3 are significant in Singapore. Besides that, Multiple Linear Regression shows that GDP, OPR and M3 have a significant effect on a distribution yield of REITs in Malaysia but only GDP and CPI have a significant effect on a distribution yield of REITs in Singapore. Last but not least, there is unidirectional causality relationships between CPI and DY, GDP and OPR in Malaysia and unidirectional causality relationships basis between GDP towards DY and CPI, RPI and DY, M3 towards GDP and CPI, DY and CPI, and bidirectional basis between M3 and DY in Singapore.

Key words: Classification, evaluation metrics, naïve bayes, rule-based classifier, rule-set.

IMPACTS OF PRACTICING DIGITAL MARKETING IN ESTATE AGENCY MALAYSIA.

Wan Zahari Wan Yusoff, Tan Jia Ying
Abstract: The Internet offers a new marketing communications channel to promote products and services. Nowadays, digital marketing become an essential part of marketing mix in real estate agency industry. Thus, the sound property marketing strategies are important in order to attract new buyers much easier. This paper aimed to identify the impacts of digital marketing towards the practice of registered estate agency firms in Malaysia. The authors carried out the data collection by interviewing seven active registered estate agents who had at least ten-year experience in real estate industry. After analysed the data by using qualitative content analysis, the study found that registered estate agents from headquarter offices were more preferred digital marketing, and the registered estate agents from branch offices were used both digital and traditional marketing in promoting their properties. In addition, the interview findings also revealed that the adoption of digital marketing affected the most on relationship between the agents and customers, it followed by reputation of estate agency firms; profit and revenue of estate agency firms; and it affected the least on the professionalism of estate agents. This paper contributes a study that provides a comprehensive understanding of practicing digital marketing in estate agency Malaysia, and its impacts to the real estate agents, estate agency firms and property buyers.

Keywords: Real estate industries, Digital marketing, Content analysis, Registered estate agents

VIRTUAL TOURISM: THE DESIGN CONCEPT OF AN AUGMENTED REALITY PORTAL FOR PROMOTING MALAYSIA ETHNIC CULTURE (A CASE STUDY OF SARAWAK CULTURAL VILLAGE)

Mudiana Mokhsin, Amer Shakir Zainol, Nor Asikin Shaharuddin, Nor Azlin Rosli, Siti Nordianah Hai Hom, Mohd Husni Mohd Som & Abdul Fakhrur Radzi A. Samad

Universiti Teknologi MARA, Malaysia, Kolej Matrikulasi Johor, Malaysia

Abstract: Nowadays, the advancement of new interactive way in presenting information to enhance the user experience is by viewing Augmented Reality Portal. In tourism industry, the best way to attract their interest not only by watching and reading the brochure but by adding interactive element into the application such as using 3D model visualization, which is to provide virtual world experience to users. The approach that is taken for this project is by creating the interactive application with the implementation of Augmented Reality Portal. The objectives of this project are to identify the user requirements, design the interface and function and hence develop Augmented Reality Portal for Sarawak Cultural Village. The aim of this project is to promote Malaysia Ethnic Culture by using Sarawak Cultural Village as a case study. In this project, the 3D model focuses on the village view which is Bidayuh Long House. The design concept prototype of the project is executed on Android platform mobile devices. Target user is open to all tourists that interested in knowing the historical behind the Sarawak Cultural Village. The methodology that is applied in this project is Design Thinking Methodology which includes empathize, define, ideate, prototype, and test phase. This methodology is suited and applicable to use as it provides a solution-based approach to solve problems. For the 3D model view, users can experience different perspective of the village and feels the environment around as it feels like to be in the physical world of the village.

Keywords: augmented reality portal, design thinking, digital tourism, user experience, virtual tourism, 3D modelling.
STUDENTS’ PERCEPTIONS AND THE IMPACT OF AN INTERACTIVE BOARD GAME IN LEARNING BASIC CHINESE CHARACTERS AMONG NON-NATIVE SPEAKERS.

Chong Geeng Ling, Mohd Mahzan Bin Awang , Abdul Razak Bin Ahmad, Teoh Joo Tong

Academy of Language Studies, Universiti Teknologi MARA, UiTM Seremban Campus, 70300 Seremban, N. Sembilan, Malaysia, Faculty of Education, Universiti Kebangsaan Malaysia, 43600 UKM Bangi, Selangor, Malaysia

Abstract: This paper presents a study on how multiethnic undergraduate students learn primary Chinese characters using an interactive Mandarin board game developed by a group of experts at a Malaysian university. This study utilised an experimental research design where the students were asked to evaluate the board game using a set questionnaire. A total of 70 students participated in this study. The results show that the majority of the students enjoyed using the board game to learn Chinese characters. They also reported that they gained much knowledge of Chinese culture and heritage from the game. Therefore, it is recommended that language teachers use the same technique to teach language.

Keywords: board game, Chinese characters, foreign language, interactive, multiethnic

THE MATHEMATICAL MODELING STAGES OF COMBINING THE CARRIAGE OF GOODS FOR INDEFINITE, FUZZY AND STOCHASTIC PARAMETERS.

Sergiy Kotenko, Vitalii Nitsenko, Iryna Hanzhurenko, Valerii Havrysh

Institute of Market Problems and Economic-Ecological Research, National Academy of Sciences of Ukraine, French Boulevard 29, Odessa, 65044, UKRAINE
Interregional Academy of Personnel Management, Fometsivska Str. 2, Kiev, 03039, UKRAINE
Mykolayiv National Agrarian University, Georgiy Gongadze Str. 9, Mykolayiv, 54020, UKRAINE

Abstract: Combined cargo transportation in Ukraine is characterized by the presence of uncertain risks. The aim of the article was to propose a mathematical model for choosing the mode of transportation that would correspond to the best value of the integral objective function in the presence of fuzzy, stochastic and uncertain risk parameters. The efficiency of the mathematical model provided the possibility of forming not only long-term forecasts that require significant time, but also short-term forecasts in real time. This allows to quickly change routes and conditions of transportation. Practical testing of the mathematical model revealed the assimilating nature of some uncertain risks. The results of the analysis are given in the article. The realization of such a risk leads to a radical change in all conditions of transportation. Long-term forecasts allow to predict new routes and conditions of transportation.

Keywords: mixed transportation, mathematical model, uncertainty, fuzzy and stochastic parameters.
FLOOD PREDICTIONS BASED ON DATA MINING APPROACH.

Mohammed Ahmed Jubair, Mustafa Hamid Hassan

Faculty of Computer Science and Information Technology, Universiti Tun Hussein Onn Malaysia, Parit Raja 86400, Batu Pahat, Johor, Malaysia.

Abstract: Floods are one of the most common natural disasters in the world that affect all aspects of life, whether human beings, agriculture, industry and education. Research for developing models for flood predictions has been ongoing. These models are proposed and built in proportion to risk reduction, policy proposition, loss of human lives, and property damage associated with floods. This research purpose is to run the flood prediction open dataset in 3 different machine learning. All of these machines will be run in Microsoft azure studio. The dataset is multivariate and has one target class. By using machine algorithm, it will be the approaches used to generating the accuracy of the stress data. The accuracy will be compared and the most accurate algorithm will be evaluated. The algorithms that will be use are Decision tree, Decision Jungle and Support Vector Machine (SVM). These algorithms will be compared to each other to see which of the machine learning have the best accuracy and run-time. The results showed that decision tree has higher accuracy on predicting the flood compared to support vector machine and decision jungle.

Keywords: Flood prediction, Open dataset, Machine learning, One target class, Multivariate.

TENDENCY IN BLOG WRITING

Mustafa Hamid Hassan, Mohammed Ahmed Jubair

Faculty of Computer Science and Information Technology, Universiti Tun Hussein Onn Malaysia, Parit Raja 86400, Batu Pahat, Johor, Malaysia

Abstract: Blog is an online journal of informational websites that a writer or a group of writers share their views on individual subject. Some issues that in certain country are being controlled by the government from being presented through the mass media. Thus, blogs have the space that provided a wide platform for ideas and exchanging opinions for various of issues. There is a specific proportion between blog features and bloggers tendency with social, political and cultural patterns of different countries and nations that create trends among the bloggers in the country. In this paper, we use the data from the previous research, which have the 100 sets of data and manipulate the data by applying different algorithm or data mining task.

Keyword: blog, websites, tendency

AN APPLICATION SCHEDULING ALGORITHMS FOR CLUSTERING THE COMPETITIVENESS OF MALAYSIA’S PORTS


University Malaysia Terengganu Faculty of Maritime Studies, 21030 Kuala Nerus, Malaysia. Universiti Malaysia Kelantan, Faculty of Entrepreneurship and Business, 16100 Pengkalan Chepa, Malaysia, Help
Abstract: In conjunction with the increase of the total cargo in the shipping matrix in Malaysia which is from Port Klang and Tanjung Pelepas Port where the respective ports handle 64 per cent of Malaysia’s total cargo throughput in 2018. These two ports attributed for a substantial transhipment in Malaysia. Port Klang is the major entry and exit of goods in Malaysia. It was also highlighted in the area of sustainability growth of Tanjung Pelepas port where it costed 430 million dollars preparation for the arrival of the P3 network or the Maersk Line, the CMA CGM and Mediterranean shipping Co. Such potential preferences reflect the competitiveness of other ports, which are considerably lower in output than Port Klang and Tanjung Pelepas. However, it is necessary to look at the details of the performance indicators for the discovery of port competitiveness on the basis of performance between ports. Thence, this paper focuses on the multipurpose port terminals in Malaysia and compares port performance metrics between ports in order to determine their competitiveness. This study has categorized 18 Malaysian bulk terminals into two different classes based on various performance indicators criteria. The distinctions used a hierarchical cluster by arranging the performance indicators measurement algorithms. The finding found that two classes were classified as being competitive. Based on the performance metrics chosen, Group 1 is the lowest score, and Group 2 is the highest score. It has found that West port and Northport of the Port Klang has the best performance of all. it is highly recommended that this technique to be replicated in many ports around the world.

Keywords: Port Competitiveness, Scheduling algorithms, Dry bulk terminal, Hierarchical Cluster

USER EXPERIENCE OF ICAL4LA- A HELPFUL INTERACTIVE COMPUTER ASSISTED LEARNING COURSEWARE FOR LOW ACHIEVING CHILDREN

Siti Zulaiha Ahmad, Ariffin Abdul Mutalib

Faculty of Computer and Mathematical Sciences, Universiti Teknologi MARA Perlis Branch, UiTM Arau Campus, 02600 Arau, Perlis, Malaysia, School of Multimedia Technology and Communication, Universiti Utara Malaysia, 06010 Sintok, Kedah, Malaysia

Abstract: This study focuses on providing an alternative digital learning material for low-achieving children. In accordance, this paper presents the proposed helpful interactive computer assisted learning courseware for low achieving children. The application known as Interactive Computer Assisted Learning for Low Achiever (ICAL4LA) – “Bijak Matematik” consists of comprehensive components and elements that emphasize the concept of positive interaction blended with helpful aspect of user experience. It is significant to study them because low-achieving children need special treatment, which has been shalllowly discovered in the previous studies. This study went through three-stages of research process, which are i) design, ii) development and iii) user experience testing. Having design and develop the application, user experience testing were conducted with 30 participants from five primary schools. The result of user experience testing revealed that the prototype (ICAL4LA-Bijak Matematik) is significantly very helpful to the targeted users.

Keywords: helpful, interactive, multimedia, learning strategies, user experience
A DEEP LEARNING APPROACH FOR NETWORK INTRUSION DETECTION USING NON-SYMMETRIC AUTO-ENCODER

Divya Nehra, Krishan Kumar and Veenu Mangat,

University Institute of Engineering & Technology, Panjab University, Chandigarh, India

Abstract: In the present era, Network Intrusion Detection System (NIDS) has become the backbone of network security. Providing complete security to online resources from network intrusions is still lacking. As a result, various approaches have been framed to enable effective detection of network-based intrusions by NIDS. However, various problems like high false alarm rates and poor detection accuracy for minority classes have been encountered during deployment of these systems. To overcome these shortcomings of existing systems, the proposed work provides an approach using a deep learning technique for detecting network intrusions efficiently and effectively. We detail our proposed non-symmetric deep Auto-Encoder (NDAE-IDS) for two different scenarios viz. for binary class and multi-class. The proposed approach has been implemented on GPU-enabled Tensor Flow and evaluated with the benchmark dataset KDD Cup'99. The evaluation results obtained indicate that the proposed approach detects network intrusions more accurately and efficiently as compared to conventional machine learning-based methods. The proposed approach has attained accuracy 98.68% for KDD Cup'99.

Keywords: Asymmetric Auto-encoder, Anomaly-based IDS, Deep Learning, KDD Cup'99, Network Security

IDENTIFICATION OF THE EXCLUSIVITY OF INDIVIDUAL’S TYPING STYLE USING SOFT BIOMETRIC ELEMENTS

Mohd Noorulfakhri Yaacob, Syed Zulkarnain Syed Idrus, Wan Azani Wan Mustafa, Mohd Aminudin Jamlos and Mohd Helmy Abd Wahab

School of Human Development and Technocommunication, Universiti Malaysia Perlis, Perlis, 01000 Perlis, Malaysia.
Center of Excellence Geopolymer and Green Technology, Universiti Malaysia Perlis, 01000 Perlis, Malaysia.
Faculty of Engineering Technology, Universiti Malaysia Perlis, 01000 Perlis, Malaysia.
Faculty of Electrical and Electronic Engineering, Universiti Tun Hussein Onn Malaysia, Malaysia.

Abstract: Biometric is used as a main security fence in a computer system. The unique characteristics of a person can be distinguished from each other. Human's biometrics can be categorized into three types: morphological, biological and behavioural. Morphological biometrics uses physical features for recognition. Biological biometrics used to identify user based on biological features. Behavioural biometrics such as gender, culture, height and weight can be used as an additional security measure within a system. These biometric behavioural features are also known as soft biometric. This study uses soft biometric elements (gender, culture, region of birth and educational level) in the keystroke dynamic study to distinguish typing patterns in each of these categories. The Support Vector Machine (SVM) classification method is used to perform this classification for soft biometric identification. The results of this study have shown that soft biometrics in keystroke dynamic can be used to distinguish group of individuals typing.
Keywords: Keystroke dynamics; Soft biometrics; Identification

REVIEW OF THE HYBRID PHOTOVOLTAIC- THERMOELECTRIC GENERATOR CONFIGURATIONS FOR ENERGY PERFORMANCE IMPROVEMENT.

Umar Abu bakar Saleh and Siti Amely Jumaat
Faculty of Electrical & Electronic Engineering, Universiti Tun Hussein Onn Malaysia Johor, Malaysia.
Centre for Atmospheric Research, National Space Research and Development Agency, Kogi State University Campus Anyigba, Nigeria.

Abstract: Photovoltaic-thermoelectric generator is an integrated hybrid system, which enables optimal thermal management of PV and hence increases overall efficiency. The rise in temperature is one of the most challenging issues influencing the efficiency of photovoltaic systems resulting in significant thermal fluctuations affecting the hybrid system life span. PV cell cooling is a principal research aim that many researchers have focused their attention on. Thermoelectric generators used to improve photovoltaic efficiency are amongst the widely adopted thermal management systems. Photovoltaic cells convert the solar irradiance directly into electrical energy while the thermoelectric generator uses the heat not used by the PV, which results in parasitic loss of electricity. The current hybrid system, as in the spectrum splitting method, has shown promises of improvement. But, lack the practicality to be deployed to the mass market, which is due to the complex structure that is not feasible to be turned into a consumer product. At the same time, the direct method contributes to adding a little heat to the PV. Thus, reducing the total hybrid system efficiency, as such both lack the capacity needed for active cooling. However, with our proposed sandwich coupling method where the PV will be placed at the top of roofing shingle, the TEG under the shingle. The TEG will use heat not utilized by the PV, which cause excess heat in the PV cells to produce additional energy. At the same time, the shingle stabilizes the thermal fluctuation, thus Increasing total hybrid power output and efficiency. The system will provide a practical, real-life application. Our preliminary results show the significant improvement in power output generated with the double side heat sink.

Keywords: hybrid Photovoltaic-thermoelectric system, Photovoltaic system, roofing shingle, thermoelectric generator.

INTRODUCING ‘STUDENT AS MANAGER’ MODEL IN BUSINESS STUDIES – TRIPLE-BASED TEACHING APPROACH IN THE 21ST CENTURY.

Kesavan Nallaluthan, Arsalan Mujahid Ghouri, Shathees Baskaran, Hasrin Hashim, Revathi Gopal.
Faculty of Management and Economics, Universiti Pendidikan Sultan Idris, Azman Hashim International Business School, Universiti Teknologi Malaysia, Lucrative Base Sdn.Bhd, Faculty of Language and Communication, Universiti Pendidikan Sultan Idris
**Abstract:** The triple-based teaching approach is a student-centered learning process that is introduced for undergraduate business studies. It is mixed with the game, problem, and challenge-based learning strategy that aims to prepare business students to manage unexpected and complex global or industrial issues. It encourages an active and reliable learning environment that requires students' creative input, collaboration, and industrial involvement. Action research method planned to apply for this Triple-based teaching approach while introducing the 'Student as Manager' model with a relevant task for undergraduate business students at Universiti Pendidikan Sultan Idris (UPSI). Therefore, the business subject (Strategic Management-PPB3073) will implement this method. This teaching approach beneficial for undergraduate students to get to know about industrial phenomena with 21st-century learning skills (collaborative, creative, critical thinking, and communication).

**Keywords:** triple-based teaching method, game-based learning, problem-based learning, challenge-based learning, student as manager model.

---

**COMBINATION OF THERMAL AND SRGB IMAGING TECHNIQUES FOR ADVANCED SURVEILLANCE SYSTEM**

K. Martin Sagayam, J. Jenkin Winston, Mohd Helmy Abd Wahab, Bharat Bhushan, Radzi Ambar, Hazwaj Mhd Poad

Department of ECE, Karunya Institute of Technology and Sciences, Coimbatore, India
Faculty of Electrical and Electronic Engineering, Universiti Tun Hussein Onn, Malaysia
Department of Computer Science & Engineering, HMR Institute of Technology, New Delhi, India

**Abstract:** Surveillance is described as close observation; this term is used mostly when it comes to security observations and recording. Nowadays in our daily life we see the need of security rising up with the constant increase in the world of technology and features. On the other hand, the industries and firms continuously face threats and are pushed to a situation of seeking help for their safety. Also, that there are various blind spots in the regular security camera even the operator is not in a position to identify an emergency or any such need. This work is focused on providing clarity to such issues to the respective personnel. It might be an industry, an office workspace, a supermarket or even a house. This concept deals with the enhancement of the surveillance system by infusing two different frames of Thermal and sRGB obtained input and give the output of noise reduced, enhanced and more visible image.

**Keywords:** Surveillance, Thermal Imaging, sRGB imaging

---

**BEHAVIOR OF HIGH STRENGTH HYBRID REINFORCEMENT CONCRETE BEAMS**

Khanda Ali Al-Billbassi, Dr. Mushriq Fuad Kadhim Al-Shamaa

Department of Civil Engineering, College of Engineering, University of Baghdad, Baghdad, Al-Jadriya, Iraq

**Abstract:** Six proposed simply supported high strength-steel fiber reinforced concrete (HS-SFRC) beams reinforced with FRP (fiber reinforced polymer) rebars were numerically tested by finite element method using ABAQUS software to investigate their behavior under the flexural failure. The beams were divided
into two groups depending on their cross sectional shape. Group A consisted of four trapezoidal beams with dimensions of (height 200 mm, top width 250 mm, and bottom width 125 mm), while group B consisted of two rectangular beams with dimensions of (125 ×200) mm. All specimens have same total length of 1500 mm, and they were also considered to be made of same high strength concrete designed material with 1% volume fraction of steel fiber. Different types and ratios of FRP rebar were used to reinforce these test beams. The study's principle variables were the amount and type of flexural reinforcement (glass FRP and basalt FRP) and beam cross-sectional shape (rectangular and trapezoidal). The load-deflection behavior and ultimate load capacity of the beams were studied and compared with one another under flexural test with symmetrical two-point loading. The results show that increasing the reinforcement ratio resulted in higher post cracking flexural stiffness, and higher residual strength, as well as caused an increase in the first cracking load and ultimate load capacity ranged from 3 to 16.9%, and 4.6 to 7.3% respectively. When the GFRP rebars replaced by BFRP, the overall beams flexural performance showed outstanding improvements. Moreover the results indicate that increasing the top width of the beam cross section led to a significant enhancement in the first crack load ranged from 16 to 32.4%, also a remarkable increases in the ultimate load capacity in the range of 35.5 to 35.8% were indicated in the trapezoidal beams compared to rectangular beams. However the results show that the deflections were similar and were approximately 1.07–1.54 mm for all test beams. It is worth noting that the general flexural behavior of all the test beams indicated a ductile behavior with a gradual reduction in strength and high residual strength pre to failure due to proposing steel fiber presence.

Keywords: Steel fiber, Trapezoidal cross section, High strength concrete beams, FRP bars, Finite element method, ABAQUS software, Flexural behavior.

PRODUCTION AND OPTIMIZATION OF EPOXY FROM OLEIC ACID PALM OIL-BASED VIA IN-SITU GENERATED PERFORMIC ACID MECHANISM.

Mohd Saufi Md Zaini, Mohd Jumain Jalil, Norkamruzita Saadon, Mohamad Hasni Hassan, Danial Nuruddin Azlan Raofuddin, Amirah Annasuha Che Azmi

Faculty of Chemical Engineering, Universiti Teknologi MARA Cawangan Terengganu, Kampus Bukit Besi, 32000 Dungun, Terengganu
Faculty of Chemical Engineering, Universiti Teknologi MARA Cawangan Pulau Pinang, 13500 Permatang Pauh, Pulau Pinang, Malaysia

Abstract: The study was held to investigate the epoxidation process parameters of RBD (refined, bleached & deodorized) oleic acid palm oil- based via in-situ generated performic acid to percentage of relative conversion to oxirene (RCO). Performic acid was produced by mixing various concentration ratio of hydrogen peroxide as oxygen donor and formic acid as oxygen carrier. A Series of experiments were conducted at the optimum conditions to investigate the effects of reaction temperature, hydrogen peroxide to oleic acid mole ratio (H2O2/OA), and formic acid to oleic acid (FA/OA) unsaturation mole ratio on the percentage of relative conversion to oxirane (RCO). The results showed the optimum value RCO was obtain by using 1:1 molar ratio of FA/OA, 1:1 mole ratio of H2O2/OA and temperature of 45oC. Investigation on reaction time showed that the highest RCO was attained at 2 hours. This finding hope to provide an additional insight in understanding the epoxidation process from RBC palm oil oleic acid.

Keywords: Epoxidation, palm oleic acid, optimization, in-situ performic acid, epoxy
DESIGNING THE MOOCS PROTOCOL FOR MYOBM260 NOTES JUNKIE

Shamsinar Ibrahim, Chuah Bee Peng, Nur Zainie Abd Hamid, Azlyantiny Mohammad, Azlin Azman

Faculty of Business Management, Universiti Teknologi MARA, UiTM Sungai Petani Campus, 08400 Sungai Petani, Kedah, Malaysia, Academy of Language Studies, Universiti Teknologi MARA UiTM Sungai Petani Campus, 08400 Sungai Petani, Kedah, Malaysia

Abstract: Numerous studies have mentioned the advantages of using an online platform as one of the teaching methods, which can collaborate with various codes and subjects. However, till now there is no standard procedure or methodology for Organizational Behaviour (OBM260) created for students majoring in Office Management Technology (OMT). Thus, this paper presents a methodology for designing and developing MyOBM260 Notes Junkie, an online learning content of the subject using the platform of Massive Open Online Courses (MOOCs). The methodology developed intends to ease and simplify the process of learning to improve students' understanding by incorporating notes in mind-mapping and other illustrations, which may boost the understanding of lessons via MOOCs platforms. Gagne's 9 Conditions of Learning Theory was adapted as a guideline in designing the MyOBM260 Notes Junkie MOOCs. As far as the study is concerned, this is the first MOOCs platform available for OMT students for the Organizational Behaviour online lessons. MyOBM260 Notes Junkie via MOOCs is expected to aid students beyond classroom settings, to promote independent learning, and to motivate their active involvement in collaborative learning.

Keywords: Protocol, Organizational Behaviour, MOOCs, Notes taking, Mind-mapping, Online learning, Self-directed learning, Online collaborative learning.

BRAINWAVE CLASSIFICATION OF TASK PERFORMED BY STROKE PATIENTS USING ANN

S.K. Narudin, N.H.M. Nasir, and N. Fuad

Faculty of Electrical and Electronic Engineering, Universiti Tun Hussein Onn Malaysia Malaysia, Department of Electronic Engineering, Faculty of Electrical and Electronic Engineering, Universiti Tun Hussein Onn Malaysia Malaysia

Abstract: In this research, 14 stroke patient's brainwave activity with open eyes (OE) and close eyes (CE) sessions are used. This work aims to recognize and classify 2 activities that validate our data acquisition. The data set of each subject is used to classify the state of the subject during electroencephalogram (EEG) recording. For the classification model, the input signals are alpha, beta, theta, and delta bands were used as input signals. The classification algorithm used in this work is the Artificial Neural Network (ANN). The accuracy value will be obtained from each subject. There are significant differences between the EEG signals of each patient and hence affecting the accuracy value of the subject. The results obtained from our experiment proved that ANN can be used to classify the state of the subject during data recording.

Keywords: EEG, Stroke, Classification, ANN
MANAGEMENT INFORMATION SYSTEMS AND GEOGRAPHIC INFORMATION SYSTEM FOR MANAGING DURIAN RESOURCES

Sasalak Tongkaw,

Songkhla Rajabhat University, Thailand

Abstract: The objective of this research is to develop the data for durian resources with a data collection system via the web-based system and the development of geographic information systems for durian resource management, and the local wisdom of Thai durian gardeners by designing the implement in the same database system, then presenting the durian data in southern Thailand by linking the geographic information system visualization to the map. In this research, the system method is designed using the System Development Life Cycle (SDLC), which includes six steps: requirement gathering and analysis, system design, implementation, integration and testing, development of a system, and maintenance. The results will show the visualization from both systems form and provide the report data with durian gardeners' needs.

Keywords: GIS, Durian, MIS

COMPARATIVE ANALYSIS FOR FLOOD PREDICTION: A DATA MINING APPROACH.

Muhamad Dinnie Ismail, Mohd Zaki Mohd Salikon, Aida Mustapha, Salama A Mostafa

Faculty of Computer Science and Information Technology, Universiti Tun Hussein Onn Malaysia, 86400 Parit Raja, Batu Pahat, Johor, Malaysia.

Abstract: Changes in rainfall patterns due to climate change are expected to have negative impact on urban drainage systems, causing flood. This paper is set to compare three machine learning algorithms to build a flood prediction model specifically for Kuala Krai, which include Neural Networks, Random Forest, and Decision Trees. The prediction model focuses on the central Kelantan area, Kuala Krai, Malaysia based on six features, which are water level (cm), rainfall monthly (mm), rainfall daily (mm), temperature (C), humidity (%), and wind (m/s). The results showed that Neural Network (NN) has the best results in accuracy with average 98.9%, followed by Decision Tree (DT) with 97.8%, and Random Forest at 95.6% average accuracy. NN also scored the best in precision and f-measures, compared to the others.

Keywords: Flood predictions, risk management, data mining.

MATHEMATICAL MODEL FOR APPROXIMATION THE EFFICIENCY OF PARALLEL COMPUTING ON SINGLE BOARD CLUSTER WITH LEAST-SQUARES APPROXIMATION.

Chotitham Thanrak, Sasalak Tongkaw

Faculty of Science and Technology, Songkhla Rajabhat University Songkhla, Thailand

Abstract: This research aims to study the relationship between parallel processing efficiency and several nodes on a single board cluster using a mathematical model, approximating least squares. This research
tested on the Raspberry Pi single-board in the form of a high-performance computing system. It divided the tasks that need to be processed in each particular part and sent it to each unit to process simultaneously via the MPI (Messaging Passing Interface). This process is the standard division of work with communication between processors in the form of messages on the cluster system. It consists of eight nodes of Raspberry Pi. It measures the instruction set's ability to perform decimal operations per second or Floating-point Operation Per Second (FLOPS) with High-Performance Linpack Benchmarks (HPL). As a result, the efficiency of the ability to process instruction set in decimal per second increases the performance continuously when increasing the number of the node on the cluster. Which corresponds to the mathematical model obtained \( f(x) = 1.0684x^{0.8256} \). It shows a relationship between parallel processing performance values and the number of nodes on the cluster and can be estimated with the mathematical model above.

**Keywords:** Cluster, Least-squares Approximation, Parallel Computing.

**MULTILINGUAL CHATBOT AND SUPPORT SYSTEMS**

Vinothini Kasinathan, Aida Mustapha, Chow Khai Bin, Ong Teong Joo

School of Computing, Asia Pacific University of Technology and Innovation, Malaysia
Faculty of Computer Science and Information Technology, Universiti Tun Hussein Onn Malaysia, Malaysia

**Abstract:** Implementing third-party services to develop a chatbot is not cost-effective for many small and medium enterprises especially considering that many services only supports one language at a time. To address this gap, this paper proposes a multilingual chatbot system that will allow companies and organizations to customize and deploy their own multilingual chatbot service with two extended features, which are live chat and ticketing system. The chatbot will also be able to understand and reply in English, Malay, and Chinese as well as customizable given the dialogue shell and knowledge base. To achieve this, the development uses TypeScript for frontend web application while Go as the backend development. The development language for mobile application is Dart and the User Interface (UI) library is React. Finally, the database management system used is MongoDB. The developed prototype is then evaluated via a survey questionnaire and the findings suggested that the proposed system would be able to assist small and medium-sized business and organizations to deploy their own chatbot system as an alternative to existing customer services.

**Keywords:** Conversational agents; Chatbots; Multilingual; Customer services

**A PATTERNLESS PIEZOELECTRIC ENERGY HARVESTER FOR ULTRA LOW FREQUENCY APPLICATIONS**


Faculty of Ocean Engineering, Technology and Informatics, Universiti Malaysia Terengganu (UMT) Kuala Nerus, Terengganu, 21030, MALAYSIA, BioEM, School of Computer and Communication Engineering, Universiti Malaysia Perlis (UniMAP), Kampus Pauh Putra, Arau, Perlis, 02600, MALAYSIA, Faculty of Electrical and Electronic Engineering, Universiti Tun Hussein Onn Malaysia Parit Raja, Johor, 86400, MALAYSIA
Abstract: This paper presents a pattern less piezoelectric harvester for ultra low power energy applications. Usually patterned cantilevers are used as vibration energy harvester which results additional fabrication process. Hence, to reduce the process, a four layer cantilever configuration is used to design the harvester with Aluminum, Silicon and Zinc Oxide. The device dimension is settled to $12 \times 10 \times \approx 0.5009 \text{mm}^3$ with $\approx 300 \text{nm}$ deposition thickness for each layer. The modeling and fabrication processes are demonstrated in detail. The induced voltage by the cantilever is obtained through the analytical and practical measurements. From the measurements, it is found that, the maximum induced voltage is 91.2 mV from practical measurement with voltage density of 1.517 mV/mm$^3$. It is evident from the results that, this pattern less model can be useful for next generation vibration energy harvester with simpler technology.

Keywords: Piezoelectric harvester, Vibration energy, Ultra low frequency energy, Multilayer cantilever

THE ROLE OF MOBILE FORENSICS IN ACQUIRING THE DIGITAL EVIDENCE ARTEFACT OF IOT-BASED APPLICATIONS

Muhammad Thariq Ab Razak, Nurul Hidayah Ab Rahman

Fakulti Sains Komputer dan Teknologi Maklumat, Universiti Tun Hussein Onn Malaysia, Malaysia

Abstract: The heterogeneous nature of generated data from hardware and software in the Internet of Things (IoT) cyber physical environment presents challenges for data acquisition. In this preliminary study, we present the role of mobile forensics that facilitates to acquire data remnant in the IoT environment by using mobile payment apps as a case study. A series of controlled experiments were undertaken that simulate four common mobile payment activities of users such as accepted transactions, rejected transactions, add card, and delete card to examine the recovered IoT related data remnant. We used MaybankPay (a mobile payment app in Malaysia) as the IoT based application and an Android smartphone acted as the IoT device. Our initial findings identified significant metadata of mobile payment apps located in the smartphone system files, and also from the communication and network layer. Results of this study shows that acquiring evidence of interest of IoT based application data remnant is feasible and would be continue for further validation of forensic acquisition using larger dataset.

Key words: Near Field Communication, Internet of Things, Forensic acquisitions, Mobile Forensics.

MERGERS AND ACQUISITIONS PERFORMANCE: EVIDENCE FROM TELECOMMUNICATION COMPANIES IN ASEAN MIDDLE-INCOME COUNTRIES

Suhaily Maizan Abdul Manaf, Nur Hazlenda Samad, Wan Anisabanum Salleh, Zetty Zahureen Mohd Yusoff

Faculty of Business and Management, Universiti Teknologi MARA Cawangan Terengganu, Terengganu, Malaysia, Faculty of Business and Management, Universiti Teknologi MARA Cawangan Selangor, Selangor, Malaysia
Abstract: Mergers and Acquisitions (M&A) happened as a key form to the company who wants to take advantage over the acquired company. In Malaysia, most companies have experienced in M&A due to some circumstances. The evolving business environment helps the telecommunications and information technology sectors to integrate and work together to make the industry more service-oriented. Therefore, this study investigates the performance of selected telecommunication companies that involve in mergers and acquisitions from middle-income level in the selected ASEAN countries. The observations are based on the internal factors in the company which includes liquidity, size of the company, growth and debt, in relation to the return on asset performance. Random Effect Regression Model has been used for a set of secondary data from year 2006 until 2017 in Malaysia, Indonesia and Philippines. The findings suggest that the growth has positive relationship while the liquidity, debt and size have negative indicator. Moreover, all the independent variables are significant with the profitability. These proven results have finally concluded that the target company should create total assets efficiency in order to improve the company's performance in the future.

Keywords: Mergers and Acquisitions, Telecommunication Companies, Random Effect Regression Model.

STUDY OF B40 SCHOOLCHILDREN LIFESTYLES AND ACADEMIC PERFORMANCE USING ASSOCIATION RULE MINING

Puteri NE Nohuddin, Zuraini Zainol, Mohd Hanafi Ahmad Hijazi

Institute of IR4.0, National University of Malaysia, 43650 Bangi, Malaysia, Department of Computer, Faculty of Defence Science, Universiti Pertahanan Nasional Malaysia, 57000 Kuala Lumpur, Malaysia, Faculty of Computing and Informatics, Universiti Malaysia Sabah, 88400 Sabah, Malaysia

Abstract: B40 community school children experience many underprivileged lifestyles which impacted their academic performance. Through data trends and patterns, the education top management can observe the progress of academic performance and the lifestyle relationships of students in a school or nearby school. It can also help to identify the causes of progress or deterioration of the performance of B40 community students. Therefore, a data analytics framework is essential to help decision-makers to see and analyze the changing trends and patterns of academic progress in data and related lifestyles of B40 community students more effectively and accurately. The objective of this study is to design and develop association rules analysis to deduce the relevance of academic achievement and lifestyle among schoolchildren from the B40 family. The analysis framework is established in several stages that involve data collection and processing and transformation, then the design, application and evaluate of the association rules algorithms. The framework is expected to benefit students, teachers and Education Ministry. This study foresees whether educational programs and healthy lifestyle awareness can be designed specifically for the B40 children so as to improve their academic achievement as desired by the government.

Keywords: Data mining; Association Rules Mining; B40; Academic Performance; Attribute relationships

THE PROPOSE APPROACH ON TAZKIYAH AL-NAFS BY SHEIKH SAID HAWWA FOR WOMEN REHABILITATION CENTRE

Nur Zainatul Nadra Zainol, Ahmad Sharifuddin Mustapaha, Che Adenan Mohammad, Nik Kamal Mohamed, Mohd Faizulamri Mohd Saad, Mustapahyuddin Abdul Khalim

Abstract: Tazkiyah Al-Nafs is a process of purification and self-refinement. It is a concept that Sheikh Said Hawwa emphasized to be applied to women rehabilitation centers. The aim of this study is to propose an approach on Tazkiyah Al-Nafs based on the teachings of Sheikh Said Hawwa. The study involves understanding the concept of Tazkiyah Al-Nafs through the teachings of Sheikh Said Hawwa, analyzing the current practices in women rehabilitation centers and proposing an approach that incorporates the principles of Tazkiyah Al-Nafs. The approach includes both theoretical and practical components, focusing on personal development, social skills, and overall well-being.

Keywords: Tazkiyah Al-Nafs, Sheikh Said Hawwa, Women Rehabilitation Centre, Personal Development, Social Skills.
Abstract: Social issues on teenage girls increase aggressively. The government has taken stern steps to overcome this problem with the establishment of a government-run Women's Rehabilitation Centre aimed at providing protection, guidance and skills training to them. One of the approaches used in this centre based on religion approaches. In Islam, tazkiyah al-nafs is a method for purification of the human soul. The purification occurred in the form of internal purification and external formation in order to suppress desires and bad habits that lead to mental health and behavioral disorders. Sufism figures have introduced the method of purification of the soul, including Sheikh Sa'id Hawwa, which further explains Imam al-Ghazali's method of purification of the soul. This article aims to analyze the tahaqquq process which is part of tazkiyah al-nafs approach introduced by Sheikh Sa'id Hawwa for human's purification of soul. This study is a qualitative study with content analysis design. The results show that Sheikh Said Hawwa emphasized the process and level of tahaqquq in the tazkiyah al-nafs which is able to educate the human soul to avoid soul problems that lead to social issues. This study explains the comprehensive model of tazkiyah al-nafs in the method of purification of the soul based on the Quran and al-sunnah. It will be a proposed comprehensive model to implement for Women Rehabilitation Centre.

Keywords: Purification of soul; Islamic Approach; Tasawwuf; Islamic Scholar.

THE EFFECT OF SMALL GAME EXERCISE ON FREESTYLE SWIMMING SPEED: A CASE STUDY OF HALU OLEO UNIVERSITY SPORT SCIENCE STUDENT

Saifu, Manil Kara Kauki, Syed Kamaruzaman Syed Ali, Kukuh Wahyudin Pratama, Agus Kristiyanto, Ahmad Nasrulloh, Aida Mustapha

Faculty of Teacher Training and Education, Halu Oleo University, Faculty of Education, University of Malaya, Centre for Sport and Exercise Sciences, University of Malaya, Faculty of Sports, Universitas Sebelas Maret, Sport Science Faculty, Yogyakarta State University, Faculty of Computer Science and Information Technology, Universiti Tun Hussein Onn Malaysia

Abstract: Mastering freestyle swimming focuses on increasing the swimming speed in order to complete the swimming distance in the shortest time. Because training for freestyle swimming must be carefully programmed and is progressive-based, this study is set to investigate the effect of small game exercises on freestyle swimming speed among the sport science student of Halu Oleo University. This study uses an experimental method with the one group pretest-posttest design. The population of this study consists of 10 students of Halu Oleo University Sport Science Student taken by simple random sampling. The instruments used were equipment for small games and exercises in the techniques of feet, hands, breath and freestyle swimming coordination. Samples of swimming exercises were speed records with a frequency of 3 times a week and carried out for 6 weeks. The results of the normality and homogeneity test data analysis showed a significance value of p > 0.05, which means that the data were normally distributed and homogeneous. T-test results showed a significance value of p > 0.05 with a calculated F value of 63.119 and an F table of 5.296, it can be concluded that there was a significant effect of small game training on the freestyle swimming speed for Sport Science Student of Halu Oleo University.
THE RESISTANT TRAINING EFFECT FOR THE ENDURANCE AND STRENGTH OF MUSCULAR ATHLETES: A ONE-GROUP OF PRE-TEST AND POST-TEST STUDY.

Ahmad Nasrulloh, Yudik Prasetyo, Rina Yuniana, Agus Kristiyanto, and Aida Mustapha

Abstract: The aims of this study is to assess the effect of the resistant training with pyramid system in developing muscular endurance and strength for leg and back muscle strength, grip strength, as well as pull and push strength. This research used a one-group, pretest/posttest design with 11 students at the Sport Science Faculty, Yogyakarta State University, Indonesia. The back/leg dynamometer, hand grip dynamometer, pull and push dynamometer were used as the main instruments. Data were analyzed using the normality test to evaluate data distribution, homogeneity of variance to assess the equality of variances for a variable calculated between the pre- and posttest groups, and t-test to assess the equality of variances for a variable calculated for both groups. The results from t-test analysis showed that there were statistically significant difference ($p < 0.05$) among the four variables during pre- and post test. The effect can be seen as increasing percentage of push strength up to 11.14%, pull strength up to 8.15%, left grip strength up to 10.67%, right grip strength up to 41.42%, back muscle strength up to 22.15%, and leg muscle strength up to 7.43%.

Keywords: Resistant training, Pyramid System, Muscle Strength

DEVELOPMENT OF GROSS MOTOR ABILITY IN EARLY CHILHOOD THROUGH PLAYING MINI OUTBOUND.

Panggung Sutapa, Sakti Wibawa, Manil Kara Kauki, Syed Kamaruzaman Syed Ali, Kukuh Wahyudin Pratama, Aida Mustapha, Martono

Abstract: The development of gross motor skills in early childhood is needed to support the development of potential child growth in daily life. This qualitative study was designed to determine the effect of playing mini outbound on gross motor skills in young children or preschool children. The sample used in this study consists of 68 children aged between 5 to 6 years old, amounting to 68 children. The initial tests were carried out with the five instruments that are speed, balance, agility, arm power, and leg power. Data analysis was performed based on Z-score using ANOVA with significance level of 5%. The results showed that physical activity with mini outbound playing will be able to develop motor skills in early childhood significantly.

Keywords: Gross motor development, skills, early childhood, outbound play.
THE EFFECT OF BOW TRAINING ON THE ENDURANCE OF THE ARM MUSCLES OF THE BEGINNER ARCHERY AT KOBAR CLUB, JAMBI CITY.

Grafitte Decheline, Atri Widowati, Sugih Suhartini, Amalia Barikah, and Qory Jumrotul Aqobah

Sport Science Faculty, Jambi University, Indonesia, Islamic University of Muhammad Arsyad Al Banjari, Indonesia, Medical Faculty, Sultan Ageng Tirtayasa University, Indonesia,

Abstract: This study aims to determine the effect of Bow Training exercises on the muscular endurance of beginner archery athletes in the Jambi City Kobar Club. The research carried out is an experimental study, which is conducted to find out presence or absence of increase from something imposed on the sample. This experimental study is carried out by the 10 people of beginner archery athlete in Kobar Club, with the details of the Pre-test, the test before doing the Bow Training and the Post-test, after doing the Bow Training. The overall results of the Pre-test points for endurance of the arm muscles by 113 points with an average endurance of the arm muscles of 11.30 points. While the overall results of points in the Post-test of endurance of the arm muscles by 151 points with an average endurance of the arm muscles of 15.10 points. Based on the results of this study it can be concluded that a person who is given Bow Training exercises will have arm muscle endurance exercises 3.8 points better than someone who is not given training. The results show that the hypothesis proposed is the existence of a significant effect of bow training exercises on increasing endurance of the arm muscles received with a 95% confidence level that can be seen from the results of the t-test that is t = 13.07684 greater than t table = 1.8331. So it can be conclude that the Bow Training exercises can increase endurance of the arm muscles by 11.237%. This means that there is a significant effect of Bow Training exercises on the endurance of the beginner's arm archery athletes in the Jambi City Kobar club.

Keywords: Bow training, muscular endurance, archery

A COMPREHENSIVE OVERVIEW ON AUTONOMOUS VEHICLE LOCALIZATION TECHNOLOGIES.

R. Sandin, K. M. Ng, N. A. Razak, M.M. Kamal, J. Johari

Faculty of Electrical Engineering, Universiti Teknologi MARA, Shah Alam, Malaysia

Abstract: Autonomous vehicle has been developed to achieve driverless driving. There are several methods that have been applied on autonomous vehicle to ascertain its location, i.e. pose and position on earth coordinates. It is important to localize the vehicle with high accuracy of positioning on the road to assist navigation and path planning. In this paper, we provide a comprehensive overview on autonomous vehicle localization technologies based on sensor fusion, cooperative positioning and ranging methods. The goal is to provide the reader with a broader perspective on the recent developments and interrelation of these methods. These methods are also discussed on its feasibility, accuracy and future research trends. The review shows that sensor fusion at the vehicle level could achieve centimeter positioning compared to cooperative and ranging methods. In addition, the advantages and disadvantages of each method are also discussed.

Keywords: Autonomous vehicle, sensor fusion, cooperative positioning, ranging methods, vehicle localization
DEVELOPMENT OF THE PC-BASED INTEGRATED INTERFACE SYSTEM OF STEP FILE FOR CNC MACHINING APPLICATION: CIRCULAR FEATURES.

Muhammad Abdulrahim Rabbani Md Sharizam, Saiful Bahri Mohamed, Tengku Mohd Shahrir Tengku Sulaiman, Zammeri Abd Rahman, Roslan Awang

Universiti Sultan Zainal Abidin, Malaysia

Abstract: STEP is a general data format that observes the international standard ISO 10303-21. STEP means Standard for the Exchange of Product model data. It consists of the 3D geometry of a computer-aided design (CAD) model in the configuration of boundary representation (B-rep). By extracting, refining and decoding the geometric data correctly, the data can be utilized for writing G-code for Computer Numerical Control (CNC) machining application. Usually G-codes can either be manually generated by skilled machinists or automatically generated by computer-aided manufacturing (CAM) software. However, manually generated G-code is inefficient and susceptible to error. Meanwhile automated generation G-code requires significant setup cost. This paper describes the design and development of an integrated interface system, an instrument aimed to be used to analyze STEP files and generate machining tool path based on ISO 6983 format. This developed interface reduces the need for high setup cost as well as eliminates human limitations. The interface at present is able of detecting circular machining features on the workpiece. Circular machining features are created by 3D modelling software and retained as STEP file. The STEP file which contains geometrical data is then uploaded to the interface system as an input file which is structurally analyzed and processed. Finally, the ideal machining tool path in the G Code format is proposed and generated. By bypassing the CAM software and its proprietary post processor, the outcome of this research is important to enhance compatibility between different CNC machine systems.

Keywords: STEP, B-rep, CAD model, CNC, G-code, interface.

RESPONSE AND PERSPECTIVE TOWARDS RESILIENT SMART GLOVE V2 (RSGV2): IMPLEMENTATION AT INDUSTRY AND DIFFERENT NATURE OF BUSINESSES.

Norisza Dalila Ismail, Rosmawati Othman, Rosmawar Hussin, Azlizul Suli, Ibrahim Burhan,

Department of Aircraft Maintenance Politeknik Banting Selangor
Banting, Malaysia

Abstract: Safety is the main criteria to promote a good working environment in the industry. It is very important to ensure workers are wearing Personal Protective Equipment (PPE) such as correct safety gloves to perform a task. Wearing inappropriate safety gloves will not protect users from potential hazards and unwanted circumstances. A conventional safety glove is designed only for hand protection without a complete monitoring system. Resilient Smart Glove V2 (RSGV2) comes with heartbeat detector to monitor user's heart rate so that supervisor can take immediate action in case of emergency. If there is any misfortune happened to the working personnel, immediate action can be done without any delay and effectively. The integration of smart gloves application will enhance the safety while working in any type of environment. This paper is to study the effectiveness of RSGV2 in different nature of business which are construction, aviation, trading and manufacturing. The RSGV2 is a combination of a glove with an additional of heartbeat detector, accelerometer, GPS tracker and LED with light intensity sensor. A questionnaire was
distributed by hand to determine the response and perception of the industrial players about the prototype. The questionnaire covered about the design, system and feedback after using the RSGV2. A part from the questionnaire also covered about the overall review that has been summarized by the industry regarding the RSGV2 system, hardware and real time application.

Keywords: industry, smart glove, resilient, safety, personal protective equipment

HUMAN COMPETENCY ASSESSMENT FOR SOFTWARE CONFIGURATION MANAGEMENT.

Syahrul Fahmy, Aziz Deraman, Jamaiah Yahaya and Abdul Razak Hamdan

University College TATI, Malaysia, Universiti Malaysia Terengganu, Malaysia, Universiti Kebangsaan Malaysia, Malaysia

Abstract: Late product delivery is a common problem in software development projects. Late delivery is caused by, amongst other things, changes made to software products particularly in the development and maintenance phase, leading to more work than initially anticipated, thus increasing project completion time. One approach for controlling changes to software products is through Software Configuration Management (SCM). SCM was first introduced in the 1970s to ensure timely delivery of software products. Its implementation is guided by international standards, industry best practices, and numerous commercial and proprietary tools. However, after more than 50 years, the issue of project delays still prevail in software development, questioning the effectiveness of SCM in software organizations. One aspect of SCM that has received little attention in mainstream research compared to other areas in software engineering is the human aspects. This study aims to identify how the competency of SCM practitioners can be assessed through the identification of SCM-specific competency criteria and the development of an SCM competency assessment framework. The proposed framework was validated through Subject Matter Expert reviews and five case studies involving software practitioners from the public sector, private sector and higher education institutions, in addition to two international experts. Results of the validation confirmed the soundness of the selected SCM-specific competency criteria and the plausibility of the competency assessment framework.

Keywords: Software Configuration Management, Software quality, Human competency

IoT BASED INSTRUMENTATION DEVELOPMENT FOR REACTION TIME, KICK IMPACT FORCE AND FLEXIBILITY INDEX MEASUREMENT.

Ng Chun Keat, Nur Anida Jumadi

Department of Electronics Engineering, Faculty of Electrical and Electronics Engineering, Universiti Tun Hussein Onn Malaysia, Batu Pahat, Johor, 86400, Malaysia

Abstract: The objectives of this paper are to present an IoT based instrumentation development with the aim to obtain the reaction time, kick impact force and flexibility index of silat athletes based on visual stimulant and to evaluate the performance of the designed device. Four male Silat participants weighted between 61 kg to 80 kg are recruited to conduct simple reaction time task (SRT) by performing front kick
on the kick pad in the outdoor environment. The main components of the prototype consist of Arduino NodeMcu, vibration sensor, force sensor and three LEDs (yellow, red and green) are attached to the kick pad. The communication of sensors with Blynk apps has been successfully connected. The recorded parameters of reaction time, kick impact force and flexibility index can be viewed not only on the Organic Light Emitting Diode (OLED) screen but also on the smartphone via Blynk apps interface. In order to evaluate the performance of the developed prototype, the silat athletes are requested to undergo the Simple Reaction Time (SRT) task. From this experiment, it can be deduced that 75% of the participants reacted faster towards green LED with the fastest reaction time recorded (1485.2± 126.7 ms) compared to yellow and red LEDs. In the future, the design of the hardware in terms of circuitry and hardware casing will be improved for better presentation. Secondly, a big sample size of subjects and different branches of combat sport will be recruited to assist in further analysis towards agility profiling. Furthermore, the sound stimuli will be included in the future study. Lastly, to conduct a study on the analysis between the indoor environment and outdoor environment to see the differences in different environment setting.

**Keywords:** Flexibility index; IoT; Kick impact force; Reaction time.

---

**EXPERIMENTAL MEASUREMENT OF THE THERMAL CONDUCTIVITY OF TiO2Cu / ETHYLENE GLYCOL USING THE 3Ω METHOD AND COMPARISON WITH COMSOL MULTIPHYSICS.**

S. Ezzehouany, A. Drighil , A. Kassiba , S. Ouaskit

Laboratoire de Physique de la Matière Condensée (LPMC), Faculté des Sciences Ben M'sik, University of Hassan II, Casablanca Morocco, Laboratoire de Traitement de l'Information, (LTI) Faculté des Sciences Ben M'sik University of Hassan II, Casablanca Morocco

**Abstract:** Titanium dioxide or titanium oxide (IV) is an oxygen and titanium compound of formula TiO2 found in nature, and manufactured industrially. Copper is one of the few metals found naturally in nature. It then has a red or orange color. When it oxidizes, it then gives green-gray... The phenomenon is observed on many statues. Combining these two components gives an important physics that can be used in multiple fields. In this work, we produced TiO2Cu nanoparticles to obtain a hybrid nanoparticle. We added it as a basic solution to obtain the nanofluid TiO2Cu / Ethylene glycol and we measured the thermal conductivity of TiO2Cu / Ethylene glycol as a function of temperature and volume fraction, using the 3 omega method and compared these results with COMSOL Myltiphysics, the results obtained with the 3 omega method and COMSOL Myltiphysics, very close and very good compared to the results obtained with theoretical models.

**Keywords:** 3ω method, nanoparticles, nanofluids, COMSOL Multiphysics.

---

**DRONE DETECTION AND CLASSIFICATION USING PASSIVE FORWARD SCATTERING RADAR**

Muhammad Azharudin Che Mamat, Noor Hafizah Abdul Aziz

Faculty of Electrical Engineering, Universiti Teknologi MARA, Shah Alam, 40450, Selangor, Malaysia

**Abstract:** Radar is a system that can analyze object detection that uses radio waves to determine the range, angle or velocity of the object. The passive radar system consists of both transmitter, to generate microwaves domain and produce the electromagnetic waves for radio system, and the receiver, to receive and process the data obtain from the transmitter signal to determine the Doppler signature of the objects
that can be used to detect any presence of drone, aircraft and guided missiles that pass through the system between the transmitter and receiver. The objective of this study was mainly to detect drones, which can be liken to a situation where an unmanned aerial vehicle (UAV) is used, and the drone is mainly used by humans to enter or trespass private and secured zone. Besides that, this study can help improve the security at Malaysian borders or at important events, such as during the latest Malaysian 14th General Election, where man flew a drone during the nomination process. The detection can be done by differentiating the size of the drone and prototype, with a focus on the dimension. In this study, we used passive forward scattering radar for drone detection to get the Doppler signature. The Doppler signature is produced when the antenna detects the presence of the drone passing between the transmitter and receiver. The transmitter produces a power signal that transmits a frequency of Long-Term Evolution (LTE), and in this study, the frequencies used were 1.8 GHz and 2.6 GHz. The 1.8 GHz signal provided better quality compared to 2.6 GHz because it has wider and better network coverage known as 4G LTE as introduced by Maxis provider. Furthermore, all of the data collected was processed and analyzed using MATLAB software to classify drone and prototype signatures through Principal Component Analysis (PCA) results. For future contribution of this project, it can be used at the airport to detect any unwanted drones trespassing the flight departure area, and important areas such as the Federal Administrative Centre of Malaysia, Putrajaya for spying purposes.

**Keywords:** Doppler signature, drone, forward scattering, passive radar.
FORENSIC INVESTIGATION ON THE HIGH FAILURE RATE OF CIVIL ENGINEERING SOLID MECHANICS COURSE

Siong Wee Lee, Mohammad Hazizi Bin Jamal, Mohd Amran Bin Hasbullah, Mohd Johan Bin Mohamed Ibrahim, Shahrul Nizam Bin Mohammad, Hairol Anuar B Haron

Faculty of Civil Engineering, Universiti Teknologi MARA, Johor Branch, Pasir Gudang Campus, 81750 Masai, Johor Malaysia.

Abstract: The attainment of program outcomes for Solid Mechanic course offered to the Diploma in Civil Engineering students is evaluated. It was found that most of the students were incapable to demonstrate graduate attributes which applying knowledge of mathematics, natural science and engineering fundamentals and the ability to analyse engineering problems. Therefore, this study investigates the impact of physics and maths scores on the students’ performance of solid mechanics. Analysis of the previous results in physics and maths shows that there is a clear link between students’ fundamentals knowledge and the understanding of solid mechanics. Meanwhile, this study also aims to find out the root causes that led to the high failure rate of solid mechanics. A quantitative method was employed and a total of 180 students responded to the survey. Results of survey indicate that most of the students perceived that they had limited time to gain deep understanding of the course and they could not visualise the complex problems in solid mechanics. Majority of the students admitted that they did not manage to solve all questions during their final exam, and they were indeed not well prepared for it. Hence, the problem of high failure rate is feasible to be solved provided both lecturers and students making efforts in striving the success of this course.

Keywords: Solid Mechanics, Program Outcomes, Failure Rate, Problem Solving, Applying Knowledge

UTILIZATION OF WEB-BASED INFORMATION SERVICES AMONG UNIVERSITY STUDENTS IN MALAYSIAN ACADEMIC LIBRARIES: A PROPOSED CONCEPTUAL FRAMEWORK.

Husain Hashim, Shamila Mohamed Shuhidan and Norizan Anwar

Universiti Teknologi MARA, Shah Alam, Selangor, Malaysia

Abstract: Digital, information, and networked technologies have largely affected the academic libraries and their users in support of 21st education. This development places demands on them to endure seriously the assessment challenges in the aspect of users’ utilization of Web-based Information Services, not merely to rely on the implicit value of usage statistics, but also to look into the explicit difference that the specific usage of web-based information services has on users’ experience in the form of their perceived scholarly outcomes. In establishing this paper, scoping approach was used as the methodology for preliminary assessment in exploring and analyzing the published research articles from local and international sources. Based on the literature review, this paper aims to propose a conceptual research framework for Malaysian academic libraries comprising three independent variables, namely, library technology, academic library roles, and library learning environment. Besides, information literacy skill is introduced to gain understanding, to what extent, it has a moderating relationship between the independent variables and the university students’ utilization of WBIS, the predicted dependent variable that constitutes implicit and explicit values. This framework will be measured by conducting a research involving six public universities in the Klang Valley of Malaysia. In the long run, it is expected to propose a research method and instruments to
support the academic libraries in collecting and analyzing data about utilization of web-based information services among university students.

**Keywords:** Web-based information services; Academic library; Library technology; Academic library roles; Information literacy skills; Utilization

---

**INTENSIFYING USE OF BIG DATA FOR BUSINESS DEVELOPMENT IN SOCIETY 5.0**

Olena Voronkova, Oksana Hordei, Bohdan Patsai

University of the State Fiscal Service of Ukraine, Irpin City, Kyiv Region, Ukraine
Department of Finance named after L.L.Tarangul,
University of the State Fiscal Service of Ukraine, Irpin City, Kyiv Region, Ukraine
Academy of Sciences Irpin City, Kyiv Region, Ukraine

**Abstract:** The use of Big Data is of particular interest to owners of enterprises selling goods and services. Big data is one of the opportunities to increase business results while meeting the needs of each client. Use of Big Data is especially actual during economic crisis and in the conditions of growing competition.

**Keywords:** the theory of welfare, the theory needs, Big Data technology, loyalty programs, pricing, predictive analysis.

---

**AN INITIATIVE TO MEASURE DYNAMIC CAPABILITY OF ONLINE ENTREPRENEURS IN MALAYSIA.**


Faculty of Business, Accountancy and Social Science, Kolej Universiti Poly-Tech MARA, Faculty of Business Management,, Universiti Teknologi MARA

**Abstract:** High bargaining power of customers and intense rivalry among competitors demand online entrepreneurs to develop dynamic capability in order to stay competitive in digital business. In other words, when the environment changes - particularly the taste and preference of customers - online entrepreneurs also need to change. Explaining dynamic capability as one of the factors for successful performance of online entrepreneurs however, requires proper measurement. The purpose of this paper is to present and propose the questionnaire items that can be used to measure the dynamic capability of online entrepreneurs in Malaysia. The measurement was adapted from past studies and went through two levels of content validity. The first level was by panels from industry and academic, and then by the representatives of online entrepreneurs. Factor analysis and Cronbach's alpha were used for construct validity and reliability tests, respectively. Results from the analysis showed that there are six items with one component extracted. The result is believed to be justified for online entrepreneurs, who mostly operate as both owners and workers. The six-items measure for dynamic capability could also be used in other studies to explain individual-level performance.

**Keywords:** digital, e-commerce, performance, strategy, entrepreneurship
4G LTE DETECTION USING NEMO HANDY FOR PFSR SUPPORT SYSTEM

Muhammad Anwar Aminudin, Noor Hafizah Abdul Aziz

Faculty of Electrical Engineering, Universiti Teknologi MARA, Shah Alam, 40450, Selangor, Malaysia

Abstract: 4G is the fourth broadband cellular network technology. In 2016, 4G Long Term Evolution (LTE) became one of the successful mobile wireless broadband technology, with a wide range of applications. Signal strength for 4G LTE is most important to maintain the data access demand used by various services. The demand for strong 4G LTE signal coverage for mobile services is increasing around the world. This paper presents a study on signal strength of 4G LTE network that focuses on Reference Signal Received Power (RSRP) and Reference Signal Received Quality (RSRQ) parameters that support the passive forward scattering radar (PFSR) system. In this study, Nemo Handy was used to detect signal strength, as well as support the result of human detection based on passive forward scattering radar system. Besides that, this study used a system called passive forward scattering radar that identifies any object that passes through between commercial transmitter and receiver that produces a Doppler signature. For further study, this research was conducted at three different locations, namely Dungun, Port Dickson and Taman Suria using 1.8GHz LTE frequency. Then, the data received by the receiver was collected and analyzed by using MATLAB software. Conclusively, this detection of strong and poor signal cellular network may help telecommunication companies in Malaysia to provide better cellular network service.

Key words: Forward scatter, LTE, Nemo Handy, passive radar.

BEYOND CLASSROOM ENGLISH ACTIVITIES TO GENERATE INTEREST IN ENGLISH AMONG TERTIARY STUDENTS

Alice Shanthi, Zuraidah Jaafar, Xavier Thayalan

Academy of Language Studies, Universiti Teknologi MARA, Malaysia
Faculty of Computer Science and Mathematical, Universiti Teknologi MARA, Malaysia

Abstract: In this article, we present a study which aimed to explore attitude, interest and perception of students from a local university in learning English language beyond the classroom setting using a list of activities such as Readers Theatre, Storyboard, Academic Explorace, Spell-It-Right and Group Singing. A survey was conducted involving 466 students from different faculties who took English proficiency courses at the diploma and degree levels at the university. The findings indicated that both male and female students had positive degree of interest and attitude towards the English activities with Readers Theatre and Academic Explorace being the more popular among the activities. The study also indicates that students preferred group activities that involved team efforts in comparison to individual activities. Based on the findings, it is recommended that students are encouraged to explore English materials independently beyond the confines of the classroom where the language learning takes place subconsciously. This study found that the success of learning English beyond the classroom can be assessed from students’ ability to complete the designated task rather than the processes involved in completing the task.

Keywords: language learning, beyond-the-classroom, out-of-class
ROBOTIC PROCESS AUTOMATION: A CASE STUDY OF THE IMPACTS ON EMPLOYEE SKILLS

Dahlia Fernandez, Aini Aman, Siti Sarah Omar

Universiti Tun Hussein Onn Malaysia, Universiti Kebangsaan Malaysia

Abstract: Organizations use a variety of automation tools to simplify their tasks. One of the most popular automation tools in the world today is Robotic Process Automation (RPA). RPA is defined as a business process automation system that uses software tools to interact with existing applications and replace people to simplify and increase the productivity of their jobs. RPA is gaining popularity by large organizations, especially in the finance and accounting sectors. This is because RPA has the potential to boost the productivity of the organization, reduce costs in terms of reducing the workforce involved, improving the accuracy and speed of the work process, reducing human negligence issues and enhancing organizational competitiveness. This paper is intended to understand the impacts of RPA on the employee skills in finance and accounting unit. To achieve this objective, this study was conducted using semi-structured interviews in the world largest oil and gas company that has been implementing and using the RPA technology for four years. The result of the study showed that there are five main skills that are crucial after the implementation of RPA which are value-added skills, analytical skills, interpersonal skills, computer and IT skills, and also finance and accounting skills. The study suggested that it is important for the employees to upskill themselves to keep up with the new technology and to excel in the finance and accounting profession.

Keywords: Robotic Process Automation, Skills, Finance, Accounting, Case Study

DEVELOPMENT OF RUBRIC TO MEASURE CHILDREN’S CREATIVITY IN GAME DESIGN

Laili Farhana Md Ibharim, Maizatul Hayati Mohamad Yatim, Nor Zuhaidah Mohamed Zain, Ummu Husna Azizan, Norasikin Fabil

Universiti Pendidikan Sultan Idris, Malaysia, Universiti Sains Islam Malaysia, Malaysia,

Abstract: Today’s children (known as Alpha generation) have high competency with digital games. Besides playing they also have the capability in creating digital games. This privileged ability demands creativity in terms of cognitive and higher order thinking skills when it comes to designing and developing digital games. Therefore, this study aims to delineate the process of developing a rubric to measure primary school children’s (age 7 to 12) creativity when creating games as a digital game designer. The constructs of the rubric were enthused by Torrance Creativity Theory which highlighted on originality, fluency, flexibility and elaboration. However, each construct accordingly adapted to fit the concept of the game design process. The development of the rubric underwent three distinctive phases; i) library research; ii) feasibility study; and iii) expert evaluation. Cohen’s Kappa Coefficient formula was used to validate with average value $\kappa = .81$ (excellent) and the reliability was measured by Cronbach’s Alpha formula with value $\alpha = .88$ (excellent). The findings showed that each level of creative elements should be measured analytically which specifically based on game design activity. Researchers found that by adopting the concept of game-based learning specifically through game design activity, children’s creativity was significantly enhanced. The rubric of children’s creativity would be essential for sustainable performance in the context of primary school education to produce a generation of critical thinkers, problem solvers while celebrating children’s
uniqueness and diversity in line to develop creative personality towards digital Society 5.0 to enhance super smart society.

Keywords: Children, creativity, game design, rubric

AN EXPLORATORY STUDY OF GREEN PRODUCTION IN SMES
Siti Sarah Omar, Nazarudin Bujang, Dahlia Fernandez, Shiau Wei Chan, Zailin Zainal Ariffin
Faculty of Technology Management and Business, Universiti Tun Hussein Onn Malaysia, Batu Pahat Johor.
National Defence University of Malaysia, Selangor Malaysia

Abstract: This paper presents key issues faced by Small and Medium Enterprise (SME) in implementing Green Production (GP) system and the overriding barriers encountered by SME to meet the GP requirements. GP has been receiving a lot of attention currently because of the growing concerns from governments, consumers, stakeholders and community with regard to the degradation of environment, natural resources, human health and economic sustainability. Unlike many large companies in Malaysia which have successfully implemented GP, the awareness and commitment amongst SMEs is still considerably lacking. The objective of the study are twofold: first, to identify the implementation level of GP practices among SMEs; and second to investigate the main barriers that are associated with the non-implementation. This is an exploratory qualitative study by using an in-depth interview techniques conducted at SMEs operated in Southern Region of Malaysia. The findings showed that the implementation level of GP among SMEs in this study were characterized by the priori themes (reduce, reuse, recycle and recover) and emerging themes (control and prevent) and its implementation stage is at relatively low level. The main barriers hampered the implementation of GP are poor organizational culture; uncertainty and competition in the market; and lack of government initiative system for GP practitioners. The findings of the study provides managerial contribution with regard to the enhancement of the implementation that should take place at the organizations but also government incentives that could be provided to them.

Keywords: SMEs, Green Production, Degradation of Environment, Implementation Barriers

ELECTROMYOGRAPHY (EMG)–CONTROLLED UPPER LIMB EXOSKELETON AND MONITORING SYSTEM FOR STROKE REHABILITATION
Department of Robotics and Mechatronics, Faculty of Electrical and Electronic Engineering, Universiti Tun Hussein Onn Malaysia, Parit Raja, Batu Pahat 86400 Johor, Malaysia
School of Mechanical, Aerospace and Automotive Engineering, Faculty of Engineering, Environment & Computing, Coventry University, Coventry, United Kingdom.

Abstract: Electromyography (EMG) is a diagnostic procedure that evaluate the condition of the nerve cells that stimulate the muscle. EMG measures the muscle electrical activity or response to nerve’s stimulation of the muscle. The EMG can also use as a feedback signal to improve the progress in motor rehabilitation practice. In order of rehabilitation needs, to improve the quality of the rehabilitation process, today’s technology can be applied and can assist with/without physiotherapies This project is proposed to design a system to control an exoskeleton via EMG signal and monitoring system to assists the rehabilitation
process. Equipment such as exoskeleton with innovative features can be implemented in therapy activity to improve the rehabilitation process. A Graphical User Interface (GUI) is proposed to design, a 3D hardware model for upper limb is designed using SolidWorks, Raspberry Pi 3 Model B+ as microcontroller and servo motor as actuator to allow the exoskeleton to perform movement with exoskeleton prototype by 3D printing with ABS (Acrylonitrile Butadiene Styrene) as its material. The EMG signal will be collected in Raspberry Pi and uploaded to ThinkSpeak. On the other hand, users can easily interact with the GUI design to monitor the electrical activity of muscle in real time. An EMG controlled exoskeleton was developed in this project. When the EMG signal exceeds certain value it will trigger the servo motor to perform movements. EMG monitoring when practice of exoskeleton in lifting position activity. Contraction of muscle fibers occurs and produce reading in voltage. EMG muscle practice between normal and stroke subject activity with average 1.152v for normal subject and 0.868v for stroke with maximum peak signal 3.123v and 1.152v while in this experiment conducted. Thus, EMG signal of stroke patient lower than healthy subjects due to complex neuromuscular changes occurring in paretic muscles following a stroke and number of functioning motor units and the firing rate decreased with reduced discharge variability after a stroke. In conclusion, EMG-controlled upper limb exoskeleton and monitoring system for rehabilitation would has to potential to help more patient in the future.

**Keywords:** Exoskeleton, Electromyography, Muscle activity, Stroke rehabilitation, Upper limb.

---

**THE DEVELOPMENT OF FIQH PRINCIPLES FOR SHARI'AH COMPLIANT OF E-COMMERCE CONTRACT PARAMETERS**

Roshaimizam Suhaime, Ismail Ahmad, Ezani Yaakub, Mohd Hapiz Mahaiyadin, Jasni Sulung  
Academic of Contemporary Islamic Studies, Universiti Teknologi MARA, Cawangan Pulau Pinang, Malaysia.  
Faculty of Business and Management, Universiti Teknologi MARA Shah Alam, Selangor, Malaysia.  
Academic of Contemporary Islamic Studies, Universiti Teknologi MARA Shah Alam, Selangor, Malaysia.  
School of Humanities, University of Science, Malaysia Pulai Pinang, Malaysia.

**Abstract:** Online business or e-commerce has grown tremendously today. It is a form of transaction that does not involve face-to-face meetings between the seller and the buyer. However, the transaction still need to be ensured in accordance with the principle of sale and purchase in fiqh perspective. This study aims to analyze items or principles that need to be present in the shari’ah compliant of e-commerce contract parameters. The researcher has adopted the Fuzzy Delphi methods and research design based on the design and development (DDR) methods which involve three phases namely the analysis phase, design and development, and evaluation phase. This article aims to analyze the second phase of the process that is the design and development phase. This phase intends to develop the 29 principles suggested by the researcher from the Islamic law viewpoint. The process involves some procedures using Likert 7-Point scale questionnaire instrument. The result of the study concludes that the 28 principles parameters with defuzzification value exceeding the value of α-cut=0.5 (based on the threshold value ≤ 0.2 and expert consensus exceeding 75%). The findings also show the dimensions of products and prices reaches the highest value compared to the dimensions of contracting parties and form of contract. In short, the development of fiqh principles for shari’ah compliant contract parameters has resulted the 28 principles which can contribute to larger studies such as the development of shari’ah compliant e-commerce transaction model or prototype.

**Keywords:** acceptance, offer, contracting parties, expert consensus.
THE EFFECT OF WEIGHT TRAINING WITH COMPOUND SET METHOD ON STRENGTH AND ENDURANCE AMONG UNY ARCHERY ATHLETES

Ahmad Nasrulloh, Yudik Prasetyo, Sigit Nugroho, Rina Yuniana, and Aida Mustapha

Sport Science Faculty, Yogyakarta State University, Indonesia
Faculty of Computer Science and Information Technology, Universiti Tun Hussein Onn Malaysia, Malaysia

Abstract: The usage of compound set method for weight training is a kind of weight training that implements two different types of equipment in sequence without any resting time when switching tools. This compound set method aims to drill the similar part of muscles using different tools. This research expects to determine how much the impact of weight training with compound set methods can give to the strength and endurance among archery athletes at Yogyakarta State University (UNY). The methodology of this research is using the methodology of experiment with one group of pre-test and post-test design. The study population was UNY archery athletes selected via purposive sampling. The instrument used to measure muscle strength is the hand grip strength test. Meanwhile, to measure the upper, lower, and middle body for the endurance of muscular test, four kinds of test items were used namely bench jump, modified dips (man), modified push-ups (woman), bent-leg curl-ups and abdominal crunches. The data analysis technique used the normality test to find out regardless of whether the information has a normal distribution along with the variation of homogeneity test to measure the variant similarity of the experimental group data. Based on the t-test analysis results for hypothesis testing, t-value was found at 14.532 with a significance value of 0.000 (p < 0.05). This can be concluded that weight training using the compound set method to increase the strength of UNY archery athletes has a significant effect. As for muscle endurance, the t-test analysis results obtained t-value of 13.396 with a significant value of 0.000 (p < 0.05). This showed that weight training using the compound set method to increase the endurance of archery athletes UNY has a significant effect. Therefore, the usage of compound set method can give the maximum progress to a trained group of muscles, so the possibility to increase the muscular endurance is very potential.

Keywords: Weight Training, Compound set, Archery.

ARE YOU ENGAGED WITH YOUR DIGITAL LIBRARY? STUDYING THE DETERMINANTS AND IMPACTS OF DIGITAL LIBRARY ENGAGEMENT

Mohamad Rahimi Mohamad Rosman, Mohd Nasir Ismail, Mohamad Noorman Masrek

Universiti Teknologi MARA Kelantan Branch, Universiti Teknologi MARA Selangor, Puncak Perdana Branch

Abstract: Over the years, libraries spent millions to subscribe to the digital library resources. However, recent studies showed that the usage of digital library resources was underutilised. This lack of usage was credited to the lack of user engagement towards the digital library resources. Therefore, this study investigated the digital library engagement which concerned its determinants and impacts. A theoretical model that consisted of 14 variables was proposed. A quantitative study was conducted whereby 492
postgraduate students from the Malaysian research universities were involved in the data collection. Data were analysed based on descriptive and inferential analyses by using Statistical Package for the Social Science (SPSS) Version 24 and Partial Least Square Structural Equation Modelling (PLS-SEM) by using SmartPLS Version 3.2.8. Findings showed that technological, individual, and contextual factors jointly predicted the digital library engagement. Digital library engagement was also found to predict the perceived benefits.

**Keywords:** Contextual factors, digital library engagement, individual factors, technological factors, and perceived benefits.

**MULTIPLE POWER QUALITY DISTURBANCES: A REVIEW DETECTION AND CLASSIFICATION**

Mohd Saiful Najib Ismail @ Marzuki, Ahmad Farid Abidin, Mohd Zamri Jusoh, Dalina Johari.

Universiti Teknologi Mara, 23000 Dungun, Terengganu, Malaysia, Universiti Teknologi Mara, 40450 Shah Alam, Selangor, Malaysia

**Abstract:** Power quality problem can cause electrical appliances to function improperly. Recently, power electronics equipment is increasingly used prone to power quality (PQ) disturbances, causing current and voltage waveforms interrupted. As a result, the effect is overheating of equipment’s, motor failures, injury and fatality to users, and damage to properties. To resolve the issue, detection and classification of PQ disturbance are needed to be the basis for mitigation technique. Various plots of signals resulting from signal analysis technique are shown and distinguished in previous studies. Features were extracted to obtain inputs for classification purposes. A strong features extraction and classification of PQ disturbance is compulsory for a solid mitigation technique. In this paper, the study on detection as well as features extraction and classification of PQ disturbance such as harmonics, sags, swells etc., are discussed. A study of techniques and methodologies established for the classification of PQ disturbances is presented in order to pave the way for ideas for improvement in future research.

**Keywords:** Power quality, power quality disturbance, features extraction, classification technique.

**THE USE OF IPAD FOR CALCULUS CLASS IN HIGHER EDUCATION: NOTABILITY APPLICATION**

Mohd Syafiq Abdul Rahman, Mohammad Taufiq Abdul Ghani

Department of Computer and Mathematical Sciences, Universiti Teknologi MARA, Cawangan Pulau Pinang, Kampus Permatang Pauh, 13500 Permatang Pauh, Penang, Malaysia

Department of Modern Languages, Faculty of Languages and Communication, Universiti Pendidikan Sultan Idris, 35900, Tanjong Malim Perak

**Abstract:** Nowadays, technological devices have become mobile, portable, and networked to the point that they have become essentials in everyday life. The use of mobile devices has expanded, including communication, business and education. “Notability” is a note-taking application for the Apple device particularly for iPad, iPhone and MacBook. There are a large number of note-taking apps available in the marketplace. However, not all of them have the same tools, and each of them has a varying level of functionality. Notability can be used to annotate content, collaborate documents, and create images for
educational purposes. Hence, its flexibility is beneficial to be used in calculus class. Therefore, this study briefly describes Notability’s operation, its implementation in calculus class, both advantages and disadvantages of using the application, its contributions toward higher education and explains the design and development of e-materials using Notability on iPad.

**Keywords:** Calculus, iPad, M-learning, Notability, Technology-based learning

**PARENTAL PERSPECTIVES ON EMPLOYMENT ISSUES FACED BY YOUNG ADULT WITH AUTISM SPECTRUM DISORDER (ASD)**

Nur Hidayah Mohamed Ibrahim, Padma A Rahman, Akehsan Dahlan

Faculty of Health Science, Universiti Teknologi Mara (UiTM), Cawangan Selangor, Kampus Puncak Alam, Selangor, Malaysia

**Abstract:** Unemployment among Young Adults (YAs) with Autism Spectrum Disorder (ASD) has become a worrying trend internationally and is an even more alarming trend in Malaysia. Presently, there is no available statistical data on the employment of individuals with ASD in Malaysia due to the absence of ASD sub categories in the National Registry of Persons with Disabilities (PWDs). Nevertheless, parents of this sub-category have been facing financial struggles and emotional challenges due to their children’s employability issues. However, to date their concerns have not been made known and unconvincing. The aim of this paper was to gain insights into the experiences of parents in relation to the employment issues faced by YA with ASD. A qualitative phenomenological design was employed via semi-structured interview where 8 respondents were recruited through purposive sampling. Each interview lasted between 30 minutes to an hour where their opinions were digitally recorded and then transcribed into verbatim. Data were analyzed using the Thematic Analysis and the findings indicates (i) Peculiar characteristics of YAs with ASD (ii) Contextual challenges and (iii) Overprotective parents. Therefore, this study suggests that employment requirements should take the YAs with ASD abilities, life and employable skills, parents' expectations, employers' awareness and acceptance, and the socioecology into account as this can be a significance of an inclusive policy and practice. Hence, results of this study may be utilised in assisting policy makers in planning relevant facilities and training to raise employability among YAs with ASD to be ready to enter Malaysia’s job market.

**Keywords:** autism spectrum disorder (ASD); young adult; employment; parent's experience.

**AN INTELLIGENT IOT SYSTEM FOR CONTROLLING OFFICE APPLIANCES - A TRADE-OFF BETWEEN POWER CONSERVATION AND USER SATISFACTION**

Ahmad Abusukhon, Bilal Hawashin, Mohammad Lafi

Al-Zaytoonah University of Jordan, Jordan

**Abstract:** Nowadays, many companies and industrial institutions are facing the problem of rising electricity bills. This issue becomes a hot-button topic in the current era. As a solution to this problem, some researchers proposed various approaches for reducing power wastage based on the Internet of Things (IoT) technology. These approaches are based on sensing module (the use of sensors for gathering real-time data), Artificial Intelligent and Machine Learning for analyzing real-time data, and making intelligent real-time decisions. Any IoT system, which is designed for power conservation, must take into account the user satisfaction. In this paper, our contribution is a smart IoT system that achieves the following. 1) Reduce the total power cost by 40% based on the Lectures Time Table (LTT). 2) Achieve a balance between the
user satisfaction and the power wastage by allowing a) manual controlling of appliances via voice commands and b) Auto controlling of appliances based on the LTT, which is provided by the instructor. 3) Eliminating the use of sound sensors using a java program which is developed for capturing and handling the human voice. We built the baseline system, and then we compared the results from the baseline system with the results from our proposed IoT system.

**Keywords:** Internet of Things, power management, Lecture time table, event scheduling, user satisfaction.

---

**THE CHALLENGES OF GRADUATE EMPLOYABILITY IN THE HOSPITALITY INDUSTRY**


Faculty of Hotel and Tourism Management, Universiti Teknologi MARA, Terengganu, Malaysia, Faculty of Hotel and Tourism Management, Universiti Teknologi MARA, Puncak Alam, Malaysia, Faculty of Business Management, Universiti Teknologi MARA, Shah Alam Malaysia

**Abstract:** Recently, Malaysia's Higher Education Institutions (HEIs) have produced a significant number of graduates, there are now marginally fewer that get employed, particularly hospitality graduates. Therefore, this study investigated the employability challenges of hospitality graduates found in the literature. Secondary data was obtained from multiple platforms using key search terms, namely “employability”, “hospitality graduate”, and “graduate employability”. Content analysis through Atlas.ti software was used for the literature review. The finding reveals that the challenges revolve around skill, curriculum, attitude, qualification, interest, and the hospitality industry environment. Of the six themes, challenge, skill, and attitude were the most prominent ones in the literature. This review emphasized the challenges of employability, not only regarding the graduate attributes, but also the curriculum program and the nature of the hospitality industry. Also, a significant information gap emerged that must be addressed. This study could serve as a reference for managing the employability of hospitality graduates in the future.

**Keywords:** Employability, Hospitality Graduate, Graduate Employability, Hospitality industry.

---

**DEVELOPMENT OF TURBIDITY SENSOR FOR CONTROLLING QUALITY OF WATER IN RAINWATER HARVESTING TANK**

Mohamad Amirul Azli, Mohd Hudzairi Haji Razali

Faculty of Plantation and Agrotechnology, Universiti Teknologi MARA Cawangan Melaka Kampus Jasin, 77300 Merlimau, Melaka, Malaysia

**Abstract:** The past decade has seen significant progress in agriculture in the world. Various smart devices have been created such as humidity sensors, cellular phones, moisture sensor and smart irrigation are set to realize the new smart agricultural concept with the help of the latest technology. Water is a major source of plants needed for the photosynthesis process. Cleanliness and quality of water must be maintained and must be kept clean to ensure maximum quality of plants. Water collected and stored in rainwater harvesting tanks must be monitored regularly to ensure clean water to be transmitted to plants. In Malaysia, farmers suffer from crop failure and lack of
quantity or quality of plants as they cannot monitor the crops all day long. The turbidity sensor system is the ideal solution to this problem. In this regard, the development of a smart technique for controlling water quality in rainwater harvesting tanks to ensure that water flowing to the plants is clean water. The study also describes the application of turbidity sensor technology to control water quality in rainwater harvesting tanks using hardware component such as arduino boards, Light emitting diode and solenoid valves. The main role of this system is to enable the farmers to not have to monitor the water quality as the system will automatically control the cleanliness of the water by opening the solenoid valve in case the water is dirty or turbid. System function tests have been performed to evaluate the performance of water turbidity sensors, whether prototypes are free of errors or errors. Based on the results shown, the system works well to control water quality automatically. In conclusion, the development of this turbidity sensor using the Arduino and the help of solenoid valves have been developed to control the cleanliness and quality of water in the rainwater harvesting tank so that the water supplied to the plant is clean, not dirty and free from turbid.

Keywords: Turbidity sensor, Controlling, Automatic, Arduino, Solenoid valve

A CONCEPTUAL STUDY ON WAQF DEVELOPMENT FOR YOUNG ENTREPRENEUR IN MALAYSIA AND INDONESIA

Nisful Laila, Dian Agustia, Shafinar Ismail, Ririn Tri Ratnasari, Mohd Halim Mahphoth

Faculty of Economy and Business, Universitas Airlangga, Campus B, Jl. Airlangga 4-6, Surabaya 60285, Indonesia, Faculty of Business and Management, Universiti Teknologi MARA, Cawangan Melaka 75300, Malaysia

Abstract: Waqf is an Islamic financial instrument that can be used to assist various economic problems throughout the world. Waqf growth in Malaysia and Indonesia has become increasingly important. The understanding of the importance of waqf to Malaysia and the Indonesia economy is illustrated by the complete scope and breadth of support mechanisms and policies for entrepreneurs. The main objective of this research is to establish a waqf model for young entrepreneurs of small and medium-sized enterprises (SMEs) in Malaysia and Indonesia. The challenge is not only to focus on the initiative to create entrepreneurs on their own, but also to pay attention on developing quality, sustainability and highly competitive entrepreneurs based on waqf growth studies. The methodology employed in gathering data is quantitative method as the study is using the cross-sectional design. The conceptual framework incorporates the three main components that capture the behavior of entrepreneurship such as personal attitudes, subjective norms, and perceived behavioral control. The research framework used for this research is underpinned from the Theory of Planned Behavior of Azjen (1991). This model is required to create a young entrepreneur system that is connected to a waqf fund that supports the young entrepreneur and countries as a whole.

Keyword: Waqf, entrepreneur, entrepreneurship, Malaysia, Indonesia, SME

PROFILING OF PASSENGERS BY E-HAILING SERVICES IN MALAYSIA

Salman Salim, Mohd Erwan Sanik, Ahmad Hakimi Mat Nor, Muhammad Amirul Haziq Salman, Mohammad Hairi Osman
Abstract: Shared mobility is one of the unavoidable impacts of the Industrial Revolution 4.0. This mode of travel is rapidly spreading among the local road users. However, there is lack of study on the actual perception of share mobility concept in Malaysia. This study will analyze the actual opinion and perception of Malaysia people particularly the users of shared mobility services. This study aims to investigate the factors that influence the passengers towards the use of e-hailing services. The independent variables of this research are relative advantage, ease of use, trialability, social influence and safety of using e-hailing application. A survey was conducted among e-hailing users in Malaysia. With the use of a survey questionnaire, 271 targeted respondents provided valuable feedbacks. The survey consisted of two parts; the first part contained general questions about gender, age, ethnic, employment, state and preferred types of transportation between e-hailing and taxi. The second part was the major part of the questionnaire which consisted of relative advantage of e-hailing services, ease of using e-hailing services, trialability of e-hailing application, social influence and safety provided by e-hailing services. Therefore, the questionnaire was constructed according to those significant factors. The correlation analysis was used to identify the relationship between independent variables and dependent variable. From the results obtained, the linear regression showed that the relative advantage, ease of use, trialability, social influence and safety indicated a positive significant relationship with the factor that influences the passengers. Among the variables studied, the ease of use showed the most significant factor that influences the passengers to choose e-hailing services in Malaysia with Cronbach’s Alpha of 0.874. In conclusion, this study shows some important information and provides benefits particularly to e-hailing services company to be more competitive in this industry by understanding the needs and concerns of passengers when they adopt the e-hailing services.

Keywords: E-Hailing, public transportation, shared mobility

ANALYSIS BOOK NASA’IH AL - ‘IBAD BY SHAYKH NAWAWI BANTEN: STUDY THE STATUS OF HADITH IN SELECTED CHAPTERS.

Arwansyah Kirin, Nur Zainatul Nadra Zainol, Faisal Husen Ismail, Abd Shakor Borham, Siti Marpuah


Abstract: The book of Nasa’ih al-Ibad by Shaykh Nawawi al-Banteni is a classic book containing aspects of Targhib wa Tarhib, which is widely distributed in Southeast Asia, especially in Malaysia and Indonesia. Shaykh Nawawi al-Banteni refers much to the Prophet’s hadiths as a main sources and evidences to argument that he mentions in his book. The problem with this book contains unknown status of hadith and it are became a daily reference and practice for the Muslim community. The objective of this study is to analyses the status of hadith in chapter 5-10 either as sources of ruling. The methodology used is content analysis from the Nasa’ih al-Ibad book, while analyzing the study data using inductive methods. Based on analysis done on chapter 5-10 in the book, only 23.0% of hadith can be used in Fada’il al-Amal, when it has met certain requirements set by scholars. Therefore, this thematic analysis is importance to ensure the
percentage Hadith Da’if and Mawdu and the ruling of hadith Da’if can be practiced is only for Fada’il al-‘Amal. The status of hadith is importance to Muslim as second sources of Islam.

**Keywords:** status of hadith, Hadith Da’if, Hadith Mawdu’, content analysis, Islamic scholar, Scholar of Southeast Asia.

**VIRTUAL LEARNING FOR HUMAN RESPIRATORY SYSTEM VIA NON-IMMERSIVE VR (V-HURESYS): AN EVALUATION**

Nurul Hidayah Mat Zain, Ismassabah Ismail, Nor Azida Mohamed Noh, Anita Mohd Yasin, Zainab Othman, Siti Nuur Atikah Che Yahaya

Faculty of Computer and Mathematical Sciences, UiTM Cawangan Melaka, Kampus Jasin, 77300 Merlimau, Melaka, Centre of Foundation Studies, UiTM Cawangan Selangor, Kampus Dengkil, 43800 Dengkil, Selangor

**Abstract:** The science includes a lot of concepts and abstract that cannot be seen by the naked eye. Students have a problem remembering and visualize information contained in the science subject. Hence, the idea of the development of effective visualization learning materials using Virtual Reality is expected. By using VR, the user can visualize the structure and interact with the components inside. The purpose of the present study was to evaluate the effectiveness of application in learning the Human Respiratory System through virtual reality (VR). The evaluation conducted among secondary school students by using the Kirkpatrick Model evaluation model. The data collected from 35 Form 3 students that take a science subject. The overall percentage average of the evaluation is 72%, which considered V-HURESYS application was effective in learning the Human Respiratory System through the VR technique. Keenly, the results of the study will emphasize the student's performance in their science subject, especially in learning Human Respiratory System topics.

**Keywords:** Human Respiratory, Kirkpatrick Model, Science Subject, Virtual Reality

**HELLINGER-ANT-TREE-MINER (HATM) ALGORITHM FOR IMBALANCED DATA SETS**

Muhamad Hasbullah Mohd Razali, Rizauddin Saian, Yap Bee Wah, Ku Ruhana Ku-Mahamud

Universiti Teknologi MARA, Malaysia, Universiti Utara Malaysia, Malaysia

**Abstract:** Classification of real-world data sets commonly suffer from imbalanced class problem. Bio-inspired classifier such as Ant Colony Optimization (ACO) decision tree could not provide effective decision boundaries since its entropy-based heuristics is highly biased towards the dominant class. Consequently, the developed trees are dominated by the likelihood of majority class where the rare class tend to be misclassified as the dominant group to achieve high accuracy rate. This study proposed an improved ACO-based decision tree algorithm metaheuristic for imbalanced learning namely the Hellinger-Ant-Tree-Miner (HATM). The proposed algorithm was compared to the existing algorithm with entropy-based heuristics, Ant-Tree-Miner (ATM) using a simulation study and nine (9) publicly available imbalanced data sets. Simulation results revealed the superiority of HATM when the sample size increases with skewed class (Imbalanced Ratio < 50%). Experimental results show that the performance of the existing algorithm measured by the Minority Class Prediction (MCP) has improved due to the class skew-insensitiveness of Hellinger Distance. The statistical significance test shows that HATM has higher mean of MCP than ATM.
Keywords: Ant Colony Optimization, Classification, Decision Tree, Hellinger Distance, Heuristic, Imbalanced Learning, Skew-insensitive

**PIEZOELECTRIC PHOTOACOUSTIC SYSTEM FOR FLUID FLOW MONITORING**

Hui Ling Chua, Audrey Huong

Department of Electrical and Electronic Engineering, Faculty of Electrical and Electronic Engineering, Universiti Tun Hussein Onn Malaysia, Parit Raja, 86400, Malaysia.

**Abstract:** The aim of this study is to investigate the feasibility of using a laboratory assembled piezoelectric based photoacoustic (PA) system for noncontact monitoring fluid flow. This is to overcome the drawbacks of some existing fluid flow detection systems, which include expensive equipment and their maintenance cost, limited sensitivity and specificity in detecting signals from restricted regions or at low flow velocity. The produced PA signal waves detected by a piezoelectric transducer used in this study was processed to determine the required phase value (Φ), which value was found to correlate linearly with fluid flow status. The fluid pressure difference of 1.16 pascals (Pa) and 11.90 Pa applied to the developed mock circulatory system was observed to produce changes in phase value with mean ± standard deviation (SD) ΔΦ of 0.79 ± 0.07 rad and 2.17 ± 0.07 rad, respectively, suggesting a linear response of the developed system with changes in circulation system. This trend was supported with the relatively low absolute difference of 0.07 ± 0.01 rad in the predicted values as compared to that of the ground truth. This work concluded that the capabilities and simplicity of the proposed PA system renders it feasible for cost effective, non-destructive assessment of fluid flow in future studies.

**Keywords:** Photoacoustic imaging, fluid flow, phase value, phase difference

**PRELIMINARY WORK ON THE DEVELOPMENT OF EXOSUIT FOR DIFFERENTLY ABLED**

Z. Adhli Zulkifli, Jasrina Jaffar, A. Abu Bakar Sajak, Jawahir Che Mustafa

MFI, Universiti Kuala Lumpur, MIIT, Universiti Kuala Lumpur,

**Abstract:** The number of patients with spinal cord injury, stroke, post-polio, osteoarthritis, injury, or other related diseases is growing worldwide. Recently, robotics application for gait recovery have been developed and implemented. They can provide patients with successful gait therapy in the absence of physical therapists as compared to conventional physical therapy. Patient able to do their rehabilitation at home at any time. Hence, this can reduce the patient travel time and energy to and from the rehabilitation center. It will also able to reduce the hospital rehabilitation cost. In this work, an exoskeleton is being developed. The proposed exoskeleton can augment human walking performance with the aid of an embedded Arduino controller via an android phone. This system allows the exoskeleton to move according to the patient’s instruction. The development of the proposed exoskeleton is presented in this paper. Lastly, the shortcomings of the available tools and the directions for research and development of exoskeletons are addressed. Thereby providing useful knowledge to other researchers and engineers in designing the exoskeletons appropriately for practical applications.

**Keywords:** Arduino UNO; human gait; backpack frame; exoskeleton; rehabilitation
STUDY ON ELEMENTS OF TEACHER AUTHORITY IN ISLAMIC ONLINE LEARNING (E-TALAQQI)

Nurhafiza Hamzah, Zainatul Nadra Zainol, Azman Hassan, Hussain Othman
Jabatan Pengajian Islam, Pusat Pengajian Umum dan Kokurikulum, Universiti Tun Hussein Onn Malaysia, Batu Pahat, Johor, Fakulti Pendidikan Teknikal Dan Vokasional, Universiti Tun Hussein Onn Malaysia, Batu Pahat, Johor, Principal Consultant, Visionary Leadership Consultancy Sdn Bhd,

Abstract: Learning through teachers or Talaqqi is one of the learning methods practiced in Islamic learning and education since the period of Rasulullah SAW. This method is also implemented until today especially in madrasah and pondok. The revolution Industry 4.0 (IR4.0) and the latest COVID-19 pandemic outbreak, online learning is the best alternative for teachers and learners. It becomes the preferred method of learning especially in the field of education Islamic Studies.

Keywords: Islamic Learning, Islamic Online Learning, Elements of Teacher Authority

TRIPLE-BASED TEACHING APPROACH METHODOLOGY - ‘STUDENT AS MANAGER’ MODEL IN 21ST CENTURY BUSINESS STUDIES

Kesavan Nallaluthan, Revathi Gopal, Shathees Baskaran, Hasrin Hashim, Arsalan Mujahid Ghouri
Faculty of Management and Economics, Universiti Pendidikan Sultan Idris Faculty of Language and Communication, Universiti Pendidikan Sultan Idris Azman Hashim International Business School, Universiti Teknologi Malaysia Lucrative Base Sdn.Bhd

Abstract: The triple-based teaching approach is student-centered learning, which is mixed with games, problems, and a challenge-based learning strategy that aims to prepare business students to manage unexpected and complex global or industrial issues in the 21st century. This paper describes ‘Students as Manager’ ongoing model and methods, which originated from the triple-based teaching approach, especially for business studies. This action research model is implemented in Strategic Management (PPB 3073) subject with 169 students, which comprises 3 classes. For game-based learning, online Kahoot conducted which align with the subject syllabus, while for problem-based learning students need to analyze the internal-external industrial issues. Challenge-based learning proceeds with the context of the discipline, pro-activeness, and investments task among students. This teaching approach with the ‘Students as Manager’ model targets encourage an active and reliable learning environment that requires students' creative input, collaboration, and industrial knowledge. Hope the results show that triple-based learning facilitates deep learning among business students, which contributes to 21st-century learning skills.
Keywords: triple-based teaching method, game-based learning, problem-based learning, challenge-based learning, student as manager model.

THE IMPACT OF MOBILITY ON ZIGBEE NODES PERFORMANCE USING MANET TESTBED

Syahri Saifullah, Megat F. Zuhairi, Hassan Dao, Aznida A.B. Sajak
Universiti Kuala Lumpur, Malaysia, Princess of Naradhiwas University, Thailand

Abstract: This paper presents the implementation of a Mobile Ad hoc Network (MANET) testbed and investigates the impact of nodes mobility on the network performance. MANET is a communication technology that provision nodes to self-configure requiring minimal coordination by a central node. Each decision is instantaneously computed by nodes, which take into account the condition of medium, interference due to concurrent packet transmission and the separation distance between nodes. By simulation, such properties can be easily recreated and controlled. On the contrary, the actual network performance in field test may substantially differ to the simulation results. As such, this project focuses on building the nodes and based on the constructed prototype, the movement patterns in MANET are investigated and quantified. The impact of nodes mobility to the network performance is evaluated and subsequently underpins the significance of such effect. The choice of routing discovery protocol employed for the experiment is based on Ad hoc On-Demand Distance Vector (AODV) in addition to the movement pattern. The nodes are equipped with AODV routing protocol, which is used as the communication mechanism over ZigBee technology. Despite the ZigBee short radio distance, the inherent effect of mobility to the network performance is apparent, as shown by the experiment results.

Keywords: Zigbee, AODV, MANET, Testbed.

DEVELOPMENT OF A SIMULATION BASED DC-DC BOOST CONVERTOR MODULE: EXPERIENTIAL LEARNING TOWARDS IR 4.0

Muhammad Mujtaba Asad, Razali Bin Hassan, Fahad Sherwani
Sukkur IBA University, Airport Road, Sukkur, Sindh, Pakistan
Universiti Tun Hussein Onn Malaysia, Parit Raja, Batu Pahat, Johor, Malaysia
National University of Computer and Emerging Sciences, Karachi, Pakistan

Abstract: In this research paper, DC-DC boost converter MATLAB simulink package has been developed and tested for the enhancement of learning process within academic course of power electronics in this modern era of fourth industrial revolution (IR 4.0). Respondent for this research were chosen randomly from Faculty of Electrical & Electronic Engineering, University Hussein Onn Malaysia. Whereas, the aim of this study is to develop and identify the effectiveness of DC-DC boost convertors simulink package for the enhancement of learning process of power electronic course. The collected data has been analyzed by using Statistical Packages for Social Sciences (SPSS. 22). The description is based on the research objectives for evaluating the effectiveness of developed DC to DC
boost converter MATLAB simulink package. According to the findings of this research, on ramification of MATLAB simulink package, learning outcomes from the MATLAB simulink package shows that the DC-DC boost converter MATLAB simulink can help and facilitate the power electronics students for boosting their learning process with appropriate level for overall mean and standard deviation which were lying under moderate level of mean range. This research study will be one of the catalysts in strengthening and improving the instructional methods by using simulation-based software’s in power electronics and engineering courses to meet the requirement of latest industrial technologies.

**Keywords:** Boost Convertors, Power Electronics E-Learning, IR 4.0, Simulation Based learning

**PERFORMANCE ANALYSIS OF HANDOVER INITIATION PARAMETERS IN LONG TERM EVALUATION – ADVANCED (LTE-A) NETWORK**

Azita Laily Yusof, Muhammad Aiman Zainali, Norsuzila Ya’acob

Faculty of Electrical Engineering, Universiti Teknologi MARA, Shah Alam, Malaysia.

**Abstract:** In mobile network, mobility management plays an important role in order to support seamless handover in Long Term Evolution - Advanced (LTE-A) network. It is predicted that in the near future there will be an increase demand of voice and data traffic. Currently, LTE-A network purely depends on the hard handover that may cause disconnection to occur if the handover is not fast enough. When handover executes, it may experience failure because of the early handover, the late handover or handover to wrong cell. Thus, the cases of packet loss or communication interruption problems will occur. In this research, handover initiation parameters in LTE-A network is investigated. Firstly, a formulation of analytical framework has been developed to analyze the handover performance. Then, mathematical equations have been derived from the developed framework by incorporating the value of user’s speed and handover signaling delay parameter. Under this framework, the probabilities of handover failure were analyzed in order to observe the handover performance when the speed of user is increased. The numerical results show that if fixed value of Reference Signal Receive Power (RSRPth) is used, the number of handover failures increased as the speed increased. It also shows that it is essential to predict the handover signalling delay in advance to reduce the handover failure rate in LTE-A network.

**Keywords:** Handover signaling delay, Long Term Evaluation, Advanced, mobility, seamless handover

**SIMULATION OF UREA–HYDROXYAPATITE BY USING DENSITY FUNCTIONAL THEORY (DFT)**

Nur Adlin Sofiya Mohammad Fuad, Lee Sin Ang, Norlin Shuhaime, Mohd Nazari Abu Bakar

Fakulti Sains Gunaan, Universiti Teknologi MARA Cawangan Perlis, Kampus Arau, 02600, Arau, Perlis,

**Abstract:** Nitrogen and phosphorus are the main macronutrients needed by crops in agricultural field. But, due to environmental factors, these nutrients can be easily washed off before reaching the crops. Slow-release fertilizer has been introduced to solving these problems as it can help releasing nutrients to the plants slowly. Many researchers have been studying the effectiveness of urea and hydroxyapatite as a slow-release fertilizer experimentally. In a complementary manner, this computational study has been concentrating on the detail of interaction between urea and hydroxyapatite in relative stability, structural and electronic properties by using density functional theory (DFT), with level of B3LYP/6-31G(d,p). The calculations were performed using Gaussian 09 and Multiwfn program. Hydroxyapatite cluster was modeled to interact with one molecule of urea, which was placed on strategic positions on the cluster’s surface. All
structures in this investigation are found to form a new bonding between N atom in urea and Ca atom in hydroxyapatite. In addition, the interaction energy between urea and hydroxyapatite has ranges from −1.2245 eV to −0.09719 eV. Meanwhile, for the bond length of new bonded form between nitrogen atom and calcium atom has range from 2.64 Å to 2.85 Å. Our results confirmed the experimental findings that the urea molecule can react favorably with the surface of hydroxyapatite.

**Keywords:** B3LYP/6-31G(d,p), density functional theory (DFT), hydroxyapatite, urea

---

**UNDERSTANDING TECHNOLOGY ADOPTION FROM A FIT-VIABILITY PERSPECTIVE**

Muhammad Yusuf Bin Masod, Siti Farhana Zakaria, Ruslan Abdul Rahim

Department of Printing Technology, Faculty of Art & Design, Universiti Teknologi MARA (UiTM)
Puncak Alam Campus, Selangor, Malaysia

**Abstract:** Innovations continuously challenge organisations to use various technologies to improve efficiency. However, adopting new technologies can have significant implications for organisations that want to make use of large applications such as enterprise systems to support their operations. This structured literature review examines how the Fit-Viability Model (FVM) has been used in research on technology adoption and how this research was conducted in terms of philosophical frameworks, methodologies and precise methods and best research-based professional practices for collecting and analysing research data. After careful consideration of the different views, interpretations and research settings therein, a key synthesis matrix for studies on the Fit-viability model is presented, with the aim of demonstrating that for an application to be successful, an organisation needs to evaluate not only the fit between task and technology (fit dimension) but also its organisational viability (viability dimension). The review, moreover, provides theoretical insights, research problems, variables and approaches to the application of the FVM to address the adoption of a new technology, as well as a proposal for adopting Artificial Intelligence for Management Information Systems. Implications, potential contributions to research and suggestions for future study are also discussed with a view to better clarification and highlighting of potential technology applications for future researchers.

**Keywords:** Fit-viability framework, artificial intelligence, technology adoption, printing industry.

---

**GENERATING PSYCHOMOTOR ASPECT THROUGH ONLINE LEARNING OF THE SUBJECT PHYSICAL EDUCATION.**

Rozaireen Muszali, Mohd Izwan Shahril, Norkhalid Salimin

Faculty of Sports Science and Coaching, Universiti Pendidikan Sultan Idris, Malaysia

**Abstract:** This research focuses on the psychomotor aspect generated through the online teaching and learning of the subject Physical Education. This research utilised the use of FROG VLE as the medium for online learning with handball as the topic of teaching and learning. This research also observed and compared the achievement levels between the two research groups involved. The two research groups were the Experimental Group that was comprised of 29 students and the Control Group which consisted of 35 students with two sample teachers from two different schools. Online learning and
conventional approach were assigned to the Experimental Group and Control Group respectively. The research design was quasi-experiment implementing pre-test and post-test for both research groups. The result of the research shows that the learning achievement level of the samples from the Experimental Group is at Band 5, the highest level of achievement, thus matching the Control Group. The studied sample teachers discovered that the online learning approach can positively impact the psychomotor aspect. The implications of this research are Physical Education teachers must provide a range of online teaching and learning mediums to enhance students’ understanding and acquisition of the knowledge and enforcing not only the cognitive aspect, but as well as the psychomotor aspect in the subject Physical Education.

**Keywords:** Psychomotor aspect, Online learning, Physical Education

---

**THE AWARENESS LEVEL TOWARDS FOREIGN HALAL LOGO AMONGST YOUTH IN MELAKA**

Yuhanza Othman, Zuhairah Hasan, Mimi Sofiah Ahmad Mustafa, Nur Hazwani Mohamad Rosel4, Mohair Nizam Johari

Law Department, UiTM Cawangan Melaka, Faculty of Business and Management, UiTM Cawangan Melaka, Department of General Studies, MARA Professional College, Melaka

**Abstract:** The use of unauthorised halal logos certified from other countries often creates confusion among consumers. Despite many laws and regulations being enacted by the legislature, there are still cases reported on misleading halal logos by unscrupulous traders. This could reduce the trust and confidence among consumers to purchase goods based on the existence of the halal logos. Therefore, this study was conducted to investigate the level of awareness toward foreign halal logos among youth consumers in Melaka. The quantitative methodology was adopted, where questionnaires were distributed through Google form to 248 responses. This study found that there is a high level of awareness among youths in Melaka toward halal food products and Malaysian halal logos but less awareness of foreign halal logos. Therefore, it is necessary for JAKIM and state agencies to conduct awareness campaigns on foreign halal logos among youth to avoid misleading product purchasing.

**Keywords:** Foreign halal logos, Youth awareness, Halal products.

---

**BLOOM’S TAXONOMY-BASED BIOLOGY EXAMINATION PAPER GENERATION AND MANAGEMENT SYSTEM FOR SECONDARY SCHOOLS IN MALAYSIA**

Ngai Tol Tan, Kasthuri Subaramaniam, Mohd Helmy Abd Wahab, Abdul Samad Shibghatullah

Institute of Computer Science and Digital Innovation, UCSI University 56000 Cheras, Kuala Lumpur, Malaysia, Department of Computer Engineering, Faculty of Electrical and Electronic Engineering, Universiti Tun Hussein Onn Malaysia (UTHM)

**Abstract:** Quality education is an important component of our daily lives. Every educational institution should keep up with advancements in information technology to improve the teaching and learning process. Secondary schools in Malaysia are still lacking in terms of utilization of information technology in examination paper generation and management. This project aims to develop a prototype of Bloom’s Taxonomy-Based Biology examination paper generation and management system as well as an examination paper repository system for secondary schools. Literature review and a survey involving 52 respondents were carried out to identify the needs in this area. By employing Netbean IDE 8.2, Java
Database (JDBC) and various designing software, the prototype is then produced. The prototype demonstrated the promising potential to relieve the burden of secondary school teachers in examination paper generation and management.

**Keywords:** Biology, Bloom’s Taxonomy, Examination, Secondary School, Web Application

---

**THE IMPACT OF GOVERNANCE TOWARD TOLERANCE AMONG YOUTH IN THE MANUFACTURING AREA**

Khairol Anuar, Kamri, Aizathul Hani, Abd Hamid, Khairul Azman, Mohamad Suhaimy, Md Rosli, Ismail

Pusat Pengajian Umum dan Kokurikulum, Universiti Tun Hussein Onn Malaysia, Fakulti Pendidikan dan Sains Sosial, Universiti Selangor

**Abstract:** This paper is to examine the impact of governance toward ethnic tolerance among youth in Pasir Gudang, Johor. The expression about the federal and local governance was collect by a stratified sampling technique from 362 youth in Pasir Gudang by using a set of questionnaire. The relationship between governance and tolerance variable is analyse by using structural equation modeling (SEM). The result found there is a significant impact of governance towards the ethnic tolerance among youth in Pasir Gudang, Johor. The finding may contribute to the policy maker to ensuring the governance is manage properly to preserve the ethnic tolerance among youth.

**Keywords:** Ethnic tolerance, governance, digital society, youth.

---

**MULTI-GROUP ANALYSIS BY ETHNICITY IN THE GOVERNANCE IMPACT TOWARD YOUTH TOLERANCE BEHAVIOR**

Khairol Anuar, Kamri, Aizathul Hani, Abd Hamid, Md Rosli, Ismail, Mansor, Mohd Noor

Pusat Pengajian Umum dan Kokurikulum, Universiti Tun Hussein Onn Malaysia
Fakulti Pendidikan dan Sains Sosial, Universiti Selangor
Institut Kajian Etnik (KITA), Universiti Kebangsaan Malaysia

**Abstract:** This paper explores the impact of governance on ethnicity among youth in Pasir Gudang, Johor. A stratified sampling method of 362 young people in Pasir Gudang is use to collect the expression of federal and local governance and their ethnic tolerance by using a set of questionnaire. In this case, structural equation modeling (SEM) and multi-group analysis (MGA) is utilize to seek the relationship between the governance and ethnic tolerance. The results showed that governance in Pasir Gudang, Johor has major effects on tolerance among youth. The finding will help to ensure that governance is adequately administer to maintain tolerance among youth.

**Keywords:** ethnicity, ethnic tolerance, governance, youth.
A REVIEW OF HUMAN ERROR IN USING MOBILE DEVICE THAT LEAD TO SECURITY THREAT

Norzul Masri Abdul Mubin, Abdul Samad Shibghatullah, Kasthuri A/P Subaramaniam, Joseph Ng Poh Soon, Mohd Helmy Bin Abd Wahab
Fakulti Teknologi Maklumat & Komunikasi, Universiti Teknikal Malaysia Melaka (UTeM), Hang Tuah Jaya, 76100 Durian Tunggal, Melaka, Malaysia, Institute of Computer Science & Digital Innovation, UCSI University, Kuala Lumpur, Malaysia, Department of Computer Engineering, Faculty of Electrical and Electronic Engineering, Universiti Tun Hussein Onn Malaysia (UTHM)

Abstract: Human errors are the most critical issues that contribute to the information security threat. Human errors in information security are the biggest threats to the organizations. Simple mistakes like connecting computers to the Internet through an insecure wireless network may cause thousands of dollars lost to the organizations. According to the researches, human error remains the greatest threat to data security across the industry and at least 78% of respondents indicated that their company had experienced a data security breach as a result of human negligence or maliciousness. The objective of this paper is to review the common human errors in using mobile devices that cause the information security threat based on the previous research. This paper gives reviews on human errors, mobile devices, human errors in handling mobile devices and the second part analyses the effects of the human error to security threat. The last part concludes the findings.

Keywords: human error; information security; mobile user; mobile devices.

VEHICLE TRACKING APPLICATION BASED ON REAL TIME TRAFFIC

Abdul Samad Shibghatullah, Abdurrahman Jalil, Mohd Helmy Abd Wahab, Joseph Ng Poh Soon, Kasthuri A/P Subaramaniam, Tillal Eldabi
Institute of Computer Science & Digital Innovation, UCSI University, Kuala Lumpur, Malaysia. University Malaysia of Computer Science and Engineering (UNIMY), Cyberjaya, Selangor, Malaysia Department of Computer Engineering, Faculty of Electrical and Electronic Engineering, Universiti Tun Hussein Onn Malaysia (UTHM), Malaysia, Department of Business Transformation, Faculty of Arts and Social Sciences, University of Surrey, Guildford, Surrey GU2 7XH, United Kingdom

Abstract: Vehicle tracking application is very important to track the movement of vehicles such as bus, train and taxi. One of the issue in vehicle tracking system is the accuracy of estimation time. With the help of technology, it is possible for the vehicle operators to provide accurate estimated time of arrival to the users. This paper aims to improve the accuracy of vehicle estimated time so that users can expect the arrival of the vehicle. An application is proposed in this paper and it uses Global Positioning System (GPS) on Android smartphone to determine the location of a vehicle and the coordinates is stored in Firebase Real-time Database which optimized for syncing of data in real-time. Furthermore, Google Distance Matrix Application Programming Interface (API) is used to calculate the estimated arrival time of the vehicle. Distance Matrix API able to return time of travel between two points, based on recommended route and traffic information. The prototype of application went through several stages of software testing and evaluation. Based on the users feedback the system is better in terms of estimating the arrival time.
Keywords: Arrival time estimation; Distance matrix API; Firebase real-time database; Real-time tracking.

A HIGHLY MINIATURISED ULTRA-WIDEBAND ANTENNA WITH A TRIPLE-BAND NOTCH FOR WEARABLE APPLICATIONS


Faculty of Electrical and Electronic Engineering, Universiti Tun Hussein Onn Malaysia, Johor, Malaysia Research Centre for Applied Electromagnetics, Universiti Tun Hussein Onn Malaysia, Johor, Malaysia School of Electrical Engineering, Faculty of Engineering, Universiti Teknologi Malaysia, Johor, Malaysia

Abstract: In this paper, a compact UWB antenna with a triple-band notch for wearable applications is designed and simulated for Ultra-Wideband (UWB) applications with the operating frequency from 3.1 GHz to 10.6 GHz. The antenna can be used for UWB applications, while at the same time, is able to reject the narrowbands namely, WiMAX (3.2 GHz to 3.6 GHz), C-band (3.7 GHz to 4.2 GHz) and WLAN (5.15 GHz to 5.35 GHz). Two slots are introduced on the radiating patch of the antenna to notch the three narrowbands, instead of three slots to notch each narrowband. The antenna is designed on a semi-flexible Rogers Duroid RO3003TM substrate. The final outcomes indicate that the antenna can operate over the UWB frequency from 3.09 GHz to 11.09 GHz. The antenna is able to notch the WiMAX and C-band with a frequency range from 3.16 GHz to 4.20 GHz and the WLAN band with a frequency range from 5.14 GHz to 5.34 GHz. The performance of the antenna in bending condition is also examined with the antenna bent over a varying diameter of vacuum cylinder starting from 50 mm, 80 mm and 100 mm. It is shown from the reflection coefficient of each diameter that the performance of the antenna is not affected by bending and thus, is particularly useful to be worn on body for wearable applications, other than its compact size of 19 × 14 mm2. The SAR results obtained shows that the antenna obeys the guidelines for 1 mW of input power.

Keywords: Ultra-Wideband, Wearable antenna, Worldwide Interoperability for Microwave Access, Wireless Local Area Network, Bending investigation, Electromagnetic, Bandwidth

CHALLENGES OF EDUCATING ADOLESCENTS IN MUSLIM FAMILIES AT PUTRAJAYA

Izzah Nur Aida Zur Raffar, Salasiah Hanin Hamjah

Academy of Contemporary Islamic Studies, Universiti Teknologi Mara (UiTM) 78000 Alor Gajah, Melaka. Research Centre for Dakwah and Leadership, Faculty of Islamic Studies, Universiti Kebangsaan Malaysia (UKM), 43600 Bangi, Selangor

Abstract: Parents today face various challenges in educating their adolescents. This is because adolescents are much influenced by their environment and peers, resulting in them being trapped in various social problems such as free mixing, porn addiction, smoking, truancy, loafing, gangsterism and vandalism. Hence, the purpose of this research is to identify the challenges faced by parents in educating their adolescents in the family. This research is designed as a survey study using questionnaire as research
instrument on 384 respondents selected by purposive sampling of parents who have adolescents, in
Putrajaya. Data was analysed by descriptive statistical technique using SPSS version 22. Research results
find that research respondents face challenges in educating their adolescents due to the factors of peers,
parents’ busyness with work, family financial problems, current technology and cyber media, as well as the
characteristics of generation Z. The implications for this research provides knowledge to help parents on
current challenges in educating their adolescents, so that they are able to deal wisely with adolescent
social issues and problems. This research also contributes knowledge to relevant authorities involved such
as National Board for Population Planning and Family Development (or LPPKN), Department of Social
Welfare (or JKM) and Department for Islamic Development of Malaysia (or JAKIM) in order to more
effectively manage parenting and adolescent development programs.

Keywords: Challenges, Parents, Adolescents, Family, Education

REVIEW OF ULUM AL-QURAN ELEMENTS IN THE MALAY REALM’S AL-QURAN MANUSCRIPTS

Mohd Nazir Kadir, Mohd Faizulamri Mohd Saad

Pusat Kajian al-Quran dan al-Sunnah, Universiti Kebangsaan Malaysia (UKM), Bangi & Ketua Pusat
Islam, Kolej Pengajian Islam Johor (MARSAH), Johor, Pusat Kajian al-Quran dan al-Sunnah, Universiti
Kebangsaan Malaysia (UKM), Bangi, Selangor.

Abstract: One aspect to demonstrate a civilization of a society is valued by their writing skills. Thus in the
writing of Holy Al-Quran that was initiated from Prophet Muhammad PBUH century to Malay archipelago
have proved the tradition of writing and copying always get the attention of the public. This study aims to
demonstrate a preliminary review of the literature based on previous study by focusing on the elements of
the Quranic text as found in Quranic ancient manuscripts. This study employs qualitative document
analysis. The results illustrate that the previous studies conducted comparative study in order to compare
Quranic ancient manuscripts and Quranic current manuscripts. Whereas, the review of the element of Ulum
Al-Quran covered the aspects of qiraat, rasm, dabt, waqaf and ibtida’ and tajwid.

Keywords: al-quran manuscripts, ulum al-quran, malay archipelago, comparative study

DESIGN AN INTELLIGENT SYSTEM TO AUTOMATICALLY TUTOR THE METHOD FOR SOLVING
PROBLEMS

Hien D. Nguyen, Dung A. Tran, Huan P. Do, Vuong T. Pham

Faculty of Computer Science, University of Information Technology, Quarter 6, Linh Trung Ward, Thu Duc
District, Ho Chi Minh City, 70000, VIETNAM, Faculty of Software Engineering, University of Information
Technology, Quarter 6, Linh Trung Ward, Thu Duc District, Ho Chi Minh City, 70000, VIETNAM, Vietnam
National University – Ho Chi Minh city (VNU-HCM), Quarter 6, Linh Trung Ward, Thu Duc District, Ho Chi
Minh City, 70000, VIETNAM, Tien Giang Department of Information and Communication,
02 Le Van Duyet street, My Tho city, Tien Giang province, 84000, VIETNAM, Faculty of Information
Technology, Sai Gon University, 273 An Duong Vuong street, District 5, Ho Chi Minh City, 70000,
VIETNAM
Abstract: Nowadays, intelligent systems have been applied in many real-word domains. The Intelligent chatbot is an intelligent system, it can interact with the human to tutor how to work some activities. In this work, we design an architecture to build an intelligent chatbot, which can tutor to solve problems, and construct scripts for automatically tutoring. The knowledge base of the intelligent tutoring chatbot is designed by using the requirements of an Intelligent Problem Solver. It is the combination between the knowledge model of relations and operators, and the structures of hint questions and sample problems, which are practical cases. Based on the knowledge base and tutoring scripts, a tutoring engine is designed. The tutoring chatbot plays as an instructor for solving real-world problems. It simulates the working of the instructor to tutor the user for solving problems. By utilizing the knowledge base and reasoning, the architecture of the intelligent chatbot are emerging to apply in the real-world. It is used to build an intelligent chatbot to support the learning of high-school mathematics and a consultant system in public administration. The experimental results show the effectiveness of the proposed method in comparison with the existing systems.

Keywords: Intelligent tutoring system, chatbot, intelligent problem solver, knowledge engineering

NATURAL CLAYS OF MOROCCO : POTENTIALS AND APPLICATIONS

Mohammed BELGHAZDIS, El-Kaber HACHEM, Atman BENDOUCH

Research Team "Innovative Research & Applied Physics", Faculty of Sciences, Moulay Ismail University, Meknes, Morocco

Abstract: The commercial value of a clay mineral depends first of all on its physicochemical and mineralogical properties, in this context numerous studies of the mineralogical, particle size, textural, physical, chemical, thermal and technological properties have been carried out to understand the minerals clay from Morocco and to enhance them for the production of new high quality materials and to use clays in several industrial and environmental fields. Moroccan sediments are more homogeneous and are generally used in the fields of building materials, pottery, manufacture of tiles, bricks, cosmetics and health treatments. Indeed, Morocco is one of the top 20 producers and consumers in the world of clay building materials. This work aims to provide information on the different properties of the abundant clay minerals in Morocco and to establish an easily accessible database that can be used to compare between these natural resources and their possible uses, based on physico-chemical, mineralogical and thermal properties obtained by different researchers. We will focus particularly more specifically on the study of four regions: Rabat-Sale-Kenitra, Fez-Meknes, Marrakech-Safi, Tanger-Tetouan-Al Hoceïma. Finally we will show the usefulness of to associate clay minerals with other organic materials in order to obtain hybrids with having new functions and performances opening the door to other potential sectors of valuation of these natural materials.

Keywords: Clay, Sediment, Morocco, Hybrid, Organique, Natural materials

A WEB-BASED APPLICATION: MONITORING POLITICAL CANDIDATES POPULARITY ON SOCIAL MEDIA

Zuraini Zainol, Lu How Yee, Angela Siew-Hoong Lee, Khairani Abd Majid, Puteri N.E. Nohuddin
Abstract: Monitoring Political Candidate Popularity application is a web-based application that can be used to monitor the popularity of any political figure on social media. Social media such as Facebook, Instagram, YouTube, Twitter forums, blogs are the platforms for public to share information about their ideas and thoughts nowadays. In this study, Twitter is used as the main source for this application to mine the data (tweets) from. This massive quantity of tweets offers valuable information and interesting patterns that provides insights and non-trivial knowledge to users, decision makers and also stakeholders. The aim of this study are to develop a web-based application that is capable of collecting real time politician tweets and to perform sentiment analysis on the collected tweets subsequently visualize the results in graphical forms – bar chart, pie chart, etc. The methodology for developing this application is CRISP-DM Methodology. Then, Naïve Bayes classification technique is applied to build the model of the classifier in which it is able to classify the collected tweets as positive, neutral and negative sentiments as the result.

Keywords: Data Mining, Sentiment Analysis, Naïve Bayes, Social Media.

TRIPLE-BASED TEACHING APPROACH: ‘STUDENT AS MANAGER’ MODEL IN 21ST CENTURY BUSINESS STUDIES (EVALUATION AND RESULT)

Kesavan Nallaluthan, Hasrin Hashim, Suhazlan Suhaimi, Arsalan Mujahid Ghouri, Shathees Baskaran

Faculty of Management and Economics, Universiti Pendidikan Sultan Idris, Lucrative Base Sdn.Bhd, Faculty of Arts, Computing and Creative Industry, Universiti Pendidikan Sultan Idris, Azman Hashim International Business School, Universiti Teknologi Malaysia

Abstract: The triple-based teaching approach is a student-center learning process that is implemented for undergraduate business studies. It is mixed with the game, problem, and challenge-based learning strategy that aims to prepare business students to manage unexpected and complex global or industrial issues in the 21st century. It encourages an active and reliable learning environment that requires students’ creative input, collaboration, and industrial involvement. The action research method applied for this Triple-based teaching approach which implements the ‘Student as Manager’ model with a relevant task for undergraduate business students at Universiti Pendidikan Sultan Idris (UPSI). Therefore, for the pilot test the Strategic Management subject (PPB3073) A191 semester selected to implement this teaching approach. Overall result Course Learning Outcome (CLO) shows that 75.1 percent and this subject overall performance was 95.46 percent. This teaching approach beneficial for undergraduate students to getting know about industrial phenomena with 21st learning skills (collaborative, creative, critical thinking, and communication)

Keywords: triple-based teaching method, game-based learning, problem-based learning, challenge-based learning, student as manager model.

SINKHOLE ATTACK DETECTION AND AVOIDANCE MECHANISM FOR RPL IN WIRELESS SENSOR NETWORKS

Ansar Jamil, Mohammed Qassim Ali and Muhammed E. Abd Alkhalec
Faculty of Electrical and Electronic Engineering, UTHM, Malaysia, Faculty of Computer Science and Information Technology, UTHM, Malaysia

Abstract: Security issue is one of the main problem in Wireless Sensor Network (WSN) and Internet of Things (IoTs). RPL (Routing protocol for low power and lossy networks) is a standard routing protocol for WSN, is not to be missed from being attacks. Performance of RPL is reduced significantly after being attacked. Sinkhole attack is one of the most common attacks to WSN and RPL, threatening the network capability by discarding packets and disrupting routing paths. Therefore, this paper proposes a new Secured-RPL routing protocol to detect and avoid sinkhole attack in the network, which is called Cross Layers Secured RPL (CLS-RPL). This routing protocol is enhanced of the existing RPL routing protocol. CLS-RPL is a cross-layer routing protocol that uses information from the data link layer in its security mechanism. CLS-RPL uses a new technique and concept in detecting sinkhole attack that is based on eave-listening (overhearing) that allows a child node to eave-listening its parent transmission. If the child node does not hear any transmission from its parent node after sending a number of packets, this means its parent node is a sinkhole attacker. Otherwise, if the node hears transmission from its parent node, this mean that its parent node is a legitimate node and continues to send more packets. CLS-RPL implements a simple security mechanism that provides a high packet delivery ratio. The finding shows that CLS-RPL provides 52% improvement in term of packet delivery ratio when compared to RPL protocol.

Keywords: Cross-layer, RPL, Security, Sinkhole attack Wireless Sensor Network.

QR CODE TECHNOLOGY IN AN INTERACTIVE E-COMMERCE APPLICATION

Yuhanis Yusof, Lee Cheng Hooi, and Azizi Abas

School of Computing, Universiti Utara Malaysia, Malaysia

Abstract: Advertisement on products or services can be found in many forms; video, banners, pamphlets and etc. However, these advertisements only function as a one-way communication as consumers are only presented with the product information and the seller. Further action on purchasing the product is absent or is to be made separately. Such an approach may not guarantee a sale for the seller as customer may only retrieve the information of the product but yet purchase it elsewhere. Hence, this study demonstrates the use of QR code technology not only in marketing but also in e-commerce. The technology is realized in On The GoShop application that has two types of users: seller and buyer. Sellers are people who wants to promote their product and/or services while buyers are the ones who has desire to purchase. Evaluation study was then performed on a total of 50 respondents and it is learned that the proposed e-commerce approach is well accepted. Ninety per-cent of the respondents agree with the usefulness of the application and are looking forward to using the application in daily routines. The use of QR code technology not only facilitates consumer in purchasing their desired product but also contribute to a cost-effective marketing.

Keywords: QR code, digital marketing, e-commerce, digital advertising

CLOUD BASED HEARTBEAT RATE MONITORING SYSTEM WITH LOCATION TRACKING

Malathy Batumalay, Deshinta Arrova Dewi, Hong Shu Ming

Faculty of IT, INTI International University, 71800 Nilai, Negeri Sembilan, Malaysia, Centre for Emerging Technologies in Computing (CETC), INTI
Abstract: Heartbeat rate reflects an individual’s physical health and the status of a person cardiovascular health. A person with poor cardiovascular health is subjected to various heart diseases including heart attack. Heart attack is one of the deadliest diseases worldwide and the number one cause of death annually. People with poor cardiovascular health are required to be monitored in order to prevent a life-threatening situation. To help on this issue, the proposed monitoring system through cloud servers helps to monitor people with poor cardiovascular health constantly. This system is developed using a lightweight Bluetooth ECG sensor, Android Technology, Web application as well as cloud services provided by Firebase. This system is portable, allowing patient to carry it on a travel. The heartbeat rate monitoring system with enhanced feature of alerting and notifying user through cloud servers. The firebase realtime database allow data to be transferred in realtime and user can send an alert through a push button. The proposed system allows patient to be monitored and alert users in case of any emergencies. A location tracking is also included as an added value feature. This may help in life threatening situations that will endanger patient’s life.

Keywords: Android technology, Cloud, Heartbeat Rate Monitoring, Web application

VALIDITY AND RELIABILITY OF MEASUREMENTS FOR PERCEIVED ORGANIZATIONAL SUPPORT AND TURNOVER INTENTION AMONG EMPLOYEES IN THE SERVICES SECTOR

Nor Sabrena, Norizan, Irzan, Ismail, Muhammad Iskandar, Hamzah

Faculty of Business and Management, Universiti Teknologi Mara (UiTM), Melaka, Malaysia, Faculty of Business and Management, Universiti Teknologi Mara (UiTM), Shah Alam, Malaysia

Abstract: Employee turnover is a major challenge faced by Small and Medium-sized Enterprises (SMEs) in the services sector in Malaysia. It is found that this sector has faced a conservative turnover for two years and further studies need to be done to solve this problem. To minimize turnover, employees need to feel safe, valued, and satisfied. Many previous literatures showed that organizations that implement and increase the level of Perceived Organizational Support (POS) among employees can help to overcome the turnover problems. Increasing the level of POS is believed to help strengthen the relationship between employee and employer, thereby reducing employees' intention to seek or accept other jobs. This study aims to analyze the validity and reliability of measuring tools designed to identify how POS affects employee turnover in Malaysian SMEs. This study also extends POS research by demonstrating support for a multidimensional measure of supervisor support, organizational justice, and organizational rewards & work conditions. A quantitative method was used and a pilot test for the reliability of the questionnaires was carried out by using SPSS to examine the results of Cronbach’s Alpha. There were 33 respondents from the services sectors who participated in answering the questionnaires. The questionnaire contains 42-items and was developed after a detailed analysis of the literature. Overall, all components show measuring components under the given component providing a reliable internal consistency measure as the alpha of Cronbach for POS and Turnover Intention ranged from 0.784 to 0.856.

Keywords: Perceived Organizational Support, Turnover Intention, Services Sector, SMEs

AN INVESTIGATION ON SUCCESSION PLANNING INITIATIVES AND KNOWLEDGE RETENTION: IT ONLY TAKES ‘TWO’ TO TANGO
Abstract: Knowledge management is of significant interest in the management field. In our digital society that is driven by advanced technological changes, efforts towards knowledge management are becoming highly important as knowledge knows no boundaries. This study is conducted to observe the importance of succession planning initiatives towards knowledge retention. To remain competitive in this digital society, succession planning is a process that cannot be ignored by any organization. It involves the nourishment of talent and thus, its processes affect the organization, financially and operationally. Of 150 questionnaires distributed, 102 were returned and analyzed, yielded a 68% response rate. Based on a deductive method, of the six dimensions of succession planning, there were only two hypotheses supported. It was established that, only top management support and strong organizational culture have significant effect towards knowledge retention. Practical and managerial implications were discussed.

Keywords: Knowledge retention, Succession Planning, Top Management Support, Organizational Culture, SMEs, Malaysia

AN ENHANCED SYSTEMATIC STUDENT PERFORMANCE EVALUATION BASED ON FUZZY LOGIC APPROACH FOR SELECTION OF BEST STUDENT AWARD

Tracy Adeline Ajol, Shirley Sinatra Gran, Agnes Kanyan, Siti Farah Lajim

Faculty of Computer and Mathematical Sciences, Universiti Teknologi MARA, Cawangan Sarawak, Mukah Campus, 96400 Mukah, Sarawak, Malaysia, Faculty of Business and Management, Universiti Teknologi MARA, Cawangan Sarawak, Mukah Campus, 96400 Mukah, Sarawak, Malaysia

Abstract: The Best Student Award is one of the incentives initiated by an institution to identify potential students who not only are excellent academically but also possess great leadership skills. Moreover, they may enhance these skills that subsequently contribute to the future of society. Nonetheless, one of the greatest challenges faced by the evaluators in the selection process is uncertainty and imprecise data in measuring the students’ leadership competencies. Thus, this paper proposes the development of Initiative-Systematic Performance Evaluation (I-SPE) as an initiative tool to measure student’s competencies based on Fuzzy Logic Approach. The study focuses on the selection of the best student based on data collected from leadership programme, Program Kepimpinan Pewaris Bangsa (PKPB) at MARA University Technology (UiTM) Mukah Campus. Often, in the current practice, tie and time consuming challenges due to the subjective and complexity of measurement criteria are involved. Therefore, I-SPE will assist to provide an improved decision-making solution to the evaluators during the evaluation process. Fuzzy logic tools used to develop I-SPE allow the experts to introduce any uncertainty and subjectivity into the evaluation system. The development of fuzzy rules in this model is based on five selected attributes, which include leadership, communication, teamwork, discipline and CGPA. Highest value obtained from I-SPE is 0.912 that belongs to the Excellence of Student Performance in the membership function. Result obtained shows that the proposed model I-SPE was able to improve decision-making efficiency that would lead to fairness in selecting the best candidate compared to the conventional method.
DEVELOPMENT OF WEARABLE GAIT ANALYSIS DEVICE BASED ON VERTICAL GROUND REACTION FORCES

Nurameriea Deni, Muhammad Hazli Mazlan, Ida Laila Ahmad, M. Anas Razali, Mohd Khairul Ahmad, Nur Dalilah Diyana Nordin

Faculty of Electrical and Electronic Engineering, Universiti Tun Hussein Onn Malaysia, Malaysia, Microelectronics and Nanotechnology-Shamsuddin Research Centre, Universiti Tun Hussein Onn Malaysia, Malaysia, Information Technology Centre, Universiti Tun Hussein Onn Malaysia, Malaysia, dalilah@uthm.edu.my

Abstract: Gait analysis system is widely used in the field of biomechanics and sports sciences. It is a sophisticated system that requires high costs to develop and run. This system also requires trained people to handle the system. Besides, the existing wearable gait analysis device faced some limitations such as low durability and repeatability, big size and heavy weight, and limited data storage and time of usage. Based on these conditions, this project was created to overcome the stated problems by initiating a pilot work on developing a reliable and cost effective device. This initial gait analysis device only focused on the vertical ground reaction force (vGRF) and analyse the human gait pattern during normal walking activity. This project is designed with wireless capability that makes handling and monitoring of the device easier. This project is a prototype based gait analysis system with the ideas to develop a low cost system that can be integrated and enhanced the existing system. Resistive force sensors placed at three locations which representing the most pressurised on foot based on previous study to measure the vGRFs. The device was tested by conducting experiments to analyse gait pattern of ten healthy subjects during normal walking activity. The results were verified according to the standard gait data obtained from the previous study. The results showed that the developed wearable gait analysis device able to produce similar curve patterns as the standard vGRF with 94.5 % accuracy. With the high repeatability and accuracy this device can be further expanded by including the lateral and longitudinal ground reaction forces, performing more activities, and conducting experimental study from different background of subjects.

Keywords: Gait analysis, vertical ground reaction force, wearable device, walking pattern.

OPTIMAL ECONOMIC AND EMISSION DISPATCH OF PHOTOVOLTAIC INTEGRATED POWER SYSTEM USING FIREFLY ALGORITHM

M. Solahuddin M. Salim, M.N. Abdullah

Green and Sustainable Energy (GSEnergy) Focus Group, Faculty of Electrical and Electronic Engineering, Universiti Tun Hussein Onn Malaysia

Abstract: The main purpose of Economic Load Dispatch (ELD) is to determine the optimal output of generating units to meet the power demand at lowest possible cost and subjected to the operational constraints. Various ELD optimization methods have been developed in order to deal with the challenges of continuous and sustainable power at optimal cost. The deficiency of fossil fuel reserve and rapid increase of fuel prices to generate electricity have encouraged the use of Renewable Energy (RE). Furthermore, the concerns over environmental pollution also become a factor to incorporate the RE and fossil fuel in generating electricity. This paper proposes the Firefly Algorithm (FA) to solve Economic and Emission Load
Dispatch (EELD) problems by considering the photovoltaic integration power systems. The FA algorithm is used to determine the optimal cost and emission level of power generation. The test case considered in this paper is Static Combined Economic and Emission Dispatch (SCEED) that been simulated for each hour. The test system with 6 units of thermal generator and 13 units of PV generator are used to optimize SCEED problem by using FA. The Weight Sum Method (WSM) approach is used to determine the best compromise solution among the cost and emission. It found that FA can provide the fast convergence in finding the global minima value. It can be concluded that FA can solve the problem of economic and emission dispatch accurately.

**Keywords:** Combined Economic Emission Dispatch, Economic Dispatch, Firefly Algorithm, Renewable Energy

**REVIEW OF FORECASTING THE CRITICAL FREQUENCY OF THE IONOSPHERIC F2 LAYER**

Noreen Nabilla Risal, Mariyam Jamilah Homam

Wireless and Radio Science Centre, Faculty of Electrical and Electronic Engineering, Universiti Tun Hussein Onn Malaysia, Malaysia

**Abstract:** This literature review considered seven journals published over the last 5 years as primary references in the field of forecasting ionospheric F2 layer critical frequency (foF2) under quiet and disturbed conditions. The literature was extracted on the basis of the search results and then divided into two major domains: principles of ionospheric critical frequency and methods for forecasting foF2. The proposed differentiation enables future research on factors that affect the variability of foF2 and on methods used in foF2 prediction, such as empirical and neural network models. Accordingly, improved foF2 models can be investigated and developed.

**Keywords:** Critical frequency, F2 layer, Ionosphere, Neural network, Solar activity

**INTELLIGENT SYSTEM FOR ALERT NOTIFICATION IN SMART FARMING DEVELOPMENT**

Khairulnur Najihah Abd Karim, Mohd Hudzari Haji Razali, Siti Mariam Shamsi and Mohamad Noorman Masrek

Faculty of Plantation and Agrotechnology, Universiti Teknologi MARA Cawangan Melaka, Jasin Campus, 77300 Merlimau, Melaka, Malaysia, Faculty of Information Management, UiTM Kampus Puncak Perdana

**Abstract:** The past decade has seen significant advancement in the field of agriculture industry. Various smart appliances such as cellular phones, moisture sensors, humidity sensor and smart irrigation are set to realize the concept of a new smart farming with the help of latest technology. In Malaysia, farmers experience crop damage and decrease in plant quantity and quality because they unable to monitor the crop all day. The development of a monitoring system that can helps farmer grow crops is enticing demand for busy individuals with physical limitations. Global System for Mobile Communication (GSM) technology, which has emerged in the late 1970s, is an ideal solution for this problem. In this paper, a development of
intelligent system for alert notification in indoor planting is presented. This paper describes an application of GSM technology for monitoring light system in indoor planting with the use of hardware component like Arduino board, GSM SIM900A, LDR and LED strip. The major role of this system is to enable farmers to get notified when the light system for their plants is down through GSM SIM900A. Each time the light system is light on and light off, the farmers will receive an SMS to notify them. System functional testing was carried to evaluate the performance of implementing GSM SIM900A whether the prototype is free from error or there are a few errors occurs. The results shown that, the system is well functioning for alert notification in indoor planting monitoring. In conclusion, the development of intelligent systems for alert notification in indoor planting will enhanced the capability of monitoring safely and control towards development of smart farming for indoor planting which can be satisfied Malaysian governance actuation in concept of One Home, One Farming.

**Keywords:** GSM technology, Monitoring, Indoor planting, Intelligent system, Arduino

---

**INVESTIGATION ON THE COMPLIANCE OF OCCUPATIONAL SAFETY AND HEALTH (OSH) LEGISLATIONS AMONG CONTRACTORS AND POTENTIAL INTERVENTIONS TO IMPROVE CONSTRUCTION SAFETY PERFORMANCE**

Philomena Belia Koh, Nor Haslinda Abas, Rafikullah Deraman, Muhamad Hanafi Rahmat, Adnan Latif, Muhammad Fikri Hasmori

Jamilus Research Centre, Universiti Tun Hussein Onn Malaysia, 86400 Batu Pahat, Johor, Malaysia

**Abstract:** The Malaysian construction industry is considered as a risky workplace according to the Social Security Organization (SOCSO) Annual Report due to high accident and fatality rates. It contributes more fatalities out of all industries. Besides, the construction industry had been proven lag in the safety performance compared to the other industries. Some of the identified major causes of this problem are due to poor knowledge of occupational safety and health (OSH) provisions among employers and employees.

**Keywords:** Construction, Accidents, OSH legislations, Safety, Intervention, Implement

---

**e-JUSTICE: STUDENTS’ COMPLAINT MADE EASY**

Wan Mardiana Wan Musa, Azahari Abd Aziz, Noorimah Misnan, Shahariah Harun.

Law Faculty, Universiti Teknologi Mara Cawangan Terengganu

**Abstract:** One of the key ingredients in students’ empowerment is students’ participation in decision-making process. Thus, the Students’ Affairs Department of Universiti Teknologi Mara Cawangan Terengganu has initiated a student unit known as Badan Keadilan Mahasiswa. Under this unit, there are two sub-units, which are Badan Guaman Mahasiswa and Tribunal Keadilan Mahasiswa. Of both units, the Tribunal Keadilan Mahasiswa holds quasi-judicial function. The Tribunal shoulders the responsibility of assisting the Students’ Affairs Department in hearing students’ complaints. e-Justice is an electronic complaint form for students to lodge their complaints pertaining any of the three matters: students against students, students against clubs or societies and club or society against another club or society. The system is initiated to replace the previous system so as to improve its visibility amongst students in higher institution. The aim of this paper is to elaborate on the working of the new system and to value its effectiveness in comparison to the previous system. This study is significant to students’ development and empowerment
to be up to date with new technology and be mindful of the social nature of new breed students. Besides that, this study also benefits the Students’ Affairs Department in developing students’ leadership and sustainability.

**Keywords:** empowerment-student-tribunal-justice-dispute-resolution-legal

---

**A COMPARATIVE STUDY ON CONSOLIDATION OF DESIGN PRINCIPLES IN WEARABLE PERSUASIVE MULTIMEDIA**

Umi Hanim, Mazlan And Siti Mahfuzah, Sarif

Department of Computer Science, Universiti Teknologi MARA Perlis Branch

**Abstract:** Wearable technology is a device that is worn or attached to people and is capable of sensing the physical and biochemical information. Meanwhile, persuasive technology has been widely used as a tool to modify humans’ behavior or attitude. The implementation of multimedia in both technologies is a value added to the integration of technology. Therefore, in order to integrate wearable, persuasive and multimedia, it is crucial to explore the appropriate design principle that best suits the consolidation. This study reveals various design principles of wearable, persuasive and multimedia. Additionally, 20 studies related to wearable, persuasive and multimedia were reviewed in terms of the domain of study, technology used, target outcomes, and consolidation and utilization of the design principles. It was discovered that many studies found the integration of persuasive and multimedia design principles, as well as persuasive and wearable technologies. However, almost close to none has provided evidence of integration among all the three design principles - wearable, persuasive and multimedia.

**Keywords:** Wearable Technology, Persuasive Technology, Multimedia Technology, Wearable Persuasive Multimedia

---

**SYNERGISTIC EFFECT BETWEEN CITRUS AURANTIFOLIA AND CORIANDRUM SATIVUM LEAVES EXTRACT ON ANTIFUNGAL ACTIVITY IN ALLIUM CEPA**

Aimi, S.B., Hashim, S.N., Rodzali, N.N., Abdullah, S.N.A., Muhammad, N.A.

Faculty of Applied Science, Universiti Teknologi MARA, Arau Campus, 02600 Perlis, Malaysia, School of Faculty of Applied Science, Universiti Teknologi MARA, Perak Branch, Tapah Campus, Tapah Road,35400 Perak, Malaysia

**Abstract:** Phytopathogenic fungi have been a mass problem in agriculture. Many plant diseases reported caused by fungi, including black mold disease in Allium cepa. The isolation step of fungi grown on the onion surface was done and discovered A. niger colony. It is commonly infecting onion bulb during pre-harvest and post-harvest season. The study objective is to find other alternatives from organic or natural resources instead of using chemical fungicide that may harm consumers. Thus, the antifungal activity of both leaves extracts of C. aurantifolia and C. sativum alone or in combination at different ratios tested in this study. It discovered that there is a synergistic effect between 50 mg/ml of both C. aurantifolia and C. sativum leaves extract with a 93.9 % percent reduction of mycelial growth. The results concluded that C. aurantifolia and C. sativum leaves have potential antifungal applications and synergistically effective in preventing the
growth of A. niger as can provide a better reduction in mycelial growth as compared to the positive control sample. This attribute might explain by the reaction of beneficiary compounds present in both C. aurantifolia, and C. sativum leaves extracts. Phytochemical screening showed that the C. aurantifolia leaves extract contains all active constituents tested except terpenoids. Meanwhile, C. sativum leaves extract contains only three compounds, which are tannin, saponin, and phenol. To conclude, these two extracts were beneficial to be used as a natural antifungal for Allium cepa.

Keywords: antifungal activity, C. aurantifolia, C. sativum, synergistic effect.

ENHANCING SPEED READING OF POOR VISION STUDENTS WITH MOBILE AUGMENTED REALITY MODEL: A COMPARATIVE ANALYSIS OF MAIN COMPONENTS

Hashiroh Hussain1Norshuhada Shiratuddin2, Mahaya Salleh

Educational Technology Department, Institute Teacher Education, Darulaman Campus, School of Multimedia Technology & Communication, Universiti Utara Malaysia

Abstract: The World Health Organization (WHO) (2010) has estimated that there are 39 million totally blind and 246 million are visually impaired around the world. In Malaysia, out of 32.4 million people, there are at least 50,000 identified, having poor vision and this is representing 0.2% of the country's population. National Eye Society of Malaysia (NES I) (2016) has reported a drastic increase of 5% annually in people wearing glasses because of having vision loss. A recent study also found that three out of four students did not wear glasses because of discomfortness, hence have hindered their reading activities and demotivating their learning activities, affecting their academic and emotional achievement due to visualization barriers. Nevertheless, there is a lack of reading aid and an appropriate model to ease reading for them. Hence, this study is proposing components for a conceptual model that can enhance speed reading with the Mobile Augmented Reality (mAR) technology. The technology is instilled with audio interaction to enhance speed reading without using glasses. A comparative study is employed to generate components of mAR model from eight recent studies. Findings show that there are four main components: user experience, interactivity, time delay and reading content. The findings of this study will contribute to the development of the conceptual model of speed reading of poor vision students with mobile augmented reality technology. In line with this, the latest mAR technology and human development are blended to oblige the national agenda as a transition to Education 4.0 and enhance balanced learning and education for all.

Keywords: Mobile augmented reality, poor vision, speed reading

COVID-19 PANDEMIC: INNOVATIVE DIGITAL TOOL USING PROGRESSIVE MUSCLE RELAXATION TO PROMOTE MENTAL HEALTH AMONG FRONTLINE HEALTHCARE WORKERS

Valerie Ross and Abid Amir

Faculty of Music, Universiti Teknologi MARA, Malaysia, Faculty of Medicine, Universiti Teknologi MARA, Malaysia

Abstract: The Covid-19 pandemic has brought the world to a near standstill causing adverse social, economic, physical and psychological repercussions to mankind. Global healthcare systems are pushed to breaking points. Mental health issues such as post-traumatic stress disorder is expected to manifest
among frontline health-care workers both during and after the Covid-19 pandemic. Lockdowns and movement control orders imposed by the Malaysian government and many other nations on its citizens have necessitated home-based solutions to manage rising stress and anxiety due to personal, professional, financial and work-related uncertainties. Frontline healthcare workers bear the brunt of the crisis. This study responds to mental issues caused by the virulent pandemic and recognizes the increasing need for psychosocial rehabilitation among healthcare workers affected by the Covid-19 pandemic. The objective of this study is to develop a digital tool comprising bespoke music and pulse-based narration using progressive muscle relaxation to promote mental health among frontline healthcare workers. A combination of practice-based and user-centred design methodology was adopted in this interdisciplinary study. Spectral analysis using Raven-Pro sound analysis offers insights into the sonic content of the tool. The result of the study is a prototype model of an innovative digital tool using bespoke music and narration in progressive muscle relaxation to promote mental health among Covid-19 frontline healthcare workers.

**Keywords:** Covid-19 pandemic, mental health, progressive muscle relaxation digital tool, healthcare workers

---

**ASSESSING DIGITAL LITERACY TOWARDS STUDENT PERFORMANCE: DEVELOPING A CONCEPTUAL FRAMEWORK**

Mohd Arif Fahmi Bin Bidin, Dr. Shamila Mohamed Shuhidan, Dr. Noor Zaidi Sahid

Faculty of Information Management, Universiti Teknologi MARA, UiTM Puncak Perdana Campus, 40150 Shah Alam, Selangor, Malaysia

**Abstract:** 21st century learning requires students to develop skills, knowledge and attitude in order to meet the demand of future job in the era of digital economy. Digital economy refers to an economy that based on digital computing technologies and Malaysia education systems collaborate with other agencies, private and public sector to integrate and embedded these elements into the current curriculum at school setting. Purpose – This paper aims to proposed a conceptual framework of Digital literacy that may affecting student performance.

**Keywords:** 21st Century Learning, Digital Economy, Digital Literacy, Student Performance

---

**THE FUTURE OF MALAYSIAN ANIMATION: DAWN OF A NEW ERA**

Faryna Mohd Khalis , Normah Mustaffa , Mohd Nor Shahizan Ali

Faculty of Art and Design, Universiti Teknologi MARA (UITM), Malaysia, Fakulti Sains Sosial & Kemanusiaan, Universiti Kebangsaan Malaysia (UKM), Malaysia, Fakulti Sains Sosial & Kemanusiaan, Universiti Kebangsaan Malaysia (UKM), Malaysia

**Abstract:** The animation industry today is a vital influence in the entertainment field, for children and adults alike. It has contributed to the next level of improvement in technology as part of the Industry 4.0 challenge for better communication. Malaysian animation is one technological aspect that has shown the most robust growth in the country, with success and various achievements and recognition from all over the world. This study highlights the most successful local animated productions, what they have achieved and the reasons behind their achievements. Beside analyzing report (secondary data) by FINAS in
January 2020, a focus group discussion (FGD) was conducted amongst educators from several different IPT’s to obtain their opinion regarding how Malaysian animation has improved. The study found that three Malaysian animation productions are the most triumphant to date, where all three were included in the list of top 10 films with the highest box office success in Malaysia for 19: Ejen Ali (RM30.05million), Boboiboy The Movie (RM29.57million) and Upin & Ipin: Keris Siamang Tunggal (RM26.20million). The reasons for this success include content that is relevant to the local context, good storyline and management, promotional strategy, cutting edge technology and budget constraints. These three movies achieved great heights by reaching international engagement, winning awards, getting an immensely positive response from audiences, and having their characters become new, favourite idols for children, thus proving that Malaysia’s local animation industry is ready to embark on another historic journey in the future as we enter Digital Society 5.0.

**Keywords:** Cartoon, Interactive, Digital, Society 5.0.

---

**GEOGRAPHICAL INFORMATION SYSTEM (GIS) USAGE TOWARDS WORK PERFORMANCE: A PROPOSED CONCEPTUAL FRAMEWORK**

Mohd Saiful Rahman, Shamila Mohamed Shuhidan and Mohamad Noorman Masrek

Universiti Teknologi MARA, Malaysia

**Abstract:** In the era of the Industrial Revolution 4.0 (IR 4.0), Information Systems are widely used by organizations to understand and plan their operation efficiently. One of the trends being used in an organization is the Geographical Information System (GIS). GIS is meant to be an element of location intelligence where it was viewed as a tool for organizations to visualize, understand, and analyze business data. GIS can benefit users in terms of understanding their data efficiently, cost savings, and most important is work performance to become more productive. However, GIS was known as a complex application for non-technical users and requires specific knowledge that can be developed through training and classes. Based on preliminary studies and extensive review of literature, it has been found that users are facing problems using GIS due to the GIS Characteristics, Task Characteristics, Individual Characteristics, and Organizational Characteristics. Therefore, this paper aims to propose a conceptual framework to identify the impact of GIS Characteristics, Task Characteristics, Individual Characteristics, and Organizational Characteristics towards GIS usage and how the usage of GIS can improve work performance. In essence, this will help to understand the criteria that should be considered in implementing or improving GIS in any organization.

**Keywords:** Geographical Information System (GIS); GIS Characteristics; Task Characteristics; Individual Characteristics; Organizational Characteristics; GIS Usage; Work Performance

---

**MOOC QUALITY DESIGN CRITERIA FOR PROGRAMMING AND NON-PROGRAMMING STUDENTS**

Aniza Sabjan, Alawiyah Abd Wahab, Azizah Ahmad, Rahayu Ahmad, Syahida Hassan, Juliana Wahid

Research and Innovation Management Centre, Universiti Utara Malaysia, 06010 Sintok, Kedah, Malaysia
School of Computing, Universiti Utara Malaysia, 06010 Sintok, Kedah, Malaysia

**Abstract:** The purpose of this study is to investigate the quality design criteria for developing a Massive Open Online Course (MOOC). Currently, there are limited studies that highlight the required design
criteria for the MOOC programming courses. A descriptive analysis was conducted to examine the characteristics of the three important quality design criteria which are (i) Instructional Design Criteria involving Lecture Organization and Culture; (ii) Technical Criteria involving User Interface, Video Content, Learning and Social Tools, and Learning Analytics; and (iii) E-Assessment. The data were collected from 306 respondents, representing the UUM MOOC students of 2018 class, were further analyzed using the T-Test hypothesis testing to determine whether both the programming and non-programming students require the same quality design criteria. The questionnaire used in this study consists of 46 items related to the MOOC quality design criteria that were adapted from previous studies. The results indicate that out of the nine constructs, four have obtained significant difference in the mean scores, namely the Video Content, Instructional Design, Culture, and E-assessment. These signify that different quality design criteria are needed for both the programming and non-programming students. The outcome of this study may assist the developers in designing the MOOC by providing the required criteria according to its importance.

Keywords: Instructional Design, MOOC, non-Programming, Programming, Quality Design

TEXT CLUSTERING OF TAFSEER TRANSLATIONS BY USING K-MEANS ALGORITHM: AN AL-BAQARAH CHAPTER VIEW

Mohammed A. Ahmed, Hanif Baharin, Puteri N.E. Nohuddin

Institute of IR 4.0, Universiti Kebangsaan Malaysia, Malaysia,

Abstract: Al-Quran is the primary book of faith and practice among Muslims. Millions of Muslims worldwide use the al-Quran as their reference book, and thus it is beneficial for Muslims in general and Islamic scholars to gain information from it. Al-Quran has been translated into different world languages, such as English that have been written by many translators, and each translator has its ideas, comments, and sort of statements to translate the verses acquired from (Tafseer). Consequently, this paper tries to cluster these differences of Tafseer translations using text clustering. Text clustering is the process for text mining which needs to cluster into the same segment of similar documents. This study adapted (k-means) clustering technique algorithm (unsupervised learning) to illustrate and discover the relationships between keywords called features or concepts for five different translators on the 286 verses of al-Baqarah chapter. Data preprocessing and feature extraction using TF-IDF (Term Frequency-Inverse Document Frequency) have applied for the datasets. The results show two/three-dimensional clustering plotting for the first two/three most frequent features assigning to seven cluster categories (k=7) for each one of five translated Tafseer. The features 'allah/god', 'believe', and 'said' are the most three features shared by the five Tafseer.

Keywords: Text mining, Text clustering, k-means algorithm, Tafseer translation, Al-Baqarah chapter.

CORONAVIRUS EXACERBATES XENOPHOBIA: CONSCIOUSNESS OF TWITTER POSTING DURING PANDEMIC
Norena Abdul Karim Zamri, Faisal Mohd Amin, Norazlinda Mohammad, Liza Marziana Binti Mohamad Noh, Siti Nurshahidah Binti Sah Allam, Abdul Rauf Ridzuan, Rosilawati Sultan Mohideen, Ameiruel Azwan Ab Aziz

Faculty of Communication and Media Studies, UiTM Alor Gajah Campus, Melaka, Pre-University Studies, Taylor's College Lakeside Campus, Faculty of Art and Design, UiTM Alor Gajah Campus, Melaka, Faculty of Communication and Media Studies, UiTM Alor Gajah Campus, Melaka, Academy of Language Studies, UiTM Alor Gajah Campus, Melaka

Abstract: Free speech is not a license for racists to spread racist propaganda. However, the outbreak of COVID-19 and its subsequent dissemination across the globe has left a shock wave of disbelief and confusion through social media, resulting in xenophobia in society. Racism, on the other hand, is a system of dominance and power designed to uphold the racially privileged of society. In this study, it tried to address the question of power in the networked public on Twitter during the COVID-19 pandemic. The data were collected through random sampling technique using machine learning tools to seek potential documents and public tweets on the Twitter platform based on the characteristics set in reference to the objective of the study. The study concludes by identifying the relevant hashtag used to reproduced power and constructing power relations. This leads to a discussion of power between social network coined by Foucault (1980) by intertwining the machine learning tools in social science and humanities studies.

Keywords: COVID-19; Power Relations; Twitter; Xenophobia

NUTRIENT MANAGEMENT FOR RUBBER PLANTATION USING GOAL PROGRAMMING

Nuridawati Baharom, Nurul Ain Mohd Razali

Faculty of Computer and Mathematical Sciences, Universiti Teknologi MARA Perlis Branch, Arau, Malaysia

Abstract: Malaysia is becoming one of the biggest natural rubber producers in the world. As this industry grows, the export of this commodity increases as well contributing to the gross national income. In order to maximize the profit, management of the farm must have proper planning on the resources such as fertilizer, labour, water and pesticide. This paper presents a case study done at UiTM Perlis's farm which focuses on nutrient management of rubber plantation. Since there are plenty of crops planted in UiTM Perlis's farm, the allocation of fertilizers must be managed wisely in order to avoid wastage that incurs cost to the Farming Unit of UiTM Perlis. The main objective of the study is to minimize the cost of chemical fertilizers used to plant rubber. Besides, the sub-objectives are to determine the best combination of weight for fertilizers and to calculate the mass per hectare of Nitrogen, Phosphorus, and Potassium needed for the rubber trees. Goal programming approach has been applied to solve the problem. In the model formulation, there are seven types of decision variables which represent seven types of chemical fertilizers and three constraints, which are the cost of chemical fertilizers and the requirement of the upper and the lower limits of nutrients in the chemical fertilizers. The findings of the study have shown that the cost has been reduced compared to the current practice. Results indicate that this method is able to meet all the goals expected. In conclusion, this study shows that goal programming is an effective technique to deal with nutrient management problem.

Keywords: nutrient management, goal programming, optimization, fertilizer.
4P-2E MODEL: TEACHING AND LEARNING PROCESS THROUGH ICT INTEGRATION IN THE 21ST CENTURY FOR PRIVATE ISLAMIC SCHOOLS IN THE THREE SOUTHERNMOST PROVINCES OF THAILAND

Sariya Binsaleh, Muazzan Binsaleh
Faculty of Communication Sciences, Prince of Songkla University, Pattani Campus, Maung, Pattani, Thailand

Abstract: The research “teaching and learning process by integrating information and communication technology for Islamic private schools in the three southernmost provinces of Thailand in the 21st Century” aimed to determine the integration of information technology for the design and development of innovative forms of teaching in line with the current situation of Islamic private schools in the three southern border provinces. The research scope focused on development process for teachers to develop innovative forms of teaching to enable learners with lifelong learning skills. Teachers also were able to apply ICT in designing and developing innovative models for teaching to meet the 21st century skills. The participation and action research methods were used by allowing teachers to play a researcher’s role in conducting joint research with the team. Project-based learning instruction method with ICT integrated was used. The results of this research is the innovative model of teaching that integrated information technology to provide students with the 21st century skills which is the 4P-2E model. The impacts of this research to learners are: (1) Learners are creative, they enjoy the project-based learning and the integration of ICT in learning. (2) Learners are able to extend their own knowledge and equipped with the 21st century skills and (3) Learning achievement of learners has improved significantly.

Keywords: 4P-2E Model, Teaching and learning process, ICT integration, innovative teaching and learning, project-based learning

A SOCIAL MEDIA ANALYTICS FRAMEWORK TO INCREASE PROSPECTIVE STUDENTS’ INTERESTS IN STEM AND TVET EDUCATION

Muhamad Hariz Muhamad Adnan, Shamsul Arrieya Ariffin, Hafizul Fahri Hanafi, Mohd Shahid Husain, Ismail Yusuf Panessai
Computing Department, Faculty of Arts, Computing and Creative Industry, Universiti Pendidikan Sultan Idris, 35900 Tanjung Malim, Perak, Malaysia, College of Applied Sciences, Ministry of Higher Education (MoHE), Sultanate of Oman

Abstract: Recently, the promotion of Science, technology, engineering and mathematics (STEM) education has become the highlight due to the shortage in the STEM workforce. Surprisingly, the enrolment rates in STEM degrees are still low in many countries. Social media has been identified as one of the main platforms that can help to increase prospective students’ interest in STEM and also Technical and Vocational Education and Training (TVET) subjects. However, very little research has been done for the higher education institutions in Malaysia in leveraging social media and social media analytics effectively to increase the students’ interests and awareness of STEM and TVET disciplines. Therefore, this paper aims to propose a framework to increase prospective students’ interest in STEM and TVET using social media and big data analytics. The objectives of this study are to explore various social media applications in education and study these applications towards increasing students’ interests and propose a suitable
framework for Malaysian higher education institutions. The framework is proposed by following the theory synthesis methodology. Four main components of the framework have been proposed, namely the social media, role model or mentoring, massive open online courses and big data analytics. Each component is significant and requires a considerable amount of time to develop. The suggested framework is anticipated to benefit higher education institutions with a significant gain of the number of students, revenues and positive reputations.

**Keywords:** Social media, Social media analytics, STEM, E-learning, Education

---

**IMPLEMENTATION OF TADABBUR ELEMENT IN QURAN MEMORISATION PROCESS**

Mohd Faizulamri Mohd Saad, Sabri Mohamad, Hamdi Ishak, Haziyah Hussin, Nur Zainatul Nadra Zainol

Research Centre for al-Quran and al-Sunnah, Faculty of Islamic Studies, Universiti Kebangsaan Malaysia, UKM, Centre for General Studies and Co-curricular, Department of Islamic Studies, Universiti Tun Hussein Onn Malaysia, UTHM

**Abstract:** Tadabbur is a comprehensive process while reciting and listening to the Quran, including pronunciation of hurf, words, Quranic recitation, understanding of the meaning and practically valuing the Quranic verses. This practice is essential to be practised by the huffaz as it helps to improve the quality of memorisation. However, the process of memorisation is complicated and requires a high degree of focus, and therefore, many tahfiz syllabi neglecting to emphasise the tadabbur aspect. Besides, their primary focus is on memorising the Quran, making tadabbur lesson less critical. Therefore, this study aimed to highlight a few strategies that can be practised by the huffaz during the memorisation of the Quran. The studied strategies as followed; skills of the hurf pronunciation and tajwid, understanding the mufradat and the whole sentences, lesson on waqf and ibtida', interaction with Quranic verses and using tadabbur assisted tools. This study employed qualitative research using a content analysis approach. The data collected through a document analysis based on the problems faced by the Quranic huffaz. The data was then analysed using a thematic descriptive method. The results showed that the elements or techniques that are easy to use during the memorisation process were to practice hurf pronunciation skills and tajwid, to understand the meaning of every word and verse of the Quran, to study on waqf and ibtida', to interact with the verses of the Quran and to use appropriate tadabbur teaching tools. This study implies that the huffaz will be getting guidance to implement the elements of tadabbur during the memorisation of the Quran. Besides that, stakeholders who were structuring the tahfiz syllabus, for example, administrators and teachers at tahfiz institutions across the country, have been encouraged to implement the elements of tadabbur in tahfiz education. Lastly, the ultimate goal of this research is to produce a high level of knowledgeable huffaz in the field of Quranic studies, who not only memorise the Quran but have an in-depth understanding of the contents.

**Keywords:** Quranic memorisation, huffaz, tadabbur elements, tahfiz education

---

**IMPACT OF SOCIAL BEHAVIOR TO THE NEW NORMAL OF ICT STRUCTURE DURING COVID-19 PERIOD IN DEVELOPING COUNTRY**

Aumnat Tongkaw,

Songkhla Rajabhat University, Thailand
**Abstract:** During the Covid-19 period, Songkhla Rajabhat University, Thailand, closed for work from home activities. This paper proposes the impact of the crisis which plays an important role in the network traffic statistics and application demands in the university network. The impact constructs the new normal of social behavior of ICT and duality of structure. In the time of work from home, the number of active users is increasing, the demand for the video in increasing dramatically. In addition, the number of devices, drive storage, email storage, and photo storage are also increasing. This paper tests the theoretical framework of Structuration by evaluating the relationship between those impact factors and existing of the new normal of social behavior that we need to concern and prepare for other crises.

**Keywords:** duality of structure, ICT, social behavior, new normal

**COMPARISON USAGE OF INTERACTIVE AND INTERACTIONAL METADISCUSSION AMONG UNDERGRADUATES**

Masliza Mat Zali, Razita Mohamad, Roszainora Setia, Raja Mariam Raja Baniamin & Razifa Mohd Razlan

Academy of Language Studies, Universiti Teknologi MARA, UiTM Cawangan Terengganu, 23000 Dungun, Terengganu, Malaysia

**Abstract:** Interactive and interactional metadiscourses are the linguistic features which help to interact the writer and reader as well as to maintain the coherence of an essay. Every writer writes to the reader and the writer can effectively reach his reader through metadiscourse. Since writing an essay only involved a one-way interaction between the writer and reader, it is very challenging to Second Language (L2) learners to write effectively and coherently in their essay. So, it is interesting to study how the L2 learners produced the features of metadiscourse in their writing and made comparisons between the learners’ usage. In this study, an analysis of metadiscourse on a corpus of 200 evaluative essays done by UiTM undergraduate students from computer science and business administration courses is carried out based on Hyland’s (2005) framework. The purpose is to find out whether both groups of students use the same amount and types of metadiscourse and whether students from different course groups make any differences in their choice of metadiscourse. The analysis revealed that students in both courses produced more interactive metadiscourse than interactional metadiscourse. The most prominent metadiscourse feature is the Self-mention and the least is Attitude Markers. Both courses have the same prominent feature which is Transition Markers. The business administration course shows the least feature in Evidentials, whereas Frame Markers in the computer science course. The study provides evidences as to the importance of metadiscourse in students’ writings and to create the awareness as to its usage in academic writing. It could also be a proposition for a comparison study on metadiscourse writing between secondary schools and universities to gain more interesting outcomes.

**Keywords:** evaluative writings, interactional metadiscourse, interactive metadiscourse, L2 learners, undergraduates

**THE IMPACT OF ENTREPRENEUR EDUCATION ON BUSINESS PERFORMANCE**

Rosman Mahmood, Ahmad Suffian Mohd Zahari, Norlaila Ibrahim, Nik Fazlin Hiryati Nik Jaafar, Najihah Marha Yaacob
Abstract: The importance of entrepreneurial role in supporting the country's economic growth has been recognized by experts in the field of entrepreneurship. Today, the importance of entrepreneurship has become increasingly important where it has turned into a priority for developing countries including Malaysia. Now, there are many higher educational institutions that are aware of the importance of applying entrepreneurial skills in higher education. Therefore, public universities have to implement entrepreneurship education to encourage students to venture into entrepreneurship. This study examined the effects of entrepreneurship education in influencing business performance among ITM/UiTM graduates. A total of 250 graduates from various businesses in Malaysia participated voluntarily in this study by completing survey questionnaires. A series of statistical analysis were applied including descriptive analysis, reliability analysis, correlation analysis, and multiple regressions analysis using the SPSS software. The results of the study indicate that university curriculum, relational factor, society factor, and entrepreneurship values were found to have significant influences on business performance. However, the results revealed that the university role has no significant influence on business performance. The findings of this study contribute to entrepreneurship education and entrepreneurship literature by adding new empirical evidence on the relationship between university curriculum, relational factors, society factor, and entrepreneurship values on business performance. In terms of managerial implications, the findings help HEI's in organizing entrepreneurship education dimensions, particularly in strategizing, marketing, decision making, and positioning themselves in the business industry.

Keywords: Entrepreneurship education, business performance, entrepreneurship values, relational factors, society factor, university curriculum

ICT FOR SUSTAINABLE DEVELOPMENT: A HUMAN CAPITAL NARRATIVE OF SOUTH AFRICA

Maryam Tabatabaee, Samuel Ekundayo, Jimmica Thakur, Chen Liang, Meiliu Lilisun

Centre for Inclusive Digital Enterprise (CeIDE), School of Computing, Eastern Institute of Technology, New Zealand, School of Business, University of Canterbury, New Zealand

Abstract: This paper uses a data-driven approach to identify the key ICT drivers in a high potential economy such as South Africa and inspects the relationship between ICT capabilities, human capital, and sustainable growth and development. The paper also contains an analysis of ICT's contribution to the economic dimension of the Sustainable Society Index by generating multiple linear regression models based on two moderators: Human Development Index (HDI) and Network Readiness Index (NRI). The research question is: does ICT investments have a greater impact on sustainable economic growth depending on human capabilities or digital infrastructure? The intended outcome of this paper is to present a data-driven narrative of the role of ICT in the sustainable development of an emerging economy such as South Africa. The data have been selected from World Economic forum and United Nation databases. The methodology used techniques from data mining for knowledge discovery, in the sense that both best practices and lessons learned offer insights to policymakers, for pathways to narrowing the gap within their countries as well as with the developed, mature economies.

Keywords: sustainable growth, human capabilities, digital infrastructure, digitalization.
ADSORPTION OF THE POLYMER ON A CLAY MATRIX: THEORETICAL STUDY

El-Kaber HACHEM, Mohammed BELGHAZDIS, Atman BENDOUCH

Research Team "Innovative Research & Applied Physics", Faculty of Sciences, Moulay Ismail University, Meknes, Morocco

Abstract: Adsorption of polymers is a phenomenon of great importance in a number of areas of our daily life. However, understanding this phenomenon is essential. This work focuses on the theoretical study of the polyethylene glycol (PEG) adsorption phenomenon on the natural clay-layer surface. Clay is considered as a matrix. Different adsorption regimes have been presented. The expressions of the surface coverage ratio as a function of the volume fraction of monomer for each regime were calculated. A strong adsorption was noted for the first two regimes (dilute surface, and bidimensional semi-dilute surface) confirmed by the exponential term. When the surface becomes saturated, we are in the plateau regime for which the adsorption varies logarithmically, due to the occupation of most of the sites available on the clay-layer surface. Finally, we presented the variation of the volume fraction as a function of z (axis perpendicular to the surface), we have shown that a layer of polyethylene glycol (PEG) adsorbed on a natural clay-layer surface is composed of three zones (proximal, central and distal) with different volume fractions.

Keywords: Adsorption, PEG, scaling theory, dilute regime, plateau regime, bidimensional semi-dilute surface regime.

SUITABLE AND AFFORDABLE: REGULATING RESPONSIBLE LENDING AMONG BANKS IN MALAYSIA

Ibtisam @ Ilyana Ilias, Rusni Hassan, Salina Kassim, Elistina Abu Bakar

Faculty of Law, Universiti Teknologi MARA, Malaysia, Institute of Islamic Banking and Finance, International Islamic University, Malaysia, Institute of Islamic Banking and Finance, International Islamic University, Malaysia, Faculty of Human Ecology, University Putra Malaysia, Malaysia

Abstract: This study examines mandatory suitability and affordability assessment embodied in the Guidelines for Responsible Financing issued by Central Bank of Malaysia (BNM) focusing on the banking industry. It evaluates the reasons for the emergence of responsible lending concepts and explains the fundamental concept of overindebtedness. The study employs doctrinal legal research methodology whereby the main legislation namely the Financial Services Act 2013 (FSA), Islamic Financial Services Act 2013 (IFSA) and the key regulatory instrument namely Guidelines for Responsible Financing (Guidelines) are thoroughly appraised. Relevant secondary sources of law including textbooks and journal articles have also been substantially analysed. The study finds that the Guidelines for Responsible Financing play a critical role in ensuring responsible lending among banks in Malaysia. Nevertheless, there are certain aspects which require further improvement to reinforce the existing regulatory approach in imposing suitability and affordability assessment. Referring to the approaches adopted by selected jurisdictions namely Australia and South Africa, several recommendations are proposed. In particular, the assessment obligation should be set out in legislation incorporating provisions enabling affected financial consumers to take legal action for remedies in the event of contravention. Furthermore, the power of the court or alternative dispute resolution bodies in respect of agreement and obligation of financial consumers pursuant to irresponsible lending should also be specified. The outcome of this study is significant primarily
DOMESTIC VIOLENCE AND COVID-19: STRATEGIES FOR HELPING VICTIMS

Daleele Kaur Randawar & Sheela Jayabalan
Faculty of Law, Universiti Teknologi MARA, Shah Alam 40160, Selangor, Malaysia.

Abstract: This paper apart from examining the strategies and ways to assist victims of domestic violence during the COVID-19 pandemic also looks into the adequacy of the current legal and social support systems in addressing the issue of domestic violence during the COVID-19 pandemic in Malaysia. This study was conducted primarily through a doctrinal study of existing literature such as statutory provisions, articles, journals and reports related to the current concerns. A comparative analysis of the strategies employed by some of the countries was carried out to obtain solutions to address domestic violence in Malaysia. The findings prove that the current legal and support system is inadequate to meet the contemporary needs of victims of domestic violence during the COVID-19 pandemic. It is believed that the findings in this research will significantly improve the current legislative framework governing situations during a pandemic and benefit researchers, academicians, legal practitioners, students and scholars.

Keywords: COVID-19, Domestic Violence, Protection and Strategies.

TEST SCHEDULING OF SOC BY USING DYNAMIC VOLTAGE FREQUENCY SCALING (DVFS) TECHNIQUE

Hasliza Hassan, Chia Yee Ooi, Norlina Paraman.
Universiti Tun Hussein Onn Malaysia, Universiti Technology Malaysia

Abstract: High temperature gradients in System on Chip (SoC) lowered the performances, reliability and leakage power. In addition, temperature during testing gain more compared to normal operation. Therefore, the investigation of the impact dynamic voltage frequency scaling (DVFS) on the thermal aware test scheduling performance will be the main contribution of this work. The test scheduling algorithm which embeds frequency scaling effect with dynamic voltage supply is tested on ITC’02 benchmark. The formulation of ILP is to minimize the group of the test session in SoC and continued with DVFS formulation. Compared to the conventional thermal-aware scheduling approach based purely on a frequency scaling, this technique provides shorter overall test times and greatly improved flexibility to satisfy strict thermal constraints. The proposed DVFS with thermal aware task scheduling allows to minimize test time more than 46%.

Keywords: DVFS, thermal, frequency scaling and test time
EFFECTS OF STATIC SYNCHRONOUS COMPENSATOR (STATCOM) INSTALLATION IN STABILITY CONDITION OF TRANSMISSION LINE

S A Jumaat, S H N Yusof, M S A Nasir

Green and Sustainable Energy (GSEnergy), Faculty of Electrical and Electronics Engineering, Universiti Tun Hussein Onn Malaysia, 86400, Batu Pahat, Johor, Malaysia, Faculty of Electric and Electronic Engineering, Universiti Tun Hussein Onn Malaysia, 86400, Parit Raja, Johor, Malaysia

Abstract: Transmission networks of modern power systems are gradually pressured due to continued demand on new lines. Losing stability is one of the effects of system failure which can lead the system to collapse. This paper presents the Static Synchronous Compensator (STATCOM) as the solution for the stability problem as it employs the latest power electronic switching devices technology to regulate voltage and power flow in electric power transmission systems. In this study, a system is modelled using MATLAB/Simulink software with a rating of 220 kV, 50 Hz and 100 kVA for the evaluation test. The test system will be tested without and with STATCOM. Besides, this paper explores the behaviour of parameters such as voltage and power of the system after the STATCOM is implemented in the system. From the experimental results, it can be concluded that the voltage and power can be enhanced by connecting the STATCOM to the system. The comparative findings for the overall per unit of voltage improved to around 1 p.u at all buses from 0.93, 0.77 and 0.77 p.u for bus B1, B2 and B3, respectively. The active power also increased at all buses in the fault condition and it shows that the STATCOM helps in stability enhancement.

Keywords: Stability, power system, FACTS devices, STATCOM.

RESEARCH STRATEGY: A CONSTRUCTIVE PLAY FOR ANATOMY LEARNING SYSTEM BASED ON HUMAN FINGER GESTURES ON HOLOGRAPHIC DISPLAY

Ahmad Affandi Supli, Heng Yu Ping, Norma Liyana Binti Omar, Wong Yun Yi

Xiamen University Malaysia, Malaysia

Abstract: Human anatomy is a biology field that studies human body which consists of intricate and complex piece of engineering in which every assembly has an important role. This subject is considered to be very complex and thus need an advanced technology to help users learning this course more effectively. In this study, we propose and report our research strategy and progress to build a constructive play on human anatomy system based on finger motion gesture of Leap Motion controller (LMC). This LMC device can detect hand gestures and fingers’ motion and translate it into interaction input. Then, we utilize holographic display to portray our 3D human anatomy as its output. In detail, the research strategy of this paper consists of research plan, general framework and general architecture of the developed system. Then, we also present our current development of constructive anatomy learning system. In this future, we will discuss in more detail about the development stage.

Keywords: Human anatomy learning system, construction play, Leap Motion controller, holographic display
MALCOLM BALDRIGE APPROACH IN UNIVERSITY MANAGEMENT: AN IMPORTANCE AND PERFORMANCE ANALYSIS

Zulkifli Mohamed, Muhammad Saiful Anuar Yusoff

Faculty of Business and Management, Universiti Teknologi MARA, UiTM Kelantan, 18500 Machang, Kelantan, Malaysia, Academy of Language Studies, Universiti Teknologi MARA, UiTM Kelantan, 18500 Machang, Kelantan, Malaysia

Abstract: Academic management is an important activity in managing a university. Failure in managing academic and student affairs can void a university's credibility and program accreditation by MQA. Ineffective management approach will halt the university's progress in achieving the academic excellence and creating Society 5.0. To overcome the issue, various approaches can be applied and one of them is the Malcolm Baldrige National Quality Award (MBNQA) approach which includes six important elements in management. Malcolm Baldridge model emphasizes Leadership role, Strategic Management, Customer Focus, Data Measurement, Human Resource Focus and Work Process in order to improve organizational performance (Result). However, there is a question on what factors should be given the priority in ensuring excellence in organizational management. Therefore, this study has been conducted in order to see what is the main factor among these six elements in MBNQA approach that is considered more important in achieving organizational goals. A sample of study has been conducted on 129 staffs in Universiti Teknologi MARA Kelantan Campus (UiTMCK). Hypothesis testing revealed that 5 out of 6 factors of management elements are having a positive relationship. While IPMA analysis shows that the Data Measurement is the most important factor, followed by Customer Focus, Work Process Focus and Human Resource Focus factors that influence the effectiveness of organization. Leadership factor gained the highest performance despite its less importance compared to other factors in IPMA analysis.

Keywords: Academic Management, Customer Focus, Data Management, Malcolm Baldrige, Leadership, IPMA.

APPLICATION OF GRADIENT-BASED EDGE DETECTION ON DEFINED SURFACE FEATURE BOUNDARY

Ainaa Farhanah Mohd Razali and Mohd Fauzi Ismail

Faculty of Mechanical Engineering, Universiti Teknologi MARA, Malaysia

Abstract: In surface topography, the detection of edges or surface feature boundary should be made prior to the characterization process to ensure precise measurement of the surface feature. However, problem arises when the existing edge detection from the image processing area is being directly adopted on the surface without firstly defining the exact location of edges. Thus, an approach has been carried out with the aim of developing the definition of edges to identify its exact location. The process of developing the definition of edges is conducted based on theoretical understanding and demonstration on the simulated surface topography data with the help of MATLAB software. Gradient-based edge detection operators are applied to see their performance on the defined surface feature boundary. Overall findings of this study showed that there are slight discrepancies of the edge position signified by the gradient-based operators to manually-defined edges. Despite of such outcome, it is then recommended to use either the Sobel operator or the Prewitt operator as a tool to signify the edge before proceeding with characterization process in future study due to their stability and clarity in producing the surface gradient function.

Keywords: Edge detection; Feature boundary; Structured surface; Surface topography
AREAL SURFACE ROUGHNESS SIMULATION MODEL FOR END-MILLING PROCESS

Fatiha Naziera Yusof, Mohd Fauzi Bin Ismail

Faculty of Mechanical Engineering, Universiti Teknologi MARA, Malaysia

Abstract: It is very difficult to acquire a high quality surface roughness of products. Therefore, there are plenty of approaches like Artificial Neural Network (ANN) and Taguchi method to predetermine surface roughness. The main goal of predicting surface roughness before the start of machining process is basically to decrease the cost of production and time. However, most of the traditional methods are difficult to use and some contain very long steps which consume time. This paper aims to discuss and propose the new method in predicting areal surface roughness in end-milling process. Generally, the method is developed through simulation by using MATLAB algorithm programmer software and the result is verified through experimental process. This method is expected to provide theoretical guidance in choosing reasonable process variables during machining.

Keywords: Taguchi, ANN, Areal Surface roughness, End-milling

BREAKDOWN CHARACTERISTICS OF UNUSED TRANSFORMER OIL AND OLIVE OIL UNDER AC AND DC VOLTAGES AT DIFFERENT TEMPERATURE RATE

Haridchana Nadarajah, Nor Akmal Mohd Jamail, Nor Shahida Mohd Jamail, Muhammad Saufi Kamarudin, Md Nor Ramdon Baharom, Qamarul Ezani Kamarudin, Mohamad Farid Sies

Faculty of Electrical and Electronic Engineering, Universiti Tun Hussein Onn Malaysia, 86400 Parit Raja, Batu Pahat, Johor, Malaysia, College of Computer and Information Sciences Prince Sultan University, P.O.Box No. 66833 Rafha Street, Riyadh, Saudi Arabia, Faculty of Mechanical and Manufacturing Engineering, Universiti Tun Hussein Onn Malaysia, 86400 Batu Pahat, Johor, Malaysia

Abstract: This project aim is to investigate the breakdown characteristics of unused transformer oil and olive oil under AC and DC voltage at different temperature rate. HVAC and HVDC breakdown tests are carried out alongside with the hemisphere electrode arrangements. The high voltage test is done in order to observe the performances of the oil samples to attain the highest breakdown AC and DC voltages. In addition, this project needs to be done to see if olive oil as one of the vegetable oil can be an alternative for the conventional transformer oil. Commonly used transformer oil is made from mineral oil and it is declining day by day as its use increases. So as a precaution studies are done with vegetable oils to replace the mineral oil-based transformer insulation fluid. In this study, each oil sample is tested at different temperature rate and has recorded different value of breakdown voltage from the experiment. The gap distance between electrodes is constant and oil samples are heated at different temperature ranges. More voltage is needed to breakdown at higher temperature rate. Both the unused transformer oil and olive oil have linearly increased AC and DC breakdown voltages when subjected to higher temperatures. However, it is found that the highest AC and DC breakdown voltages are recorded at the highest temperature range and when the insulating medium used is olive oil. Moreover, the obtained AC and DC voltages are then be used to study the electric field in FEMM software.
**CONCEPTUAL FRAMEWORK OF MALAYSIAN GRADUATE COMPETENCY IN FACING THE NEW-NORM**

Zulkifli Mohamed, Muhammad Saiful Anuar Yusoff

Faculty of Business and Management, Universiti Teknologi MARA, UiTM Kelantan Campus, 18500 Machang, Kelantan, Malaysia, Academy of Language Studies, Universiti Teknologi MARA, UiTM Kelantan, 18500 Machang, Kelantan, Malaysia

**Abstract:** The purpose of study is to propose the fitting competency should be acquired by graduates in preparing them for Society 5.0 and to meet challenges due to the new norm caused by COVID-19 pandemic. Unemployment situation among young graduates is quite bothering. 521,400 people were unemployed in the mid of 2019. Besides the slowdown in economic activities, the mismatch of skills also occurred between employer expectation and the graduate acquired skills. The conditions being worsen when COVID-19 pandemic exploded around the globe, which have brought the new norm in the human life. Therefore, graduate competency should be reviewed to make it more relevant with current changes. Therefore, a new graduate competency framework is proposed which integrates the elements of human capital development, graduate competitiveness, computing and digital skills. The exploratory of secondary data on refereed journal, industry report and statistical department were applied. Finally, it is suggested for every party to seriously look into the matter as it will determine the human resource development direction in producing Society 5.0 and survival of the country in the future.

**Keywords:** Graduate competency, interpersonal, conceptual, competitiveness, computing & digital skills.

**MOBILE LEARNING INTERFACES DESIGN: A LITERATURE STUDY**

Fatin Sarah Salim, Zuriana Abu Bakar, Noor Maizura Mohamad Noor, Rosmayati Mohemad

Universiti Malaysia Terengganu, Malaysia,

**Abstract:** Aesthetic refers to the theoretical study of beauty and taste. It is an essential part in attracting the interest of users. Aesthetic is utilized in many fields including the education field. For example, in mobile learning (m-learning), aesthetic contributes to the design of the application. M-learning refers to the use of portable or mobile devices in education. In today’s environment, m-learning is an integral part in learning and is indispensable. From the higher education to the primary school, m-learning is used in various learning activities. This study intent to investigate the design principles used in existing mobile applications based on the literature reviews of previous studies. The findings of this study are the list of the design principles applied in those previous studies. Overall, this finding will enable to highlight the design principles that usually used in mobile applications and the effect on the usage of the application itself.

**Keywords:** Design, Interface, M-learning, Usability
DESIGN OF CONVEX AND CONCAVE DUAL BENT ARRAY FOR 5G LENS ANTENNA SYSTEM

Z. Tengah, N. H. Abd. Rahman, Y. Yamada, S. Subahir

Antenna Research Centre (ARC), Fakulti Kejuruteraan Elektrik, Universiti Teknologi MARA, 40450 Shah Malaysia –Japan International Institute of Technology (MJIIT), Universiti Teknologi Malaysia, Jalan Sultan Yahya Petra, 54100 Kuala Lumpur, Malaysia

Abstract: Previous research on the multi beam system for the fifth generation (5G) application have shown that due to the massive MIMO requirements, the numbers of feed elements of a lens antenna system at the mobile base station are increasing. The design of the array circuits of the 5G lens antenna systems will be more complicated due to the feeding structure which consists of the power dividers and phase shifters, thus contributes to higher feeding losses. The antenna fabrication process also becomes more complicated. Besides that, the conventional array feed also produces a single radiation beam only. Thus, large space is needed, where a numbers of array feed antennas should be arranged in order to perform wide-angle beam scanning for 5G massive MIMO operation. Therefore, to overcome these issues, in this paper, a bent array configuration is designed as the lens antenna feed to produce bifurcated beam radiation and has a wide beam angle from the feed radiator to the lens edge. In order to generate a multi beam by cylindrical lens antenna, multiple bent arrays are arranged on the lens axis. In this paper, the comparison of bent array in convex and concave configurations is shown. This process is to investigate the mutual coupling when more than one bent arrays are arranged as feed radiators. By comparing the arrays in convex and concave structure, it is observed that the convex structure produces better bifurcated beam with a smaller middle lobe. The antenna also produces the same bifurcated beam shifting angle, $\theta_s$ for both ports when $s=4\lambda$ is used, where it is verified as the optimum spacing value between two bent array structures by the optimization process.

Keywords: bifurcated beam, bent array, multi beam, convex and concave configurations, mutual coupling.

THE ACTIVE FIRE PROTECTION PROTOTYPE FOR HOUSEHOLD-SCALE KITCHEN BASED ON SILICA GEL FROM RICE HUSK ASH

Himawan Hadi Sutrsino

Fire Safety Engineering Dept. Universitas Negeri Jakarta, Indonesia

Abstract: This study aims to create a fire protection design in the kitchen with technology that is easily applied along with inexpensive extinguishing media using silica gel from rice husk ash. By using an experimental method, the active design of fire protection in the kitchen area uses compartmentalization equipped with a gas stove, kitchen equipment, as well as specially designed fire equipment components. The composition of the air in the compartment is calculated based on the volume of the compartment so that it can represent the coverage of oxygen and fuel in accordance with the conditions of free air, while the silica used as an extinguishing media from the extraction of rice husk ash using KOH 0,5M solvent. From the results of this study, the design of fire protection for silica gel-based kitchens made from rice husk ash is effectively used and easy to install in the kitchen area.

Keywords: rice husk ash, kitchen, fire protection, prototype
A PERFORMANCE REVIEW OF DESIGN & SIZING OFF-GRID WATER PUMPING SYSTEM

Ahmad Izzat Bin Mod Arifin, Fatimah Nur Binti Mohd Redzuan, Ermeey bin Abd Kadir, Mazratul Firdaus Binti Mohd Zin, Nuraiza Binti Ismail

Universiti Teknologi Mara Cawangan Terengganu, Malaysia, ahmadizzat@uitm.edu.my

Abstract: The deficit in electricity and high diesel costs affects the pumping requirements of community water supplies and irrigation therefore using solar energy for water pumping is a promising alternative to conventional electricity and diesel based pumping systems. Water pumping system has a long history, so many methods have been developed to pump water. Manual pumping is the common method for many years, but it is impractical for many applications, such as unmanned or remote wells. Many pumping systems require an independent power source like an engine or electric power. Engines can provide the higher amount of the water, but they are requiring the fuel and regular maintenance. In order to minimize the cost, the alternative source is being used such as solar energy. This paper presents the performance review of water pumping system powered by photovoltaics (PV) solar. The purpose of this article is to review the performance of the water pumping system based on the model and experiment that were conducted. This paper also discusses about the optimum sizing of PV module, batteries, flowrate of water, and also the characteristic of charging and discharging pattern. The method of sizing were adapted from SANDIA National. The system based on the off-grid system configuration which contains PV module, charge controller, batteries, and load. Based on this research, the method of sizing from SANDIA National can be used to set up for off-grid water pumping system and it able to support the system for 2 days autonomy.

Keywords: flowrate, off-grid, photovoltaic sizing.

Q-CAM: QUEUE MONITORING SYSTEM USING CAMERA

Farah Nadiah Mohammad Ramlee, Radzi Ambar, Mohd Helmy Abd Wahab, Chew Chang Choon and Muhammad Mahadi Abd Jamil

Department of Electronic Engineering, Faculty of Electrical and Electronic Engineering, Universiti Tun Hussein Onn Malaysia, 86400 Parit Raja, Batu Pahat, Johor, Malaysia

Abstract: Development and design of mobile queue counter monitoring system is an alternative way for people who visit service premises to monitor queue number through phone without having to be at the place to wait for their turn. A long waiting line and waiting time are the reasons why this project had been developed. Many related systems had been introduced by different companies but due the high cost of installation and maintenance, some service companies had difficulties to implement the system. However, the proposed mobile queue counter monitoring system called Q-CAM is an add-on device which will be installed with the existing system and uses only ESP32 camera and FTDI Programmer as hardware development. A smartphone application is developed by using MIT App Inventor to ease the customer to monitor queue number on the app. In this work, the hardware designs of the propose device is described. Furthermore, the steps to develop the smartphone app is demonstrated. Preliminary experimental results show that the average time required to display a captured queue number image on the app were 5 seconds (during strong Wi-Fi signal) and 10.8 seconds (during weak Wi-Fi signal).
THE EFFECTIVENESS OF SOCIAL MEDIA IN GIVING AWARENESS FOR MOVEMENT CONTROL ORDER (MCO) DURING COVID-19

Abd Rauf Ridzuan, Nor Afiqah Izzati Hassan, Rosilawati Sultan Mohideen, Siti Nurshahidah Sah Allam, Norena Abd Karim Zamri, Arif Zulkarnain, Amia Luthfia and Shafinar Ismail

UiTM Cawangan Melaka and BINUS University

Abstract: Media play important roles in providing information to the public through various platform such as traditional media and also digital media. In March 2020, the government had announced for the Movement Control Order due to the outbreak of COVID-19 in Malaysia. COVID-19 is an infectious disease caused by a newly discovered coronavirus. People that infected with COVID-19 will experience mild to moderate respiratory illness and recover without requiring special treatment. As the covid-19 had affected over millions of people across the world, the social media have been working overtime in make sure the communities are updated with the news regarding personal hygiene or Movement Control Order information to the public. The study aims to identify the effectiveness of social media in promoting awareness towards the understanding of Movement Control Order (MCO) during Covid-19. The study involves 440 respondents from different backgrounds across Malaysia. The data were collected through Statistical Package of Social Science (SPSS) Version 23. Findings from the SPSS indicated that social media have significantly impact on promoting Movement Control Order awareness. The results of this study showed 34.9% of variance of MCO was explained by the proposed model.

Keywords: social media, covid-19, Awareness, Movement Control Order

THE REVIEW OF SIMULATION OF ELECTRICAL VEHICLE AND ENERGY NETWORK USING AGENT BASED TECHNIQUE

Abdel Rahman K. Al Ali, Danial Md Nor, F.Fuad

Faculty of Electrical and Electronic, Universiti Tun Hussein Onn Malaysia, 86400 Batu Pahat, Johor, MALAYSIA, Computational Signal, Imaging and Intelligence (CSII) Focus Group, Universiti Tun Hussein Onn Malaysia, 86400 Batu Pahat, Johor, MALAYSIA

Abstract: Electrical systems will be undergoing a major revolution thereby improving on the reliability and reducing the cost of maintenance, capital expenditures and electrical losses. A smart grid is defined as an evolved grid system that tends to manage the electricity demand, in a more economical way with increased reliability and sustainability, all integrated together built on an advanced infrastructure. The smart grid system will be able to provide an increased electricity meeting the increased demand, with increased reliability and energy efficient while maintaining the power supply qualities. Thus the low carbon energy sources are integrated into the power networks as efficient. Further, the smart grids do have demand response capacity to balance the electrical consumption, along with the potential to adapt with the new technologies, integrate and enable other energy storage devices and applications such as electric vehicles. This paper reviews the Agent based modeling of Electric Vehicle (EV) simulation and their
drawbacks or further improved to be done using intelligent decision making in predicting the energy demand for EVs in the future.

**Keywords:** Agent based modeling, Electric Vehicles.

**FACTOR OF PUBLIC UNIVERSITY STUDENTS IN MALAYSIA PARTICIPATED IN SOCIAL ENTREPRENEURSHIP ACTIVITY: EMPIRICAL STUDY**

Nor Suhaida Bt Awang, Prof Dr Wan Fauziah Bt Wan Yusoff, Raudah Bt Mohd Adnan

Faculty of Technology Management and Business, Universiti Tun Hussein Onn Malaysia, 86400, Parit Raja, Batu Pahat, Darul Ta’azim, Johor, Malaysia.

**Abstract:**
Purpose – The aim of this paper is to identify individual factors that influence students to participate in social entrepreneurship activity.
Methodology – For this purpose, descriptive research has been conducted on 797 ENACTUS students using stratified random sampling at three categories of public university in Malaysia which is focus, comprehensive and research university.
Findings – Findings showed that students who participated in social entrepreneurship activity have high level of empathy, moral obligation, self-efficacy and social support. However, factor empathy, moral obligation, self-efficacy and social support factor shows no significant difference based on based on three categories of university namely focus, research, and comprehensive university.
Significance – This study was contributing the new body of knowledge in social entrepreneurship development in Malaysia. While the world economy is in crisis, social entrepreneurship can help reducing government spending without lowering the quality of public services. Awareness of the importance of social entrepreneurship should be instilled in the circle the people, especially the youth, to improve their socio-economic and standard of living.

**Keywords:** Social entrepreneurship activity, public university student

**REVIEW ON ADVANCEMENT IN MONITORING SYSTEMS OF SOLAR PHOTOVOLTAIC SYSTEM**

Fahad Saleh M. Abdallah, M. N. Abdullah, Ismail Musirin, Ahmed M. Elshamy

Green and Sustainable Energy (GSEnergy) Focus Group, Faculty of Electrical and Electronic Engineering, Universiti Tun Hussein Onn Malaysia, Malaysia, Faculty of Electrical Engineering, Universiti Teknologi MARA, Malaysia, Faculty of Engineering, Minia University, Egypt

**Abstract:** To enhance the output energy value of Photovoltaic cells, the modern monitoring system is playing a crucial role. Now the massive scale solar energy harvesting is getting momentum due to the advancement of the PV monitoring system day by day; however, going down the Cost of Solar PV equipment is also an important aspect. The aim of the present review work is on the assessment of the impact of the design and development of various smart monitoring systems, administration, and control of Solar PV cells. In the present paper, the description on improvement in performance, monitoring and maintenance in Solar PV plants after inclusion of technology such as the Internet of Thing (IoT), machine to machine (M2M) based technology having IPV6 over low power wireless personal area network.
(6LowPAN) Wireless Sensor Network (WSN) are elaborately discussed. A review of problems and the permeable solutions in the application of a Solar PV cell monitoring system having techniques of communication such as Computer to Computer Communication (Ethernet), the embedded system to computer (GSM), embedded system to embedded system (GSM, GPSM) are discussed elaborately. A survey of revolutionary changes in the area of smart home, smart city, smart environment, and smart enterprise due to enhancement of Solar PV cell latest monitoring systems are also being covered in this review paper.

**Keywords:** Solar PV panel, PV monitoring system, IoT, Solar PV review.

---

**READING SPEED PERFORMANCE BASED ON INTERFACE DESIGN ELEMENTS FOR WEB INTERFACES**

Zuriana Abu Bakar, Tan Zhiang

Faculty of Ocean Engineering Technology & Informatics, Universiti Malaysia Terengganu, Malaysia

**Abstract:** The development of technology and internet has led to more people accessing information on the screen and an increase in the volume of material that can be read directly from a Web-based platform. The transformation from paper-based materials to digital materials on the Web, more or less has affected the readability of the materials in which information presented on the printed and web-based documents is dissimilar. However, only few studies have been carried out on the presentation of information specifically, the readability of the text in web-based platform. Meanwhile, readability is one of the crucial aspect of Web usability and could affect the success of a website. The speed of reading is regarded as a good measure of readability. Therefore, this study aims to measure the readers reading speed for web interfaces. This study adopted a quantitative research approach that employed experiments to collect the data and involved university students as the test subjects. A Web-based Reading Speed Test System (RSTS) was developed for data collection and analysis purpose. The findings of this study found that the web interface with the combination of blue font color, yellow background color and Arial font type have the highest reading speed. In contrary, web interface that consists of combination black font color, white background color and Arial font type have the lowest reading speed. In addition, the reading speed of male participants was slightly higher than the female participants. To conclude, the results of this study signify that the interface design had a significant impact on the students reading speed for web pages.

**Keywords:** Design elements, Interface design, Reading speed performance, Web interface.

---

**EXPLORING STUDENTS’ READINESS ON ENGLISH LANGUAGE BLENDED LEARNING**

Fazlinda Hamzah, Soo Yew Phong, Mohd Azlan Shah Sharifudin, Zainab Mohd Zain, Mahdalela Rahim

Academy of Language Studies, Universiti Teknologi MARA, UiTM Melaka Campus, 78000 Alor Gajah, Melaka, Malaysia

**Abstract:** Blended learning approach has gained popularity around the globe and blended English language teaching has become a matter of considerable interest. Many higher education institutions have
adopted the approach, and this raised a question of readiness among the students involved. The study aimed at investigating the students’ readiness on English language blended learning. A total of 137 students of different courses from a public university in Melaka participated in the study. They were asked to answer a questionnaire which involved five aspects to measure the students’ readiness on English language blended learning such as technical abilities, technology accessibility, self-directed learning, attitude towards traditional classroom setting and attitude towards blended classroom setting. Six students were then selected to be involved in semi-structured interviews to identify students’ views on English language blended learning. The study found out that students have low level of readiness on English language blended learning in which they scored 3.28 to 3.54 in attitude towards blended classroom setting compared to their scores in attitude towards traditional classroom setting which are all above 4.00. The interviews revealed the reasons behind the results obtained from the questionnaire and one of them is that they enjoy learning English in traditional classroom since face to face communication with their instructors allows them to remember better as well as enables them to gain more in-depth understanding of a lesson.

**Keywords:** Blended learning, English language, Students’ readiness

---

**A STUDY ON CORRELATION OF SUBJECTS ON ELECTRICAL ENGINEERING COURSES USING ARTIFICIAL NEURAL NETWORK (ANN)**

F. Zakaria, S.A.C. Kar, R. Abdullah, S.I. Ismail, N.I.M. Enzai

Faculty of Electrical Engineering, Universiti Teknologi MARA (UiTM) Cawangan Terengganu, Dungun, 23000, MALAYSIA

**Abstract:** This paper presents a study of correlation between subjects of Diploma in Electrical Engineering (Electronics/Power) at Universiti Teknologi MARA (UiTM) Cawangan Terengganu using Artificial Neural Network (ANN). The analysis was done to see the effect of mathematical subjects (Pre-calculus and Calculus 1) and core subject (Electric Circuit 1) on Electronics 1. Electronics 1 is found to be a core subject with the history of high failure rate percentage (more than 25%) in previous semester. This research has been conducted on current final semester students (Semester 5). Seven (7) models of ANN are developed to observe the correlation between the subjects. In order to develop an ANN model, ANN design and parameters need to be chosen to find the best model. In this study, historical data from students’ database were used for training and testing purpose. Total number of datasets used are 58 sets (70% and 30% of the datasets are used for training and testing processes respectively). The Regression Coefficient, (R) values from the developed models was observed and analyzed to see the effect of the subject on the performance of students. It can be proven that Electric Circuit 1 has significant correlation with the Electronics 1 subject respected to the highest R value obtained (0.8100). The result obtained proves that student’s understanding on Electric Circuit 1 subject (taken during semester 2) has direct impact on the performance of students on Electronics 1 subject (taken during semester 3). Hence, early preventive measures could be taken by the respective parties.

**Keywords:** Artificial Neural Network, Diploma in Electrical Engineering, Graduate on Time, Correlation

---

**THE CLOUD UNIFIED COMMUNICATIONS ISSUES AND CHALLENGES**

R. Salleh, A. H. Azni
Faculty of Science and Technology Universiti Sains Islam Malaysia, Negeri Sembilan 71800, Malaysia.
CyberSecurity and System Research Unit Islamic Science Institute Universiti Sains Islam Malaysia (USIM), Negeri Sembilan 71800, Malaysia.

Abstract: We are now living in a brand-new world that spurred by digital transformation. We have entered an era where works is no longer located in the office all the times facing the desk, phone or computer screen. We are in the world that works can be done anywhere any time and sharing the information and communication across the globe along with the right device and with the internet connection. In today's phenomena that everything is going faster, communications are very important thing in our life either at the work place or at home or anywhere peoples are located. The communications between officers and staff in the organizations either in governments organizations or between business partner, is very important and should be run in the fastest way. Today we have seen a lot of events that make us thinking how the important for having the communication technology. The pandemic of Corona Virus 19 has make us believe the important of Unified Communications to be in a part of our life. The Cloud Unified Communication is one of the best alternative in the communications technology to meet with the above scenario. However, there are issues and challenges that need to be addressed in the above technology which is very important to make sure that the technology is safe for the users. This paper discusses about the Cloud Unified Communications Service Model Issues and Challenges scenario and the preferred solution to overcome the problem.

Keywords: Cloud Unified Communications, Issues, Challenges

STUDENT’S PERCEPTION TOWARDS ONLINE CLASSES ADOPTED DURING MOVEMENT CONTROL ORDER (MCO)

Adnin Syaza Jaafar, Yuhainis Abdul Talib, Muhammad Anas Othman

Faculty of Architecture, Planning and Surveying, Universiti Teknologi MARA, UiTM Perak Campus, Seri Iskandar Branch, 32610 Seri Iskandar, Perak, Malaysia

Abstract: Education is one of the crucial sectors of any country. However, on March 17, 2020, Movement Control Order (MCO) in Malaysia has been announced by Prime Minister Tan Sri Muhyiddin Yassin. Higher Education has been one of the sectors that have been closed due to the MCO. There is an immediate conversion of teaching and learning (T&L) from face-to-face (F2F) to Open and Distance Learning (ODL) as well as online learning. Therefore, this paper aims to evaluate the students' perceptions of online classes adopted during the MCO. A cross-sectional quantitative research method is used to analyse the students' perception of online classes. The questionnaire survey was collected from 80 students that participated in an online class for two weeks. The survey was conducted by using google form. The instruments utilized a Likert Scale of the five ordinal measures of agreement. Descriptive analysis has been adopted in this study. The findings highlight the internet coverage has hindered students from enjoying the T&L session. Although online classes are known to have less social interaction, it has some advantages to the students, and students also prefer using online classes alternately with F2F class in the future.

Keywords: Online Learning, Movement Control, Student’s Perception

IMPACT OF PAIRING AN AUGMENTED REALITY DEMONSTRATION WITH ONLINE VIDEO LECTURES... DOES IT IMPROVE STUDENTS’ PERFORMANCE?
DEEP LEARNING APPROACHES TO PREDICT HEART DISEASE: OVERVIEW

Zakarya Farea Shaaf, Muhammad Mahadi Abdul Jamil, Radzi Ambar

Department of Electronic Engineering, Faculty of Electrical and Electronic Engineering, Universiti Tun Hussein Onn Malaysia, 86400 Parit Raja, Batu Pahat, Johor, Malaysia

Abstract: Heart disease nowadays is among the most threatening disease in life which increases the death rate among people. The detection of heart disease should be given more consideration in medical research to achieve more accuracy and low time consumption with early detection. Manual detection and prediction of heart disease is a tedious task for doctors and physicians, thus intelligent automated systems are required to diagnose and detect heart disease with high accuracy and less time consumption by medical researchers. Deep learning has been used for the automated detection of cardiovascular disease with high accuracy. This paper provides a review of previous studies about heart disease automatic detection at an early stage utilizing deep learning algorithms such as CNN, and RNN which show better performance than traditional learning algorithms (ANN, and SVM) in cardiac datasets manipulation that acquired from different tools including medical imaging techniques (MRI, CT scan), blood test, and ECG.

Key words: Cardiovascular disease, Heart disease, and Deep learning.
Abstract: Everyone has different emotions throughout the day. They can be happy, and they can be sad at some times. However, it will be serious if they did not notice that they have negative emotions for a long time. Emotion tracking application is developed to encourage users to monitor their emotion. It is a positive psychology technique and has been suggested as a self-help method. Pick-A-Mood pictorial tool is used in this application to determine user emotion. Then, this application will calculate percentage of each emotion category recorded and then will display the result. The recommendations of self-care are provided too in this application. Emotion tracking application is developed with Android Studio in Java in Android, eXtensible Markup Language (XML), and Firebase real-time database as database storage. For user acceptance testing, 32 responses are collected. There are two types of testing for the user acceptance testing, which are features of application evaluation and user interface evaluation. The result of the responses shows that emotion tracking application has achieved the expectation outcome and the users are satisfied with the features and the user interface. This application is believed to help people to facilitate gaining knowledge and awareness of one’s emotion patterns.

Keywords: Affective Computing, Mobile Application, Emotion Tracking, Object Oriented System Development, User Acceptance

TEST CASE SELECTION APPROACHES: A SYSTEMATIC MAPPING STUDY

M. Irsyad Kamil R., Dayang N.A. Jawawi, Rosbi Mamat

School of Computing, School of Electrical Engineering, Faculty of Engineering, Universiti Teknologi Malaysia, 81310 Johor Bahru, Johor, Malaysia

Abstract: In recent years, software testing has been expanding its horizon with new tools and technique, becoming more efficient with time. However, it will take a long time for large scale system to get pass the regression testing process. If there are requirement changes done within a system, a regression testing needs to be implemented in ensuring the system is free of error. Rerun all existing test cases is a safe but costly option. Test case selection (TCS) is one of the ways to reduce cost as it only execute test cases that are related to the requirement changes. Since TCS has been widely used by researchers, this study will conduct a systematic mapping on TCS approaches. There are a total of 91 papers identified which comes from conference, journals, symposiums and workshops. From the whole, there are 27 journal articles, 49 conference papers, five workshop articles, and ten symposium article. In addition to that, 13 regression test selection approaches were identified. As for the result, TCS is quite popular among research due to the increasing number of articles published. Besides that, approaches in TCS are improving over time, especially model-based and coverage-based, due to a large number of publications. We discovered that the approaches were widely used since the year of 2012. The variations of approaches in TCS have also benefited the researchers in applying it to their case study. In conclusion, test case selection has already been discussed and applied to not only software testing but another testing as well. The variety of approaches have helped researchers in many ways in their research. In this study, the pro and cons in each approach were not discussed. Due to that, we will provide extensive research on the advantages and disadvantages of approaches through a systematic literature review in the coming days. We also believed a study on the method used in approaches is also in order.

Keywords: regression testing, test case selection, systematic mapping
A FORMAL OLAP ALGEBRA FOR NOSQL BASED DATA WAREHOUSES

Shreya Banerjee, Sourabh Bhaskar, Anirban Sarkar, Narayan C. Debnath

Department of Software Engineering, School of Computing and Information Technology, Eastern International University, Binh Duong Province, Vietnam, Department of Information Technology, Parul Institute of Engineering & Technology, Parul University, Vadodara, India, Department of Computer Science & Engineering, National Institute of Technology Durgapur, Durgapur, India, School of Computing and Information Technology, Eastern International University, Binh Duong Province, Vietnam.

Abstract: NoSQL solutions are started to be increasingly used in modern days' Data Warehouses (DW). However, business analysts face challenges when performing On Line Analytical Processing (OLAP) queries on these NoSQL systems. The lack of uniform representation of various OLAP operations over different types of NoSQL based DWs is one of them. In addition, absence of formal semantics in OLAP operations hinders a precise understanding of query over distinct types of NoSQL based DWs. To address these challenges, this paper represents formal and rigorous specifications for different kinds of OLAP operators and operations those are capable to analyze business queries. Further, the proposed formal specifications are implemented in a document-oriented database using a suitable case study. In addition, the proposed approach aids efficient visualization techniques of data cubes over NoSQL based DWs.

Keywords: Data Cube, NoSQL Data Warehouses, OLAP query algebra, Ontology.

A UNIFIED CONCEPTUAL MODEL FOR DATA WAREHOUSES

Shreya Banerjee, Sourabh Bhaskar, Anirban Sarkar, Narayan C. Debnath

Department of Software Engineering, School of Computing and Information Technology, Eastern International University, Binh Duong Province, Vietnam, Department of Information Technology, Parul Institute of Engineering & Technology, Parul University, Vadodara, India, Department of Computer Science & Engineering, National Institute of Technology Durgapur, Durgapur, India, School of Computing and Information Technology, Eastern International University, Binh Duong Province, Vietnam.

Abstract: These days, NoSQL (Not only SQL) databases are being used as a deployment tool for Data Warehouses (DW) due to its support for dynamic and scalable data modeling capabilities. Yet, decision-makers have faced several challenges to accept it as a major choice for implementation of their DW. The most significant one among those challenges is a lack of common conceptual model and a systematic design methodology for different NoSQL databases. The objective of this paper is to resolve these challenges by proposing an ontology based formal conceptual model for NoSQL based DWs. These proposed concepts are capable of realizing the cube concepts for visualization of multi-dimensional data in NoSQL based DW solutions. In this context, two strategies are specified, implemented and illustrated using a case study for devising of the proposed conceptual model.

Keywords: Conceptual Model, MongoDB based Implementation, NoSQL Data Warehouse, Ontology-driven Model.
PROPELLING THE B40 TOWARDS A ‘SUPER SMART SOCIETY’ WITH DIGITAL LITERACY

Neesa Ameera Mohamed Salim, Mohd Nor Shahizan Ali, Agus Hari Wibowo, Djatmika
Faculty of Art and Design, Universiti Teknologi MARA, Malaysia, Centre for Media and Communication Studies, Universiti Kebangsaan Malaysia, Faculty of Cultural Sciences, Universitas Sebelas Maret, Indonesia

Abstract: A ‘super smart society’ is a core concept from Society 5.0 inspired by the Japanese which aims to develop both information and human-centered societies. Since the society is becoming increasingly digitised and technology connected, this study aims to define digital literacy as a new dimension in measuring the advertising literacy of the B40 society towards one of the visual pollutants – fly posters. To represent the B40 society distribution, a total of 574 respondents from five Public Housing Program (PHP) were selected. The study was guided by the combination of both media literacy theory and advertising literacy model. Findings revealed that the B40 community are comprised of highly advertising literate individuals due to digital technological factors. However, the aforementioned issue of visual pollutants failed to be resolved since the collective efficacy of the B40 community is unsatisfactory. For the B40 society to grasp the future of a ‘super smart society’, the B40 society need to collectively adapt and adopt digital technologies by transforming the same interests and concerns to solve societal issues in parallel. The discussion provided in this study adds on to the debate on how digital literacy and collaborative efforts can be crucial in developing an intelligent society, the ‘super smart society’, the Society 5.0

Keywords: Advertising Literacy, B40, Society 5.0, Digital Literacy, Low-Income, Visual Pollutants, Super Smart Society

INVESTIGATING DETERMINANTS AND IMPACTS OF EFFECTIVE EDUCATIONAL VIDEOS: A CONCEPTUAL FRAMEWORK

Mohd Akmal Faiz Osman, Khadijah Abdul Rahman, Siti Aishah Mokhtar, Noor Arina Md Arifin, Nik Nur Izzati Nik Rosli, Amira Idayu Mohd Shukry, Tengku Farid Tengku Abdul Aziz
Faculty of Information Management, Universiti Teknologi MARA, UiTM Machang Campus, 18500 Machang, Kelantan, Malaysia

Abstract: Using educational videos in the University classroom could increase learning outcome, satisfaction, emotion and engagement. Theories in multimedia learning explained that videos need to be carefully designed to enable a lesson to be retained in long term memory in a way where the learner will not be overloaded from the actual learning materials. Furthermore, unclear design or extra instruction in the videos may contribute confusion among learners, hence increase the cognitive load. This study highlights the importance of managing cognitive load in terms of intrinsic load, extraneous load, and germane load in the videos that would enhance learning. Therefore the objective of the study is to investigate factors that would affect the effectiveness of educational videos and also investigate the impacts of effective educational videos in Universities. In order to develop the conceptual framework, the study adopted a systematic literature review approach of over 30 papers. From the review, it was found that quasi-experimental methods with treatment groups were the most frequently used methodology and the Cognitive Theory of Multimedia Learning was the most preferred theory. Based on previous literature on educational videos, this paper contributes in proposing a conceptual framework model to measure the effectiveness of educational videos; second, the paper provides reviews from literature and discussion; finally, this paper provides suggestions for future research.
EVALUATING LOCAL HERITAGE KNOWLEDGE REPOSITORY SYSTEM BY IDENTIFYING FACTORS INFLUENCING INDIVIDUAL IMPACT USING THE I.S. SUCCESS MODEL

Yulita Hanum P Iskandar, Rakesh Kumar Raman, Shahrizal Nazri, Mohd Azam Osman

Graduate School of Business Universiti Sains Malaysia, 11800 Malaysia, School of Computer Science, Universiti Sains Malaysia, 11800 Malaysia.

Abstract: This paper evaluates the Local Heritage Knowledge Repository System (LHKRS) by identifying the factors which influence the individual impact using the Information System (I.S.) success model. The I.S. success model is a common framework that has been developed and updated by DeLone and McLean, to test an information system. The success model comprised of seven factors: system quality, information quality, service quality, user satisfaction, intention to use, use, and individual impact. Findings show system quality and the information quality has a positive impact on use and user satisfaction. The service quality has minimal impact on user satisfaction, and no significance was identified towards use. Between the dependent variables, which are use and user satisfaction, user satisfaction had the highest positive impact on individual impact. This seven-dimension model captures the values needed for a successful LHKRS implementation.

Keywords: individual impact, I.S. success model, local heritage, knowledge repository.

CHARACTERIZATION OF SENDUDUK (Melastoma malabathricum (L.)): A POTENTIAL SOURCE OF CELLULOSE

Izathul Shafina Sidek, Sarifah Fauziah Syed Draman, Siti Rozaimah Sheikh Abdullah, Nornizar Anuar

Faculty of Chemical Engineering, Universiti Teknologi MARA, Bukit Besi, Terengganu, Malaysia, Department of Chemical and Process Engineering, Universiti Kebangsaan Malaysia, Faculty of Chemical Engineering, Universiti Teknologi MARA, Shah Alam, Selangor, Malaysia,

Abstract: Senduduk (Melastoma malabathricum (L.)) is dispersed scrubs which is can be found grow wildly and abundantly in nature. However, limited studies had been reported regarding chemical composition and utilization of M. malabathricum, especially in cellulose materials. The objectives of this study are to determine the chemical composition of M. malabathricum from leaves and branches form. Then, the characters of cellulose materials produced by M. malabathricum were investigated. The chemical compositions were analyzed according to the Technical Association of the Pulp and Paper Industry (TAPPI) methods. The characteristics of cellulose materials were investigated via Fourier transform infrared (FTIR) spectroscopy, thermogravimetric analysis (TGA) and differential scanning calorimeter (DSC). The FTIR results show that the peaks of extracted cellulose from leaves and branches are approximately the same pattern with commercial cellulose. The results of TGA demonstrate the thermal degradation of cellulose obtained from the branches and leaves occur around 350ºC. The results of DSC indicated that the degradation of cellulose appeared as an exothermic peak at 330ºC for leaves and branches. TGA and DSC thermograms of extracted cellulose show similar decomposition temperatures for commercial cellulose. The chemical composition of cellulose from the branches and leaves are 47.8% and 36.5%, respectively. According to the results, M. malabathricum has a high potential platform as a new source of cellulose for bioproducts to replace conventional or synthetic materials in the commercial market.
BUILDING UP VOCABULARY KNOWLEDGE IN SPEAKING SKILL OF PHYSIOTHERAPY STUDENTS USING VOCABULARY.COM

Farhana binti Haji Shukor

Academy of Language Studies, Universiti Teknologi MARA,Cawangan Pulau Pinang

Abstract: Teaching vocabulary for the undergraduates in the most interesting method is a major challenge for educators. It is crucial for the learners to acquire English vocabulary as much as possible in enabling them to be proficient in English especially in speaking skill. This paper outlines 23 responds from physiotherapy students in semi-structured interviews of open-ended questions in using Vocabulary.com as a platform for them to learn vocabulary. Their speaking skill is then being polished in continuous practices using the vocabulary knowledge related to their field that is physiotherapy subject. They were observed to be more enthusiastic in the activity and were keen in participating in all language activities for the following weeks of the class. The positive response received from the students about the usefulness of the learning opportunities encourages the development of further resources. We need to ensure that a variety of learning resources that fit with their learning outcomes need to be made available by the academicians in ensuring the success of vocabulary teaching.

METHODS TO DECREASE CARBON DIOXIDE EMISSIONS TO MEET UAE 2050 ENERGY GOALS

Ali Saleh M. Alhammadi, Mas Fawzi

Emirates CMS power company Al Taweelah Power Complex, Al Taweelah Industrial Area 47688, Abu Dhabi, UAE, Faculty of Mechanical and Manufacturing Engineering, Universiti Tun Hussein Onn Malaysia,

Abstract: There is significant evidence that the world and the United Arab Emirates face many issues presently and in the future due to global warming. Issues include but are not limited to, rise in population, air pollution, water level rise, and higher energy demand. To combat this, the UAE Ministry of Energy and Industry have implemented their vision for energy diversity for meeting the energy demand and decreasing carbon dioxide emissions by 2050. This study is a review of these issues stemming from global warming. Current research will be investigated to include whether the UAE should improve its existing energy infrastructure by improving current conventional technologies with more efficient systems. Studies on heat reclaimers, improved gas turbines, and carbon capture will be discussed.

THE PLASTIC BAG CONUNDRUM: UNDERSTANDING WHY PEOPLE USE IT AND WHAT INFLUENCE THEM
Mahazril 'Aini Yaacob, Adriana Nuranith Binti Aminalrashid, Muhammad Aiman Bin Ruslan

Faculty of Administrative Science and Policy Studies, Universiti Teknologi MARA

Abstract: This study explores the determinant factors influencing the intention to use the plastic bags among the people in Malaysia. The study was conducted among 384 people who are the customers of Tesco, Shah Alam involving a questionnaire survey. The Pearson Correlational was used to explain the different factors that influence the intention to use plastic bags among the people. The findings discovered that the internal factors (Attitude, Environmental Knowledge and Environmental Concern) and external factors (Plastic Bag Charge, Social Influence and Public Campaign) predict the intention to use the plastic bags among them. As such, this study proposes several recommendations such as the possibility of the government providing coupons and ‘one off’ or ‘free first shopping bags’, educating the public through educational tools and implementing more campaigns and programs to increase awareness amongst people on the use of shopping bags, which will indirectly help to reduce the use of the plastic bags in Malaysia. It is hoped that the findings from this study can help us to protect the environment, which will subsequently allow us to live in a safe, healthy and sustainable nation.

Keywords: Plastic bags, Usage Intention, Environmental concern, Attitude, Environmental knowledge, Consumers, No Plastic Bag Day Campaign

NUMERICAL VALIDATION OF COMPUTATIONAL FLUID DYNAMICS SIMULATION OF BLOOD FLOW IN CEREBRAL ARTERY USING DISCRETE PHASE MODEL

Md Al Amin Sheikh, Anis Suhaila Shuib, Mohd Hardie Hidayat Mohyi, Julaiha Adnan, Ahmad Sobri Muda

School of Computer Science and Engineering, Taylors University Malaysia, No 1, Jalan Taylors, 47500 Subang Java, Selangor, Malaysia, Industrial Innovation Centre in Biomedical, SIRIM Industrial Research, SIRIM Berhad, Lot 5285, Lebuhraya Sg. Besi-Puchong, Sg.Besi, 57000 Kuala Lumpur, Radiology Department, Hospital Pengajar Universiti Putra Malaysia, Faculty of Medicine and Health Sciences, UPM 43400 Serdang, Selangor, Malaysia

Abstract: In biomedical engineering field, computational fluid dynamics (CFD) simulation method digitized image from clinical data to investigate the blood flow in human vessel. CFD plays an important role to understand in the initiation, growth and rupture of a brain disease called cerebral aneurysm. Image from digital scanning such as computed tomography angiography (CTA) scan was reconstructed using image processing software which are MIMICS 22.0 and 3-Matics version 14.0 by Materialise. Hemodynamic parameters are mainly used to examine the rupture status blood flow in cerebral aneurysm in computational fluid dynamics simulation. In this study, blood was considered as two-phase fluid and solved by discrete phase numerical model with Lagrangian approach in ANSYS-Fluent 2019 R3 software. The aim of this paper is to validate the numerical model against the experimental results. The reattachment point was observed where the percentage difference was 0.45% for Reynolds number of 12.2 and 0.48% for Reynolds number at 37.8. The two-phase blood flow simulation using discrete phase numerical model provides results close to the experimental data, hence validated the numerical model used in this study.

Keywords: Computational fluid dynamics, Discrete phase model, Blood flow, Aneurysm.
APPLICATION OF FLIPPED CLASSROOM FOR ENGLISH EDUCATION BASED ON NETWORK INFORMATION TECHNOLOGY

Haihua Wang, Nor Shahila Mansor, Xiangshun Wang, Ang Lay Hoon, Ramiza Darmi

Universiti Putra Malaysia, 43400 UPM Serdang, Selangor, Malaysia, Shangqiu Medical College, Henan, China

Abstract: The large-scale application of the current informatization technology has given technical support to the realization of information-based education. The current study aims to reform English teaching methods using information technology. Therefore, studying the application of web-based information technology in the implementation of flipping classrooms for English education is proposed. After a brief description of the related concepts and characteristics of the flipping classroom, the English flipped classroom teaching model based on network information technology is designed according to the network interactive teaching cloud platform. Based on mixed research, the data obtained in the teaching experiment are processed and analyzed by SPSS software. The following experiments proved that the model can be effective, and the practical application of the teaching model will greatly help to improve the English proficiency of students. Therefore, the application of realizing a flipped classroom for English education based on network information technology is proposed.

Keywords: Informatization, Network, English, Classroom Flipping.

DEVELOPMENT OF AUGMENTED REALITY APPLICATION FOR LEARNING TRADITIONAL CHINESE CULTURE: THE LEGEND OF NIAN

Jialing Li, Ahmad Affandi Supli

Xiamen University Malaysia, Malaysia

Abstract: Augment Reality (AR) technique is a new trend of storytelling, which could make the virtual world and real-world into one integrity through camera. Compare with traditional storytelling methods, it could provide more seamless, realistic experience. In the long term of human life, storytelling is fundamentally essential in the process of inheriting tradition and history. The Legend of Nian is a conventional Chinese tile that tells the origin of the Chinese Spring festival. Since it plays a significant role in cultural heritage and infects recent customs, it is necessary for teenagers to know. However, nowadays teenagers usually learn this story through teachers, books, and videos. There is a lack of AR application about storytelling of the Chinese culture. AR storytelling application can be a suitable method to bring teenagers a more satisfying experience of learning. The purpose of this study is to develop an AR application for storytelling to improve the motivation of learning traditional Chinese culture. This study uses the quantitative research method to collect data. The participants of the survey were randomly chosen from the Xiamen University Campus. Based on the result, this research achieves its purpose to develop an AR application for storytelling and it successfully improves users’ motivation of learning traditional Chinese culture.

Keywords: Augmented Reality, learning motivation, Storytelling, user satisfaction.
EXPLORING DIGITAL LITERACY STRATEGIES FOR STUDENTS WITH SPECIAL EDUCATIONAL NEEDS IN THE DIGITAL AGE

Abdul Jalil Toha Tohara, Shamila Mohamed Shuhidan, Farrah Diana Saiful Bahry, Shyh-Mee Tan

Faculty of Information Management, Universiti Teknologi MARA, UiTM Puncak Perdana Campus, 40150 Shah Alam, Selangor, Malaysia, Education and Social Sciences Cluster, Open University Malaysia, Pusat Perniagaan Worldwide 2, 40100 Shah Alam, Selangor, Malaysia.

Abstract: 21st century learning requires students to be equipped with learning skills, knowledge, media literacy and also life skills. In order to achieve these skills, the school curricular embedded the use of technology tools and strategies to provide teaching and learning strategies for learners including students with special needs or Special Needs Students (SNS). Studies found that students struggle to cope with their studies in the digital learning environment due to their limited digital literacy skills. Digital Literacy skills are essential to develop as independent learners in the digital age. Previous studies have shown that digital literacy skills have demonstrated a positive influence on student performance. However, limited studies have been conducted on. This paper aims to discuss the concept of digital literacy skills to support teaching and learning strategies for special needs students in Malaysia. The digital literacy skills model consists of cognitive, technology and ethics as the basic guideline to explore the digital literacy teaching and learning strategies for SNS. This concept has been tested as a preliminary study on one of the courses - Desktop Publishing. From the findings, it shows that the digital literacy skills model is able to improve the teaching and learning strategies needed for SNS in the digital environment.

Keywords: Digital Literacy Skills, Special Education, Special Needs Students, Learning Strategies

SURFACE REVERSAL METHOD ALGORITHM DEVELOPMENT

Nor Athirah Roslan, Mohd Fauzi Ismail

Faculty of Mechanical Engineering, Universiti Teknologi MARA, Malaysia

Abstract: The reversal method introduced by previous research focuses in finding reference datum of topography data of cylinder end surface but somehow ignores the existence of error. This problem leads to the purpose in introducing an understanding of how this method can be improvised. Thus, in this paper, a primitive approach was done by introducing the algorithm of the surface reversal method and simulating the reversal method on a selected surface to test how it works. This paper used MATLAB software for the majority of data processing. It started by preparing two simulated surfaces which were surface A and surface B (180° rotation). Then, it continued with the preparation of surface by converting the surface data into an image file type which made surface A and surface B aligned in the same direction before conducting surface correlation and finally finding the best match point between both surfaces. These basic steps play an important role to ensure the whole procedure for the next future studies is accurate. The peak result at position (540 x 409) from surface correlation was able to ease the next procedure by having a proper position before doing surface subtraction. The algorithm developed through MATLAB has successfully demonstrated the primary steps of surface reversal method.
**Keywords:** Reversal method, reference datum, surface topography, error, and uncertainty

**ARTIFICIAL INTELLIGENCE AND FUTURE EMPLOYMENT: CHALLENGES AND OPPORTUNITIES IN SOCIAL DEVELOPMENT**

Sapna Khatri, Prof. Dr. Devendra Kumar Pandey and Dr. Daniel Penkar

Amity Business School, Amity University, Madhya Pradesh, Gwalior, SB Patil Institute of Management, Savitribai Phule Pune University

**Abstract:** AI, as one of the technologies of industry 4.0, is bringing dramatic influence in the existing working setup of organization. AI demands newer work, newer skill-sets, throwing newer challenges, a totally new perspective. This perspective is based on the primary and secondary data collected. The tools used to collect the data is questionnaire from selected sample and through descriptive qualitative review research articles, periodicals, case studies, books and journals – both online as well as printed, as well as the experience, learning and observations of the researchers. Review of these emerging information and analysis is part of this methodology. There is no single cookie cutter for all challenges. To be future ready, organizations need to prepare themselves through the employment strategies of skill enhancement, new skill development and re-skilling of its human intellect. Whilst AI may threaten to make humans redundant in certain kinds of jobs, it surely opens new vistas for skill-sets, which would be required to manage the new workplaces, and the future employment processes will have to be created around these. The field of AI is growing at break-neck speed, so there are newer things emerging every single day. So this perspective is dated with respect to analysis and outcomes, which have potential to be revisited in short & medium term. It requires different talent, skills & techniques for defining solutions and challenging current employment processes. AI Automation, IoT, Cloud computing, Cognitive computing; has been mesmerizing the workplaces. Whilst all the advances in connected world bring about efficiencies and productivity, these create and influence employment processes and pose challenges for the organization, fuelling start-ups and entrepreneurship as social and economic development. The field of AI and its influence on HR is an emerging field, with lot of work being done globally. However, this research perspective with respect to Indian business is original work of the authors, and the study is based on the primary research data. The work is also generic in its applicability to various industry segments. This paper elaborates on the influence of AI on future business opportunities and employment processes.

**Keywords:** Artificial Intelligence, Entrepreneurship, Employment processes, Challenges and Opportunities, Workspaces, Human Resources development

**A METHOD FOR PREDICTING COMPONENT’S RELIABILITY TO DEVELOP RELIABLE COMPONENT-BASED SOFTWARE**

Zafer Javed, Masoud Mohammadian, Mohd Helmy Abd Wahab

Faculty of Science & Technology University of Canberra, Canberra, ACT, Australia, Faculty of Electrical and Electronic Engineering Universiti Tun Hussein Onn Malaysia Johor, Malaysia
Abstract: Reliability of component-based software (CBS) greatly depends on the reliability of the component which is reused in the CBS. Therefore, the reliability of the component must be judged before reusing the component in CBS especially for critical systems.

In this paper, we present a novel method for predicting reliability of a component for CBS. Our method computes a reliability score of the component which assists in determining whether the component should be reused in the CBS or not. If the component’s reliability score is not high enough, we need to further test the component before reusing in CBS to develop a reliable CBS.

To measure the reliability score of the component, we analyse the test suite which was used to test the component during component development. For each discrepancy found in the test suite, we reduce the reliability score of the component. This reliability score can be used to decide whether the component is acceptable for the CBS or not. The underlying principle is that the component tested with an adequate test suite is potentially more reliable than the component tested with a weaker test suite, and hence results in developing reliable CBS.

We evaluate our method on a real system to demonstrate its applicability and effectiveness. During this evaluation, we measure the component’s reliability score. If the component is deemed less reliable, we can create some test cases to further test the component’s functionality which was not tested well during component testing to increase the reliability of the component in the CBS.

Keywords: Component Reliability, Component-based Software Development, Component-based Software Engineering, Software Testing

Novel Intelligent Traffic Congestion Management

Masoud Mohammadian, Mohd Helmy Abd Wahab

Faculty of Science and Technology University of Canberra, ACT, Australia, University of Tun Hussein Onn Malaysia Johor, Malaysia

Abstract: A multi-agent system for traffic signal control for smart cities is proposed. The developed system acts autonomously using a set of fuzzy logic systems for traffic signal control. Each agent system acts initially independently to adjust traffic signals in real-time manner using information about traffic condition at each traffic signal. Each agent adjusts the green phase splits of the north-south and east-west approaches of each traffic signal. The multi-agent system coordinates each intersection with its adjacent intersections. The multi-agent system uses a fuzzy rule-based system for its decision making to coordinate all three intersections simultaneously. It uses a Fuzzy Cognitive Maps to obtain a global information about traffic condition at adjacent set of traffic signals. The effectiveness of the proposed multi-agent system for controlling traffic signals is established through simulations. The proposed multi-agent system is promising and can be effectively applied to traffic control of multi traffic signals, and it is adaptive and able to handle traffic situations. A Fuzzy Cognitive Maps (FCMs) is also created to map the traffic lights and their effect on traffic flow on other traffic signals. FCM assist in improving communication among multi-agent system to improve the traffic flow and reduce traffic congestion.

Keywords: Traffic Management, Intelligent System, Control, Automation, Modelling

LIBERATING MENTAL HEALTH IN INDUSTRY 5.0 THROUGH HOLISTIC EDUCATION

Sheela Jayabalalan, Dalelee Kaur Randawar
Faculty of Law, Universiti Teknologi Mara, Shah Alam, Selangor, Malaysia

Abstract: Industrial Revolution 5.0 sees man and machine working in harmony. The life of a human is often dictated by emotions. Relationship with machines, however, disconnects one from emotions, thus adversely affecting the mental health of humans causing mental conditions such as depression, anxiety disorders, schizophrenia and schizoaffective disorders, bipolar disorder, and autism spectrum disorder. To address mental health, education should pave the way for children to attain and sustain mental wellness specifically through a holistic education. Holistic education is based on the premise that each person finds identity, meaning, and purpose in life through connections with the community, the natural world, and spiritual values such as compassion and peace. Holistic education should be included in the education system in Malaysia to prepare a child to meet the challenges that Industrial Revolution 5.0 may pose. Adopting a conceptual research, this article pre-supposes that holistic education be integrated in the school curriculum in Malaysia as a measure to help children attain and maintain mental wellness. The holistic education curriculum should be elucidated as a wellness model with the objective of constructing strong mental health to prepare the future generation to meet the challenges and the needs of the industry revolution. Mental health should not be treated as an illness but as a state of well-being where individuals get to realize their abilities to cope with the normal stressors of life and work productively for the betterment of oneself and the community.

Keywords: Mental Health, Emotional & Intelligence Quotients, Liberating, Holistic Education, Industrial Revolution

EXPERIMENTAL STUDY ON SURFACE MORPHOLOGY, DENSITY AND RELATIVE DIELECTRIC CONSTANT OF HIGH-DENSITY POLYETHYLENE (HDPE)/NATURAL RUBBER (NR) BIOCOMPOSITES

Mohd Haris Asyraf Shee Kandar, Nor Akmal Mohd Jamail, Susama Bagchi, Nor Shahida Mohd Jamail, Rahisham Abd Rahman, Qamarul Ezani Kamarudin, Fahmiruddin Esa, Sanjoy Kumar Debnath

Faculty of Electrical and Electronic Engineering, UTHM, 86400 Batu Pahat, Johor, Malaysia, Department of Information System, PSU, Riyadh Saudi Arabia, Faculty of Mechanical and Manufacturing Engineering, UTHM, 86400 Batu Pahat, Johor, Malaysia. Faculty of Applied Sciences and Technology, UTHM, 84600 Pagoh Muar, Johor, Malaysia

Abstract: This work studied the surface morphology, density and relative dielectric constant of three different formulations of HDPE/NR prior to further development of HDPE/NR/Empty Fruit Bunch (EFB), HDPE/NR/Pineapple Leaf (PAL) and HDPE/NR/Coconut Coir (CC). The used weight percentages of the EFB, PAL and CC fillers in this study were 10 wt. %, 20 wt. % and 30 wt. %. HDPE/NR/EFB, HDPE/NR/PAL and HDPE/NR/CC were prepared using a two-rotor mill blending method. It is known that the presence of bio-composite filler in base can affect the density, relative dielectric constant (permittivity), and as well as the surface morphology. This study also found that the PAL filler had lower density about 12 % at 20 wt. % in comparison with the same of EFB and CC fillers. Whereas, in contrast to PAL and CC fillers, the EFB filler had a lower relative dielectric constant of about 8.7 % at 4.5Hz. Future work can focus on enhancing the production of a lower space charge accumulation.

Keywords: Density, FESEM, HDPE, Permittivity.
User Experience on Intuitive Hand Gestures of Mobile Music Application

Lin Yeyuan, Ahmad Affandi Supli

Xiamen University Malaysia,

Abstract: The gesture control method becomes the main one in the mobile application design. The rise of gesture controls has changed the way we interact with mobile devices. Users do not need to waste time to learn some gestures in order to be able to navigate through a specific command in case it utilizes commonly used and intuitive gesture controls. Compared with some dense interface buttons, the advantages of intuitive gestures are convenience, naturalness, and less time spent. It provides more space for valuable content. However, existing music applications are not widely used for gestures and not easy to use. This study was aimed to investigate the mobile application's intuitive gestures and to implement it for music application. The study applied a total of four different intuitive gestures to improve retrieval, sharing, collection and deletion, which most crucial functions played in music application. Therefore, this study used a questionnaire survey method approach to assess user experience by comparing the existing music application with the music application that implements gestures.

Keywords: Mobile Interaction Design, Mobile music application, intuitive hand gesture, User interface (UI); User experience (UX)

THE IMPLEMENTATION OF USER-CENTERED DESIGN IN MOBILE APPLICATION TO IMPROVE HUMAN WELL-BEING

Desmond Chew Jian En, Ahmad Affandi Supli

Xiamen University Malaysia, Malaysia

Abstract: Long ago, people have dreamt of a day in which there is a computer in every pocket. Nowadays, this dream came true for many people, a subject is worth discussing that is about whether technology is really improving our lives as we had hoped. The mobile devices are taking over the way people experience the world. Mobile smart devices are just like the soil ground, technologies are fertilizer enriching it and applications are units of land planning. Information is abundant, endless and easy to obtain with a mobile smart phone, users being satisfied constantly and pursue more. Most of the users are having behavioral addiction information is unlimited, there are no stopping cues in the way people receive information nowadays. Phubbers are busy using the smart device and lose sight of the real world. Ironically, the original intention of technology is to improve human well-being, technological development is expanding more rapidly than human mental development. The objectives to be achieved in doing this project are to improve human digital habits and make them aware of the severity of the problem.

Keywords: Digital Wellbeing, Human Wellbeing, User-centered design, Mobile Application, Screen-time.

ELECTRICAL AND MECHANICAL PROPERTIES OF SILICONE ELECTRICAL CONDUCTIVE ADHESIVES (ECAS) FILLED CARBON BLACK TREATED WITH 3-AMINOTRIETHOXYSILANE AT ELEVATED TEMPERATURE
H. Nurul Hazirah, A. Zuliahani, M.N. Sarip, A. Faiza, A.S. Samsudin
Universiti Malaysia Pahang, Malaysia, nhazirahhasnol@gmail.com, Universiti Teknologi MARA, Perlis Branch, Malaysia, Universiti Teknologi MARA, Shah Alam, Malaysia

Abstract: In this study, different formulation of silicone filled carbon black electric conducting adhesive (ECAs) were successfully fabricated. Carbon black (CB) was treated with 3-aminotriethoxysilane to improve the surface adhesion by grafting of amide functional groups on the surface of the CB. Various loading of untreated and treated CB (0%, 5%, 10% and 15%) on silicone ECAs using film casting method were prepared and characterized. The characterization was performed on the conductive adhesive film by using Fourier Transform Infrared Spectroscopy (FTIR), hardness and tensile testing. While for the electrical property, electrochemical impedance spectroscopy (EIS) was investigated. The FTIR spectrums confirmed the surface modification of CB with 3-aminotriethoxysilane and amide functional groups was presence at 1549 cm\(^{-1}\), 1250.7 cm\(^{-1}\), 1126.6 cm\(^{-1}\), 976.16 cm\(^{-1}\) and 860.02 cm\(^{-1}\) corresponding to the N-H, Si-O, Si-O-Si, C-N and C=C stretching vibrations of the amino groups (\(-\text{R-NH}_3^+\)) respectively. The conductivity of the ECAs was dependent on the CB loadings. As the CB loading increased, the conductivity of adhesive conductive film was increased up to 10% of CB loading and decreased when at 15% of CB loading. This is due to the gap distance of interparticle of silicone and CB is high. Whilst the tensile strength of the silicone filled CB increased with increasing of CB content both untreated and treated CB at 0.05954 MPa and 3.3027 MPa respectively. This is supported by hardness testing also showed the same trend with increment of CB loading, the hardness value also increased. The optimum value was found at 42 and 54 for untreated and treated CB respectively. The optimum formulation of electric conductivity was found at 10% loading of CB at 1.75E-08 \(\Omega\)/cm. The conductivity of ECAs filled CB at elevated temperature exhibits increment trend of untreated/treated CB at temperature of 100 °C to 160 °C however decreased at 180 °C. It is believed that with increasing the temperature, the interparticle average distance increase due to the difference in the thermal expansion of silicone and carbon black. The utilization of treated CB in silicone ECAs improved the conductivity and mechanical properties giving way to a full potential of using CB as filler.

Keywords: Electrical conductive adhesive, silicone, conductivity, mechanical properties, electrochemical Impedance spectroscopy (EIS)

APPLICATION OF SUPPORT VECTOR REGRESSION IN KRYLOV SOLVERS

Rehana Thalib, Maharani, A.B. and Nur Fadhilah Ibrahim
University of Malaysia Terengganu, Malaysia

Abstract: Support vector regression (SVR) is well known as a regression or prediction tool under the Machine Learning (ML) which preserves all the key features through the training data. Different from general prediction, here, we proposed SVR to predict the new approximate solutions after we generated some iterates using an iterative method called Lanczos algorithm, one class of Krylov solvers. As we know that all Krylov solvers, including Lanczos methods, for solving the high dimensions of systems of linear equations (SLEs) problems experiences breakdown which causes the sequence of the iterates is incomplete, or the good approximate solution is never reached. By assuming that some iterates exist after the breakdown, then we could predict what they are. It is realized by learning the previous iterates generated by the Lanczos solvers, which is also called the training data. The SVR is then used to predict the next iterate which is expected the sequence now has similar property as the previous one before breaking down.
Furthermore, we implemented the hybrid SVR-Lanczos (or SVR-L) in the restarting framework, then it is called as hybrid restarting-SVR-L. The idea behind the restarting is that one time running hybrid SVR-L cannot obtain a good approximate solution with small residual norm. By taking one iterate which is resulted by the hybrid SVR-L, putting it as the initial guess, will give us the better solution. To test our idea of prediction of SLEs solutions, we also used the regular regression and compared with the SVR. Numerical results are presented and compared between these two predictors. Lastly, we compared our proposed method with existing interpolation and extrapolation methods to predict the approximate solution of SLEs. The results showed that our restarting SVR-L performed better compared with the regular regression.

**Keywords:** SLEs, Machine Learning, SVR, Lanczos solvers, hybrid, restarting

**NUMERICAL SOLUTION OF UNCONSTRAINED OPTIMIZATION PROBLEMS USING THREE-TERM APPROACH OF RMIL CONJUGATE GRADIENT METHOD**

Nur Idalisa, Riza Haryani, Mohd Rivaie and Nurul Hafawati Fadhilah
Universiti Teknologi MARA, Malaysia

**Abstract:** Conjugate Gradient (CG) method has gained its popularity due to its ability to converge globally and efficiently in solving unconstrained optimization of broad-scale approaches. The three-term CG method is chosen for this study which is the extension of a well-established classical CG method of Rivaie, Mustafa, Ismail, and Leong (RMIL) in 2012 [1]. This paper aimed to investigate the performance of the modified RMIL CG method proposed by Norddin et al. in 2018 [2] under the Armijo line search. By studying the variation of parameters in the Armijo line scheme, this study is to assess the general behavior of the CG method involved. This is to give an insight into the performance of existing three-term RMIL under Armijo line search where there is no research conducted on this inexact line search yet using three-term RMIL. Numerical comparisons of the three-term CG algorithm versus the RMIL, shows that all these computational schemes have similar performances, the modified version being slightly faster and more robust. The result is analyzed through the number of iteration (NOI) and CPU time. The entire test run involved in the numerical experiment was 1200 that comprised of 12 test functions with dimension and four initial points.

**Keywords:** Three-term conjugate gradient; scaling CG; unconstrained optimization; Armijo line search; Numerical comparisons

**RECOMMENDER SYSTEM FOR MULTIPLE DATABASES BASED ON WEB LOG MINING**

Wan Hussain Wan Ishak and Nurul Farhana Ismail
School of Computing, Universiti Utara Malaysia, Sintok, Kedah, Malaysia

**Abstract:** Finding information from a large collection of resources is a tedious and time-consuming process. Due to information overload, searchers often need help and assistance to search and find the information. Recommender system is one of the innovative solutions to the problem related to information searching and retrieval. It helps and assist searchers by recommending the possible solution based on the previous search activities. These activities can be obtained from the web log, which requires a web log mining approach to extract all the keywords. In this study, keywords obtained from the library web log were analysed and the search keyword patterns were obtained. These keyword patterns were from several databases or resources that were subscribed by the library. The finding revealed some of the popular keywords and the most searchable databases among the searchers. This information was used to design
and develop the recommender system that can be used to assist other searchers. The usability test of the recommender system showed that it is beneficial and useful to the searchers. These findings will also benefit the management in planning and managing the subscription of online databases at the university’s library.

**Keywords:** Information retrieval; recommender system; web log mining.

---

**STAKEHOLDERS ENGAGEMENT IN THE IMPLEMENTATION OF SUSTAINABLE DEVELOPMENT GOALS (SDGs)**

Mohd Idham Mohd Yusof, Mariani Ariffin

Universiti Putra Malaysia, Universiti Teknologi MARA (UiTM)

**Abstract:** Various researchers have addressed the importance of engaging stakeholders at different government levels in achieving the Sustainable Development Goals (SDGs) or known as Agenda 2030. Under the principle of “leaving no one behind,” SDGs initiatives are being mobilized from global commitments to national, state, and local levels, involving multi-stakeholders in their implementation. Therefore, each segment of society must be well represented, and political commitment is needed to ensure the SDGs’ success. This paper aims to discuss stakeholders’ needs to be involved throughout the implementation of the SDGs and analyze the challenges of the engagement. Additionally, recommendations for better engagement are also put forward. By reviewing the literatures derived from the repositories of journals, the findings from these sources were analyzed and evaluated accordingly. Supporting data was also obtained from the official reports issued by the United Nations (UN) and its agencies. This paper identifies multi-stakeholders in SDGs that can be categorized at global and country levels. These include international organizations, governments, legislatures, private sectors, third sectors, and grassroots communities. Despite the numerous challenges, the stakeholders’ nexus in SDGs are prevalent. It indicates that SDGs need integrated governance in its implementation. With relevant examples, a number of best practices in several countries were highlighted. To further enrich the literature, empirical research on the positions of stakeholders for SDGs would need to be carried out in future.

**Keywords:** Sustainable Development Goals (SDGs), Stakeholders Engagement, Challenges.

---

**TOURISM FOR ALL: THE INCLUSION OF CHILDREN WITH AUTISM SPECTRUM DISORDER IN FAMILY TOURISM**

Fauzunnasirah Fazil, Habibah Ahmad, Hamzah Jusoh, Susheel Kaur Dhillon Joginder Singh

Faculty of Social Sciences and Humanities, Universiti Kebangsaan Malaysia, Selangor, Faculty of Hotel and Tourism, Universiti Teknologi MARA, Malaysia, Faculty of Health Sciences, Universiti Kebangsaan Malaysia, Kuala Lumpur, Malaysia.
Abstract: Reducing inequalities based on disabilities is among the major goals of the Sustainable Development Goals (SDG) Agenda 2030. Many organisations worldwide are looking forward to responding to the call, including those in the tourism sector. Therefore, this study aims to review the inclusion of the children with autism spectrum disorder (ASD) in the family tourism related studies and to examine the dimensions discussed in family vacation with ASD children research. The scope of this study is the vacation experience from the families of children with autism spectrum disorder (ASD) and the existing literature related to this special family market was analysed. The ASD children's difficult characteristics and behaviour challenged the parents and jeopardised vacation pleasure. After all, the inclusivity of the ASD children in social activities like tourism activities open-up rooms for a better self and social development through family-based activities. Accordingly, the study output provides an insight to the tourism players and authorities to look into more details in facilitating this group of tourists with special needs. The effort to provide accessible tourism for all can promise sustainable tourism achievement, particularly social development goals.

Keywords: autism spectrum disorder; tourism; family; parent; children; disability; social inclusion

REINFORCEMENT OF CHARCOAL ACTIVATED CARBON (CAC) IN NATURAL RUBBER (NR) COMPOUND: IN COMPARISON WITH CARBON BLACK

Sharifah Nafisah Syed Ismail, Nik Noor Idayu Nik Ibrahim, Noor Aishatun Majid, Nor Mazlina Abd Wahab, Siti Nabila Rasli, Siti Noorashikin Jamal

Faculty of Applied Sciences, Universiti Teknologi MARA, Perlis Branch, Arau Campus, 02600 Arau Perlis, Malaysia, Faculty of Applied Sciences, Universiti Teknologi MARA, 40450 Shah Alam, Selangor, Malaysia, School of Materials and Mineral Resources Engineering, Engineering Campus, Universiti Sains Malaysia, 14300 Nibong Tebal, Pulau Pinang, Malaysia

Abstract: Carbon black (CB) as filler improved the mechanical and physical properties of natural rubber (NR). However, CB can act as an air-polluting particle when the incomplete burning of fuels. Since the charcoal activated carbon (CAC) are types of carbon fillers, it is recommended to be used as filler in NR compound. SMR-10 was compounded with compounding ingredients by Conventional Vulcanization (CV) system by using two-roll mill. Commercial grade of carbon black (N220) was made as comparison study with CAC loadings were 10 and 15 phr (parts per hundred of rubber) respectively. Cure test was conducted to determine scorch time (tS2) and optimum cure time (tC90). The dumb-bell shape of five specimens for each sample formulation were investigated by using hardness, tensile, density and swelling test. It was found that the CAC revealed good processing safety as regards to torques and scorch. While, the vulcanizates with 15 phr had the ideal set of mechanical properties (tensile strength of 11.31 MPa, elongation at break 332 %, hardness Shore A of 44, density at 1.33 g/cm3 and swelling ratio up to 355%) that were almost similar with commercial grade of carbon black used. The elongation at break for vulcanizes with 10 phr was 395 % which was slightly higher than CB filler while the modulus M300 MPa was almost similar to that of the CB filler at 10 phr. Thus, this approach can reduce the dependent on carbon black filler as CAC has a potential to be used to reinforce natural rubber.

Keywords: charcoal activated carbon, compounding, natural rubber, carbon black.

ANALYSIS OF SEDIMENT RATING CURVE AND SEDIMENT LOAD FOR LANGAT RIVER BASIN
W K Lee, T A Tuan Resdi, J Asfar
Faculty of Civil Engineering, Universiti Teknologi MARA (UiTM), 40450 Shah Alam, Selangor, Malaysia

Abstract: Analysis of suspended sediment and streamflow over a period of 12 months in three monitoring stations, FS1, FS2 and FS4, which are located sequentially from upstream to downstream, is carried out for Langat river. The objective is to evaluate the sediment rating curves to estimate the suspended sediment concentration, hence the seasonal and annual sediment load in the river. Power law correlations improve when stream flow lead sediment discharge by one day, suggesting a travelling time between the sediment supply and the monitoring site. In addition, the concave sediment rating curve also indicate resuspension of deposited materials in the river system during flood events. Plot of suspended sediment concentration (SSC) and flow duration curve shows increase of sediment sources in the basin in the downriver direction and outliers attributed to flash flood events. Log-transformed linear regression of sediment concentration rating curve gives best R2 values and lowest percent mean error for all three stations. The total annual sediment load in the river basin upstream of FS4 is estimated to be 657,551 ton where monthly and seasonal variation is consistent with the monsoon season. Station FS2 and FS4 have approximately the same sediment yield but sediment concentration reduces downstream due to flow dilution effect. The model works well for the prediction of sediment discharge of regular flow events. However, annual sediment yield may be over estimated due to high flow events.

Keywords: Langat river basin, sediment rating curves, sediment yield, suspended sediment, regression analysis.

EMPOWERING WOMEN ON MENTAL HEALTH ISSUES DURING MOVEMENT CONTROL ORDER (MCO) BASED ON THE FRAMEWORK OF THE ISLAMIC FAMILY LAW IN TERENGGANU, MALAYSIA

Farah Safura Binti Muhammud, Noor Hasyimah Binti Sulaiman, Wan Nur Hanisah Binti Wan Din
Academy of Contemporary Islamic Studies Universiti Teknologi MARA Cawangan Terengganu 23000 Dungun, Terengganu

Abstract: Empowering women means empowering their families. This study seeks to identify problems regarding women during MCO and to propose a guideline to empower women on mental health issues based on the framework of Islamic family law in Malaysia. The problem statement states two issues firstly, statistics on mental health in Malaysia generally indicate that mental health issues are ranked second in Malaysia and those figures are reported to be increasing (2019). Secondly, the pandemic that hits the country has led to Sharia courts proceeding being halted. This study focuses on two objectives which are to identify the factors of mental problems experienced by Muslim women. Second, to propose an initial guideline in handling domestic violence in order to empower mental health among Muslim women in Malaysia. This study used qualitative and quantitative approaches. Qualitative data collection methods used structured documentation and semi-structured interviews while the quantitative approach used the questionnaires to hundred women in Terengganu during MCO. Qualitative data was analyzed using NVivo 10 software and quantitative data analysis was performed using SPSS 20.0 software. This study found that 61% of women were unemployed or lost their jobs during the MCO period. Based on the results, three main factors that led to women’s mental health issues are domestic violence, financial problems, and pressure to adapt to the MCO. This research is also proposing a guideline to empower women regarding mental
health issues. This research is in line with the mental health policy which emphasizes the mental health of all walks of life.

**Keywords:** empowering women, empowering family, Islamic Law, Islamic Family Law, MCO issue

---

**DO'A AND ZIKR AL-MA'THUR ONTOLOGY FOR THE COUNSELLING PRACTICE: EVALUATION APPROACHES**

Roslina Othman, Siti Fatimah Mohd Tawil

Department of Library and Information Science, International Islamic University, Faculty of Quranic and Sunnah Studies, Universiti Sains Islam Malaysia

**Abstract:**
Purpose – This paper reports on the evaluation activities performed during the ontology development of Do’a and Zikr Al-Ma’thur for the use of counselling session in secondary schools. Do’a and Zikr Al-Ma’thur can be suggested to Muslims in order to help them deal with challenges or issues in life. Since counselling cases could affect a person’s feelings, Do’a and Zikr Al-Ma’thur is frequently chosen to be applied as a counselling intervention for Muslims.

Methodology – There are four approaches used at the evaluation phase during the Do’a and Zikr Al-Ma’thur ontology development. These include internal and external evaluation. The internal evaluation involved the validation and verification activities by the experts in Quran and Sunnah field as well as the counselling field. While the external evaluation was performed via the SPARQL Query assessment and users assessment. All of the four assessments executed different type of findings and results. The internal evaluation derived results from the experts’ validation and verification activities. Each types of evaluation have its own purposes, for instance, the validation and verification activities were performed in order to ensure the trustworthiness of the selected data. The SPARQL Query evaluation is to assess whether the provided questions were able to be answered by the developed ontology. The user assessment provide evaluation from the perspective of users. Each approach has its own specific criteria to be fulfilled.

Findings – The evaluation phase consisting of validation, verification, competency questions and users assessment has met the criteria of Gomez-Perez et al. (2004) and Kreider (2013) referred in this research.

Significance – In the context of this research, ontology evaluation approaches signifies the importance of deriving authentic religious texts from accurate sources that can be extracted as an alternative in the counselling intervention used by the counselors in schools.

**Keywords:** Ontology development, Ontology evaluation, Islamic domain

---

**SKIN CANCER CLASSIFICATION USING PRETRAINED DEEP LEARNING MODEL**

J. Andrew, Varun Unnikrishnan Nair, K. Martin Sagayam, Mohd Helmy abd Wahab, Nor’Aisah Sudin

Department of Computer Science and Engineering, Karunya Institute of Technology and Sciences, Coimbatore, India, Faculty of Electrical and Electronic Engineering, Universiti Tun Hussein Onn, Malaysia.

**Abstract:** Skin Cancer has been one of the most challenging problems for dermatologists; it is a tremendously tedious process to detect the kind of lesion/cancer form it is for just the human eye. Deep
learning has become popular because of its ability to learn complex features from the huge dataset. Convolutional Neural Network (CNN) has been a widely used deep learning model for classification. Many researchers have been conducted on the efficiency of CNN’s use to classify skin cancer forms. In this paper, the efficiency of VGG bottleneck features and transfer learning have been used on three types of skin cancers namely, (a) squamous cell carcinoma, (b) basal cell carcinoma and (c) melanoma. The proposed model comprises of VGG-16 NET and Transfer Learning with 2 fully-connected layers. The proposed model is experimented on 1077 dermoscopy images in total (MSK-1, UDA-1, UDA-2, HAM10000). The experimental analysis proves that the proposed model achieves higher values for accuracy, specificity and sensitivity.

**Key words:** Skin cancer, deep learning, CNN, classification, transfer learning, pretrained model

---

**QURANIC PERSPECTIVE ON DISASTER MANAGEMENT: ANALYSE FROM PROPHET YUSUF A.S HISTORY**

Faisal Bin Husen Ismail, Nur Zainatul Nadra Binti Zainol, Muhammad Masruri, Abdul Shakor Borham, Arwansyah Kirin, Zaitun Muzana

Centre for General Studies and Co-curricular, Universiti Tun Hussein Onn Malaysia, Johor, Malaysia, Faculty of Administration and Management, University College Bestari Setiu, Terengganu

**Abstract:** Disasters like the pandemic are something that happens to humans and other lives. Islam recommends that people avoid harmful behaviors. In addition, the Quran is the main guide in life so that people can always refer to it. The objective of this study was to exploit the method of preparation for disaster risk based on approach from Prophet Yusuf. This study is a qualitative research that uses a content analysis from Surah Yusuf in the Quran to explore a Quranic approach based on Prophet Yusuf history in planning and preparation to avoid the risk of disaster. This study shows that the disaster preparedness is one of the crucial factors in managing disaster risk. Identify Pre-Disaster Inventory Strategies is one of the strategies that can reduce the risk of disaster damage. This study also found the link between disaster preparedness strategies and leaders' moral values. Believing in the supernatural, patient, honest or righteous in the face of disasters is a characteristic that leaders and the public need in the face of disasters. This study gives effect to the need to formulate guidelines for future risk management strategies. Therefore, this study provides suggestions on guidelines for future risk management strategies especially in the face of pandemic outbreaks.

**Keywords:** Content analysis, Quranic approach, planning management, risk of disaster.

---

**EVALUATION OF CIVIL ENGINEERING STUDENT ATTAINMENT MEASUREMENT SYSTEM - A SATISFACTION SURVEY**

M Mazlina, Oh Chai Lian, Mohd Raizamzamani Md Zain, Balqis Md Yunus, Norbaya Hj. Sidek

Faculty of Civil Engineering, Universiti Teknologi MARA (UiTM), 40450 Shah Alam, Selangor, Malaysia
Abstract: In ensuring the quality of the offered programs in Malaysia, it is crucial to comply with the long chain of Quality Management processes in obtaining and maintaining accreditation of undergraduate engineering programs. One of the processes is to continually and effectively measure the students' attainment of program outcomes amid the implementation of Outcome-Based Education. This paper focuses on MyCOPO system, the evaluation of undergraduate bachelor degree engineering students' attainment measurement system in Faculty of Civil Engineering, Universiti Teknologi MARA, Shah Alam. A quantitative survey has been conducted to measure academic staff and students' satisfaction level of MyCOPO implementation in the faculty. This survey has been conducted in line with the university strategy in promoting organisation operational excellent via MyCOPO system, where 47 and 227 respondents were recorded for academic staff and students, respectively. Two sets of questionnaires were designed to determine the impactful of the system, the effectiveness on delivery and quality of the system and users' happiness index. This system is found to be impactful in ease the work, increase the quality and provide satisfaction to related parties. The usage of MyCOPO system is effective and the average rating of happiness index for academic staff and students are 8.2 and 7.2 out of 10 for happiness index, respectively.

Keywords: Civil engineering, attainment measurement system, outcome-based education, satisfaction.

HIGHER EDUCATION ASIANIZATION: ASIANur

Prof Emeritus Datuk Ir. Dr. Mohd Azraai Kassim, Assoc Prof Dr Siti Maftuhah Damio, Prof Ir. Dr. Abdul Rahman Omar

University Teknologi MARA, 40450 Shah Alam, MALAYSIA, Faculty of Education, University Teknologi MARA, 42300 Bandar Puncak Alam, MALAYSIA

Abstract: Higher Education (HE) plays an active role in nation building by developing and transforming the human capital holistically. This lifelong endeavour is by no means smooth sailing as HEs have to face many challenges. One prominent challenge is of university ranking, which is highly Westernized and exceedingly quantitative. “Creatical thinking” and “Asianization” concepts were thus forged in formulating “ASIANur”, an Asian university ranking. The justifications for ASIANur are based on Asian countries’ strength in relation to their economic, demographic, HE as well as the emerging systematizing and standardizing of research disseminations. The possibility of Asian Higher Education Century is strengthened when ASIANur is materialised.

Keywords: Asianization, ASIANur, Creatical Thinking, Higher Education, Human Capital

FUZZY TOPSIS APPROACH FOR RANKING FLOOD FACTORS IN KEDAH

Nordianah Jusoh @ Hussain, Siti Nor Nadrah Muhamad, Nur Janatul Liana Mohd Jafri, Wan Nurshazelin Wan Shahidan, and Nur Syuhada Muhammat Pazil

Faculty of Computer & Mathematical Sciences, Universiti Teknologi MARA, 78000 Lendu, Alor Gajah, Melaka, Malaysia, Faculty of Computer & Mathematical Sciences, Universiti Teknologi MARA, 02600 Arau, Perlis, Malaysia, Faculty of Computer & Mathematical Sciences, Universiti Teknologi MARA, 77300 Jasin, Melaka, Malaysia

Abstract: Flood is a common natural disaster in Malaysia. This phenomenon is mainly triggered by continuous heavy rainfall causing the water in a river or sea to cross the danger level, resulting to flood. For instance, if the drainage system is not functioning well due to blockage, it is more likely for a flood to occur,
causing damages to buildings, bridges, farms, roads, automobiles, and houses. Slope of basin and type of soil are also contributing factors to causes of flood. The main objective of this study is to determine the most important factors in flood occurrence in Kedah using Fuzzy TOPSIS. This method is able to select and rank the factors that cause flood for all the districts in Kedah. To obtain the data, an interview was conducted with an expert from the Department of Irrigation and Drainage Kedah. The result of this study is obtained after the closeness coefficient is calculated. The highest closeness coefficient value that is nearest to Fuzzy Positive Ideal Solution is selected as first ranking. From this study, rainfall is indicated as the most important factor followed by drainage system, type of soil and lastly, slope of basin. The result can be used by Department of Irrigation and Drainage Kedah to make early preparation and prevention plans to tackle the phenomenon.

**Keywords:** Fuzzy TOPSIS, Fuzzy Positive Ideal Solution, rainfall, drainage system, slope of basin

---

THE IMPACT OF TECHNOLOGY, INNOVATION AND ORGANIZATIONAL CAPITAL ON INNOVATION PERFORMANCE OF SMEs: THE MEDIATING EFFECT OF INNOVATIVE INTELLIGENCE

Rohana Ngah, Nurul Aizar Azman

Malaysian Academy of SME and Entrepreneurship Development (MASMED)/ Faculty of Business and Management, Universiti Teknologi MARA, Faculty of Business and Management Universiti Teknologi MARA

Abstract:
Purpose – This paper aims to present the effect of innovative intelligence on the relationship between structural capital (technology capital, innovation capital and organizational capital) and innovation performance of knowledge-based SMEs in Malaysia
Methodology – A survey was carried out through face-face interview and online. A total of 381 questionnaires were distributed to knowledge-based SMEs in Malaysia. The data was analyzed by Partial Least Squares Structural Equation Modeling (PLS–SEM).
Findings – The intellectual capital of innovation, organizational and technological capital showed a significant impact on innovation performance. Innovative intelligence partially mediated the relationships of innovation and organizational capital to innovation performance. However, technology capital did not have any impact on innovation performance and innovation intelligence. Organizational capital was the strongest influence on both innovative intelligence and innovation performance. This study has shed a light on the role of intellectual capital of knowledge-based SMEs on innovation performance. This paper shows the importance of technology capital, innovation capital and organizational capital, innovative intelligence and how it directly influences knowledge-based SMEs and innovation performance. The findings would helps SMEs to revisit their internal resources of intellectual capital and innovation activities to improve their innovation and organizational performance.
Significance – The results obtained is useful for SMEs especially knowledge-based firms where technology and innovation are critical to achieve a competitive advantage. The results are also important for agencies that handling SMEs in high-tech as well as for policy makers to helps SMEs to increase performance and promote economic stability.
SMART PARKING SYSTEM MOBILE APPLICATION USING ULTRASONIC DETECTOR

Fatin Areena A Aziz, Siti Zarina Mohd. Muji, Mohd Helmy Abd Wahab, Zarina Tukiran, C. Uttraphan, Nor’aisah Sudin

Axis Technology Resources (M) Sdn Bhd, No. 27 Jalan Kempas 1, Taman Desaru Utama, 81930 Bandar Penawar, Johor, Department of Electronic Engineering, Faculty of Electrical and Electronic Engineering, Universiti Tun Hussein Onn Malaysia, Malaysia

Abstract: Finding an empty parking lot is a big challenge as it can take lots of time and resources. This paper describes the design and development of a prototype of a smart parking system for assisting the vehicle drivers who always experiencing problem in finding indoor parking lots. The objectives of the proposed system are to develop a IoT parking lot system utilizing ultrasonic sensor to detect the presence of a vehicle and to develop a mobile application to display the parking lot layout for assisting car drivers to locate an empty parking lot. For the controller unit, it consists of the Arduino UNO microcontroller which is programmed using JavaScript language. Arduino is used to control the sensor, build a connection with the firebase server and update any changes in the hardware to the firebase. This enables the ultrasonic transmitter and collects the sensing data to be passed to the data transmission and acquisition unit. Once the ultrasonic sensor detects a car, the signal is read and processed by the microcontroller before it is sent to the server to update the status of the parking availability. The accuracy of vehicle detection is 100% with a standard deviation for sensor A0 and sensor A1 are 0.5 and 0.32 respectively. The display result of the parking lot availability is automatically updated in the mobile phone application in real-time.

Keywords: Arduino; mobile phone application; parking system; ultrasonic; IoT; firebase

FACTORS INFLUENCING KEY AUDIT MATTERS DISCLOSURE IN MALAYSIA

Aida Hazlin Ismail, Nur Elyana Binti Ahmad Munawar

Faculty of Accountancy, Universiti, Teknologi Mara Kampus Puncak Alam Cawangan Selangor

Abstract:
Purpose – In January 2015, the International Auditing and Assurance Standards Board (IAASB) has issued and revised new audit reporting standards. The changes on the auditing standards require the auditors to provide a separately identified section of the auditors’ report under the heading “Key Audit Matters” (KAM). In Malaysia, the Malaysian Institute of Accountants (MIA) has fully adopted these auditing standards with the same effective date for financial periods ending on or after Dec 15, 2016. In view of this, this study aims to examine the relationship between audit fees, audit report lag and audit quality on KAM disclosure in the auditors’ report of the public listed companies in Malaysia.
Methodology – This study utilizes the stratified random sampling in selecting its sample. A total of 240 annual reports of public listed companies in Bursa Malaysia were reviewed over a two-year period of 2016 to 2017. Statistical tests such as descriptive analysis, correlation and regression analysis were conducted.
Findings – The results of this study show that there is significant relationship between audit fees and audit report lag on KAM disclosure in the auditors’ report of the public listed companies in Malaysia. However, this study shows no significant relationship between audit quality and KAM disclosure in the auditors’ report of the public listed companies in Malaysia. The findings of this study provide further understanding to the
standards setters, regulators and policymakers on the factors influencing KAM disclosure in the auditors’ report.

Significance – This study extends the existing literature by examining the factors influencing KAM disclosure in the auditors’ report of the public listed companies in Malaysia. This study is significant as it focuses on examining the relationship of audit-related factors namely, audit fees, audit report lag and audit quality on KAM disclosure in the auditors’ report. Therefore, this study contributes to the audit literature and highlights a significant change in the effect of audit fees, audit report lag and audit quality with the implementation of KAM disclosure in the auditors’ report in 2016.

Keywords: Key audit matters, audit fee, audit report lag, audit quality, audit judgment

REMOTE AUGMENTED REALITY COLLABORATION APPLICATION: A STUDY ON CUES AND BEHAVIOURAL DIMENSION

Nur Intan Adhani Muhamad Nazri, Dayang Rohaya Awang Rambli
Universiti Teknologi PETRONAS, Malaysia

Abstract: Remote augmented reality (AR) collaboration is a tool that allows remote field technicians and experts to connect via live stream video, audio, and a powerful annotation toolset that is augmented onto the real environment that able to support local workers on-site. It promotes interactive ways to present information to the user by conveying a message and instruction. Despite its advantages, it is found there is a poor interaction and information cues that are due to the limited use of sensory modalities. This can interrupt the transmission of information and interaction cues, by not conveying the right information in remote AR collaboration in which can affect focus, and responses between local and remote users. This study is intended to investigate the behavioural dimension of collaboration (collaborator’s behaviour) and cues involved between local and remote user for physical task. The results shown that most of the time participants used gesture and speech cues to interact with each other.

Keywords: remote collaboration, Augmented Reality, Behavioural dimension, communication cues.

MYABILITY: A WEB PORTAL FOR STUDENTS WITH CHALLENGE BASED ON WEB CONTENT ACCESSIBILITY GUIDELINE 2.0

Abdul Aziz Hamzah, Zatul Amilah Shaffiei, Nor Hayati Abdul Hamid1 and Nurulnadwan Aziz
Faculty of Computer and Mathematical Sciences, Universiti Teknologi MARA, 40450 Shah Alam, MALAYSIA, Department of Research and Industrial Linkages UniversitiTeknologi MARA, 23000 Dungun Terengganu, MALAYSIA

Abstract: Statistic of people with challenge in Malaysia has been gradually increased. People with challenge are those who have certain impairments such as physical, visual, hearing, learning, speech, mental and multiple challenges that may hinder their effective interaction and participation in society. This also includes the students with challenge in higher learning institution (i.e. Universiti Teknologi MARA, Malaysia). Based on the interview, it was reported that there are lack of proper platform for students with challenge to interact and access the information particularly related to university, since their requirements
on the facilities provided are different with general students. Thus, higher learning institution including Universiti Teknologi MARA, Malaysia has come out with a policy regarding students with challenge based on five (5) principles which are inclusivity, accessibility, equity, flexibility and equivalence to bridge the gap between the students with challenge, facilities and the communities in the university. To fulfil the policy, technology should be used as a medium for students with challenge to get greater opportunity to interact and access the information. Therefore, this project aims to develop a web portal for students with challenge which focus on accessibility principle. Web Development Life Cycle (WDLC) methodology has been utilized to complete the development of web portal, which is based on the standard of Web Content Accessibility Guideline (WCAG) 2.0. User experience testing has been carried out in terms of the functionality provided by the developed web portal to the students with challenge. It was found that the accessibility elements provided in the developed web portal are well function. Hence, this study concludes that a proper design and development of a web portal could bridge the gap between students with challenge, communities as well as facilities provided in university.

**Keywords:** Human computer interaction; Interaction design; Inclusive design; Web content accessibility; People with challenge; User Experience

---

**REVIEWING THE EFFECTIVENESS OF A UNIVERSITY EMPLOYABILITY ENHANCEMENT PROGRAM IN UNDERGRADUATE MENTORING**

Yenwan Chong, Lip-Sam Thi

School of Business Management, Universiti Utara Malaysia, Main Campus, 06010 Sintok, Kedah Darul Aman, Malaysia

**Abstract:** Tertiary education institutions are severely impacted by the coronavirus disease 2019 (COVID-19). Rising graduate unemployment due to the global economic recession precipitated by COVID-19 will also increase the pressures on universities to enhance their graduates’ marketable skills and employability. While many universities are implementing undergraduate mentoring programs to enhance their students’ academic success and soft skills development, research on undergraduate mentoring has not kept pace. This study used a mixed method approach to examine the effectiveness of a public university’s initiative in mentoring new undergraduates and employed the College Student Mentoring Scale (CSMS). This study found that the undergraduate mentoring initiative to be moderately effective with regard to all four mentoring functions measured in the CSMS, namely psychological and emotional support, degree and career support, academic subject knowledge support and existence of a role model. The results of this study also shed light on mentoring functions that are considered as least effective so that informed and targeted efforts can be undertaken to enhance mentoring success. The qualitative data on mentoring effectiveness suggests that a new dimension namely mentor-mentee competencies could be added to the College Student Mentoring Scale (CSMS). A limitation of this study is that it provides the mentees’ perspectives and does not include the perspectives of lecturers’ or mentors. Future research could look into issues on e-mentoring mentoring programs as necessitated by the new normal following the COVID-19 pandemic.

**Keywords:** first year university students, mentoring effectiveness, mentoring outcome, student development, university education
ASSESSING FIRST-YEAR UNIVERSITY STUDENTS’ ENGAGEMENT TO SUPPORT STUDENT DEVELOPMENT

Yenwan Chong, Hooi Sin Soo

School of Business Management, Universiti Utara Malaysia,

Abstract: The COVID-19 pandemic has dramatically changed the tertiary education landscape. Tertiary institutions that manage to survive the COVID-19 crisis will encounter increased pressures with higher expectations for student success and graduate employability. Student engagement data can help universities formulate and implement student development programs in a more informed and effective manner to ensure student academic success and employability. This study assessed seven forms of engagement in first-year undergraduate students namely Academic Engagement (AE), Beyond-class Engagement (BE), Intellectual Engagement (IE), Online Engagement (OE), Peer Engagement (PE), Student-staff Engagement (SE) and Transition Engagement (TE). First year university students’ Online Engagement (OE) was found to be strongest while first year university students’ Academic Engagement (AE) was the weakest. This study also found that of the various student engagement items that were measured, first year university students’ engagement were weakest with regard to the good practice of reading textbooks before attending class and asking questions in class. Future student development programs targeted at first year university students could be enhanced by having a stronger emphasis on the development of students’ academic engagement, encouraging pre-reading of textbooks prior to class and facilitating class discussion. A limitation of this study is that the respondents in this study are “traditional” first year students who are enrolled in face to face university courses. As a result of the covid-19 pandemic, many universities have moved their classes online and switched to virtual education. In line with this new trend which is likely to accelerate in the post covid-19 era, future research could study the online student engagement of first year university students enrolled in non-traditional modes of learning such as distance learning, hybrid learning and MOOCs (Massive Open Online Course).

Keywords: first year undergraduates, student development, student engagement, transition to university, university education

A FUZZY ALGORITHM FOR MEASURING TEST ADEQUACY SCORE OF TEST SUITES

Zafer Javed, Masoud Mohammadian, Mohd Helmy Abd Wahab

Faculty of Science & Technology University of Canberra, Canberra, ACT, Australia, Faculty of Electrical and Electronic Engineering Universiti Tun Hussein Onn Malaysia, Johor, Malaysia

Abstract: A software tested with an adequate test suite can be considered more reliable because the stronger test suite has more potential to detect defects in the software, and hence it can assist in producing quality software. Therefore, the test adequacy of a test suite needs to be evaluated especially for critical systems. In this paper, we present a novel algorithm for measuring test adequacy of test suites. Our algorithm computes a fuzzy score of test adequacy of test suites. We analyse the test cases of the test suite and identify discrepancies in the test suite. Each discrepancy has a potential of failing to detect defects, i.e. it may or may not detect a defect. Therefore, we assign a fuzzy weight of inability to detect a defect to each of the identified discrepancies. Our algorithm is intelligent enough to categorise the discrepancies into major discrepancy and minor discrepancies. Finally, we reduce the test adequacy score of the test suite for these discrepancies.
We apply our algorithm to a shortest-path case study to demonstrate its applicability and effectiveness. In this case study, we measure the fuzzy score of test adequacy of three test suites. We then perform mutation analysis to demonstrate the effectiveness of this algorithm.

**Keywords:** Test Adequacy, Software Testing, Quality of Test Suite

**INNOVATIVE EDUCATIONAL PRACTICE FOR IMPACTFUL TEACHING STRATEGIES THROUGH SCAFFOLDING METHOD**

Hawa Rahmat, Chong Oi Leng, Rohaidah Mashudi

Faculty of Applied Communication, Multimedia University, Bukit Beruang 75450 Melaka, Malaysia, Akademi Pengajian Bahasa, Universiti Teknologi MARA, Cawangan Melaka, Kampus Bandaraya Melaka, Faculty of Applied Communication, Multimedia University, Bukit Beruang 75450 Melaka, Malaysia

**Abstract:** As technology progresses in education, 21st century educators need to use impactful instructional methods to ensure that the focus of education is on preparing today's children for the future. However, the biggest challenge for most lecturers are teaching the non-graded subjects (pass or fail in nature). Since the subjects do not affect the CGPA, students were found not being serious or showing interest in the class. Consequently, it affects the learning outcome of the subject and also the psychosocial and moral of the students and lecturers. Therefore, an action research using Scaffolding method with a group of lecturers teaching non-graded subjects to see the effectiveness and impact on student's learning. Grooming and Professional Etiquette subject was chosen to be the focus of this study. The lecturers applied new role of teachers in education using scaffolding teaching method. Students were given tasks to organise a grooming and professional etiquette program while they themselves showed the groomed behaviour. There were lectures and small discussion in the class before the event. There were peer discussion and collaboration before and during the event with minimum supervision from the lecturers. Survey questionnaires were distributed to the students at the end of event/class for the particular semester. The results showed that this approach managed to boost up students' grooming and professional etiquette as well as their participation in class. They enjoyed the activities, more attentive and confidence when experiencing the task themselves rather than listening to lectures and watching videos in the class.

**Keywords:** Education, Professional etiquette, Scaffolding, Teaching strategies

**SOFTWARE AGENT SIMULATION DESIGN ON FOOD DELIVERY RIDERS’ EFFICIENCY**

Shahrinaz Ismail, Nur Fazura Othman, Salama A Mostafa

Universiti Kuala Lumpur (UniKL), Malaysian Institute of Information Technology, Malaysia, Universiti Kuala Lumpur (UniKL), Malaysian Institute of Information Technology, Malaysia, Universiti Tun Hussein Onn Malaysia (UTHM), Malaysia,

**Abstract:** Food delivery service in Malaysia has gained popularity since the emergence of online food delivery, and since the recent pandemic situation, the demand for the service has increased tremendously. It is a need to understand the efficiency of the food delivery riders to estimate the capacity of the whole service system, as well as to ensure that the capacity is sufficient based on the number of orders, that usually depends on the number of potential customers within a territory, and duration of time that each rider
takes in successfully delivering the orders. Since not much research was done at the operational level of
the food delivery structure, it is an opportunity that this research focuses on the efficiency of the riders.
Seeing the lack of simulation to predict this perspective, this study takes up the opportunity to design a
software agent simulation on efficiency of riders’ operations in food service, in which could be extended to
efficiency prediction. Results presented in this paper are based on the system design phase using the
Tropos methodology.

Key words: Food delivery efficiency, software agent simulation, system design, Tropos methodology.

MANAGEMENT OF WAQF LAND IN JOHOR: ANALYSIS ON ISSUES AND CHALLENGES

Mustapahayuddin Abdul Khalim, Nur Zainatul Nadra Zainol, Che Adenan Mohammad, Ahmad
Sharifuddin Mustapaha, Wan Zahari Wan Yusoff

Institut Ahli Sunnah wal Jamaah, Universiti Tun Hussein Onn Malaysia, Parit Raja, 86200, Batu Pahat,
Johor, Jabatan Pengajian Islam, Pusat Pengajian Umum dan Kokurikulum, Universiti Tun Hussein Onn
Malaysia, Parit Raja, 86200, Batu Pahat, Johor, Fakulti Pengurusan Teknologi dan Peniagaan, Universiti
Tun Hussein Onn Malaysia, Parit Raja, 86200, Batu Pahat, Johor.

Abstract: Waqf is one of the items in the fiqh muamalat being actively practiced in Malaysia involving
property including land. The management of waqf land is a trust that needs to be put in place to ensure that
it is utilized. However, there are concerns about inefficient and transparent management of waqf land that
has led to invasion of undeveloped waqf land.

Keywords: waqf, land management, muamalat, Johor Islamic Religious Council.

THE FIQH VIEW OF SYEIKH DAUD BIN ABDULLAH AL-FATANI (1769-1847AD) IN WRITING
MUNAKAHAT CHAPTER THE BOOK HIDAYAH AL-MUTA’ALLIM WA ‘UMDAH AL-MUTA’ALLIM

Ahmad Sharifuddin Mustapha, Ph.D, Nur Zainatul Nadra Zainol, Ph.D, Che Adenan Mohammad, Ph.D,
Mustapahayuddin Abdul Khalim, Nik Kamal Wan Muhammed

Islamic Revealed Knowledge Focus Group (ISRAK), Universiti Tun Hussein Onn Malaysia, Institute Ahli
Sunnah Wal Jamaah (ISWJ), Universiti Tun Hussein Onn Malaysia, Centre for General Studies and Co-
curricular (PPUK), Universiti Tun Hussein Onn Malaysia

Abstract: Sheikh Daud al-Fatani is a well-known author and a Malay Archipelago’s scholar who produced
many works on Fiqh. His stature in the field of writing recognized by all scholars in the Malay even by Arab
scholars themselves. Therefore it is necessary to make an analysis of his work. In the writing of his works,
the views of his fiqh were greatly influenced by the scholars of the Shafiei. This article aims to analyze the
views of his fiqh and the books and scholars he refers to. The method used is content analysis from the
books of the scholars of the Shafiei as the main source for data collections. The results showed that Sheikh
Daud al-Fatani held the views of the fiqh scholars in the Shafiei (al-Shafi’iyyah) muta’akkhirin following the
death of the Shafiei R.A. (204AH). In conclusion, researchers and students in the field of fiqh and usul would
benefit from this study.
A COMPARATIVE ANALYSIS OF LOW LEVEL FEATURES EXTRACTION FOR CBIR

Danial Md Nor, Jean-Marc Ogier, Rosli Omar, Norfaiza Fuad, Mohd Shamian Zainal

Faculty of Electrical and Electronics Engineering University Tun Hussein Onn Malaysia, Malaysia, Du laboratoire L3i, Pôle Sciences et Technologie, University of La Rochelle, France

Abstract: In this paper, we will elaborate myriad techniques that are used in extracting features of visual signatures from slide video presentation; they include, colour, layout and shape. Additionally we will compare them to both the preceding method and the proposed new layout signature. In fact, CBIR systems have used layout, colour and shape information for long as the rudimentary image descriptors. Consequently, this study highlights a comparative analysis that uses several descriptors low level descriptor in enhancing the efficacy of image retrieval.

Keywords: CBIR, feature extraction, image d

PROPOSAL: BINARY PROGRAMMING FOR PRIMARY SCHOOL DIET AMONG AUTISM CHILDREN IN MALAYSIA

Fairuz B. Baharom, Suliadi F. Sufahani, Natasha A.M. Zailani

Department of Mathematics and Statistics, Faculty of Applied Sciences and Technology, Universiti Tun Hussein Onn Malaysia, Pagoh Campus, 84600 Pagoh, Johor, Malaysia

Abstract: Parent of children diagnosed with autism or autism spectrum disorder (ASD) often deal with many kinds of food related challenges. These can include a number of things, like allergies or maybe the child has a hard time swallowing. The children may be a picky eater or hate certain foods and refuse to eat any of them. Autism is complex brain disorder. While it may seem that cutting out certain foods could relieve autism child’s symptoms, it might actually cause more harm. In Malaysia, the use of mathematical modelling in creating a healthy menu for autism children is limited. Moreover, manual planning a menu is complicated, inefficient, and inaccurate, lacks variety, no consumer preferences and flexiblility, no local recipes incomplete number nutrient and food groups, does not meet the nutrient’s boundaries, and is time consuming. This study proposes a new mathematical model for solving menu planning issues using the optimization method that increases the necessary nutrient intake. Determine the balanced nutrient that required by the autism children. Minimising the budget will also help to overcome all the problems mentioned. Three optimization methods will be used namely the Linear Programming, Integer Programming and Binary Programming as a proposal to solve the diet problem for Autism children age 7-12 years old.

Key words: Autism, Diet Problem, Integer Programming, Operational Research.
ANALYZING THE RISK FACTOR OF CERVICAL CANCER BY USING THREE MACHINE LEARNING CLASSIFIERS

W. N. Syazwani W. Abu Osman, Salama A. Mostafa, Omar Ibrahim Obaid, Aida Mustapha, Alyaa Idrees Abdulmaged, Mazin Abed Mohammed

Faculty of Computer Science and Information Technology, Universiti Tun Hussein Onn Malaysia, Parit Raja 86400, Johor, Malaysia, Department of Computer, College of Education, Al-Iraqia University, 12365, Baghdad, Iraq, Faculty of Applied Sciences and Technology, Universiti Tun Hussein Onn Malaysia, Pagoh 84600, Johor, Malaysia, College of Computer Science and Information Technology, University of Anbar, 11 Ramadi, 55 Anbar, Iraq.

Abstract: There are some cancers that constantly happen to women, such as cervical cancer and breast cancer. Cervical cancer is one of the third highest cancers after breast and colon cancer and causes a high rate of death. Cervical cancer challenge is that it does not have any early symptoms to be detected, hence, the need for the early determination of its risk factors. This paper proposes the utilization of three machine learning approaches for analyzing the risk factor of cervical cancer to facilitate its early detection. The selected machine learning algorithms are support vector machine (SVM), decision forest (DF) and gradient boosting machine (GBM). The algorithms classify cervical cancer risk factor data elements that allow identifying the cancer properties through predefined class sets. Subsequently, the three classification algorithms are evaluated in terms of accuracy, precision and recall. The results of 10-fold cross-validation test show that the SVM scores the highest average accuracy of 97.33% compared to the DF (96.99%) and GBM (96.49%). Ultimately, the results verify the ability of the machine learning algorithms to diagnose cervical cancer from the provided medical data.

Keywords: Cervical Cancer, Data Mining, Classification, Support Vector Machine, Random Forest, Gradient Boosting Machine

SCHOOL RESOURCE CENTER AND STUDENTS’ CIVILIZATION IN DIGITAL AGE

Shamila Mohamed Shuhidan, Mayasari Abdul Majid, Shuhaida Mohamed Shuhidan, Norizan Anwar, Azma Asnawishah Abd Hakim, Fadzliaton Zainudin

Faculty of Information Management, Universiti Teknologi MARA, UiTM Puncak Perdana Campus, 40150 Shah Alam Alam, Selangor, Malaysia, Accounting Research Institute (ARI), Universiti Teknologi MARA (UiTM), 40450 Shah Alam, Selangor, Faculty of Administrative Science and Policy Studies, University Teknologi MARA, UiTM Shah Alam, 40150 Shah Alam Alam, Selangor, Malaysia, Educational Technology and Resources Division, Ministry of Education Malaysia

Abstract: The School Resource Centre in the 21st century is essential as one an innovative educational practice to support teaching-learning in the digital age. Previous studies highlighted the beneficial roles of SRC in terms of collections, SRC programs, and also providing a conducive learning environment to school communities. However due to the impact of disruptive of technology, SRC need to transform their traditional roles to changing roles in the digital age to bring knowledge alive, interesting and relevant to meet user's need and demand, especially to millennials generation. Millennials generation also known as digital immigrants, who are very competent in using technology devices but still lacking of information literacy skills, and are marked by uncertainty because they faced information overload, too much dependency on
the Internet and an inability to solve real life problems. As for this study, millennials generation was selected from secondary students that age between 13-17 years old. This paper aims to determine activities in SRC that would give impact on students’ civilization that will support them to develop life-long learning habits, enabling them to be knowledgeable and responsible citizens in civilized society. A survey was distributed to secondary students and findings show that there is a positive indication with 4.21 mean value of civilization from the use of School Resource Center. Education itself is evolving through changes in the curricula and through enhanced technology which have changed the way students access the information and interact with others in the civilized society. It is hoped that other than becoming information literate and knowledgeable persons, students also show evidence of moral and intellectual advancement; humane, ethical and reasonable as well as have the capabilities of leading an improved quality of life and social wellbeing.

**Keywords:** School Resource Centre, Student, Civilization, Digital, Knowledge

---

**CSR PRACTICES DISCLOSURE’S IMPACT ON CORPORATE FINANCIAL PERFORMANCE AND MARKET PERFORMANCE: EVIDENCE OF MALAYSIAN PUBLIC LISTED COMPANIES**

Vani Tanggamani, AzlanAmran, T. Ramayah,

Universiti Teknologi MARA, Melaka, Universiti Sains Malaysia

**Abstract:** Disclosure of CSR practices in public listed companies in Malaysia was made compulsory recently. Hence, its contribution to the firm performance based on financial and market indicators has often been questioned. This study explores using partial least square – structural equation modelling (PLS-SEM), the predictive accuracy and relevancy of CSR practices disclosure on corporate financial performance given by ROA and market performance given by Tobin’s Q. Using a sample size of 200 randomly selected public listed firms in Malaysia, the effect of CSR practices on corporate financial performance based on an accounting and market measures was determined. Findings of this study showed that CSR practices have a significant and positive impact on ROA and Tobin’s Q. Reputation mediates the relationship between CSR practices and ROA but not with Tobin’s Q. CSR practices and reputation could explain 52.9% of variance in ROA but only 6.3% of variance in Tobin’s Q. CSR practices have a large effect size on reputation and ROA but negligible effect size on Tobin’s Q. Thus, these findings imply that CSR practices can relate significantly to accounting-based but not market-based financial performance. Further studies to explore internal and external factors such as third-party assurance, industry type and other environmental factors as well as extending the timeline might provide more insights to understand how CSR practices can influence financial performance.

**Keywords:** Corporate Social Responsibility, ROA, Tobin’s Q, Financial Performance, Market Performance, Firm Reputation

---

**ACHIEVING LONGEVITY IN WIRELESS BODY AREA NETWORK BY EFFICIENT TRANSMISSION POWER CONTROL FOR IOMT APPLICATIONS**

Abstract: The application of tiny body sensors to collect, process, store, analyze, and retrieve medical information from a human body is a part of the Internet of Medical Things (IoMT). IoMT helps to monitor and track human vital health parameters, predict disease, notify the patients and the health care professionals with relevant data for analyzing the problems before they become severe and for earlier invention. By 2022, more than 60% of IoT applications will be health-related. The convergence of biomedical sensors, wireless body area networks (WBAN), Information technology, and bioinformatics will help improve the efficiency of saving human lives. In a WBAN, network longevity is challenging because of the limited supply of low power battery energy in tiny body sensor nodes. Here, we proposed an energy-efficient transmission power control (TPC) algorithm to extend the network lifetime in IoMT networks for healthcare applications by eliminating the transceiver overhearing problem. In TPC, human tissue resistivity properties are considered to adjust the transmission power, which reduces the communication power and extends the network lifetime. The simulation results show that network power consumption is reduced by 35%.

Keywords: Wireless body area networks (WBAN), Low power sensors, Transmission power control, Transmission range, Internet of Medical things (IoMT), Human tissues dielectric.

---

A MACHINE LEARNING APPROACH FOR IMPROVING THE PERFORMANCE OF NETWORK INTRUSION DETECTION SYSTEMS

Adnan Helmi Azizan, Salama A. Mostafa, Aida Mustapha, Cik Feresa Mohd Foozy, Mohd Helmy Abd Wahab, Mazin Abed Mohammed and Bashar Ahmad Khalaf

Faculty of Computer Science & Information Technology, University Tun Hussein Onn Malaysia, 86400 Johor, Malaysia, Faculty of Electrical and Electronic Engineering, Universiti Tun Hussein Onn Malaysia, 86400 Johor, Malaysia, College of Computer Science and Information Technology, University of Anbar, 11 Ramadi, 55 Anbar, Iraq, College of Basic Education, University of Diyala, 32001 Diyala, Iraq

Abstract: Intrusion detection systems (IDS) are used in analyzing huge data and diagnose anomaly traffic such as DDoS attack; thus, an efficient traffic classification method is necessary for the IDS. The IDS attempts to decrease false alarm and increase true alarm rates in order to improve the performance accuracy of the system. To resolve this concern, three machine learning algorithms have been tested and evaluated in this research which are decision jungle (DJ), support vector machine (SVM), and random forest (RF). The main objective is to propose a ML-based network intrusion detection system (ML-based NIDS) model that compares the performance of the three algorithms based on their accuracy and precision of anomaly traffics. The knowledge discovery in databases (KDD) methodology and intrusion detection evaluation dataset (CIC-IDS2017) are used in the testing which both are considered as a benchmark in the evaluation of IDS. The average accuracy results of the SVM is 98.18%, RF is 96.76% and DJ is 96.50% in which the highest accuracy is achieved by the SVM. The average precision results of the SVM is 98.74, RF is 97.96 and DJ is 97.82 in which the SVM got a higher average precision compared with the other two.
algorithms. The average recall results of the SVM is 95.63, RF is 97.62 and DJ is 95.77 in which the RF achieves the highest average of recall than SVM and DJ. In overall, the SVM algorithm is found to be the best algorithm that can be used to detect an intrusion in the system.

**Keywords:** Intrusion detection systems, detection rate, false alarms, CIC-IDS2017, extreme learning machine, support vector machine, random forest.

---

**WATER QUALITY PREDICTION USING LSTM-RNN: A REVIEW**

Azhar Jaffar, Norashikin M. Thamrin, Megat Syahirul Amin Megat Ali, Mohamad Farid Misnan, Ahmad Ihsan Mohd Yassin

Faculty of Electrical Engineering, UiTM Shah Alam, Selangor, Microwave Research Institute, UiTM Shah Alam, Selangor, Faculty of Electrical Engineering, UiTM Pasir Gudang, Johor

**Abstract:** Water is an essential element on this earth in which humans, animals, and plants depend entirely on water sources for a living. Unfortunately, human activities have polluted water sources. To rectify this situation, water quality must be tested for purification purposes. However, to test and determine the reasonable acceptance level for all water parameters takes some time. Some of the value of the parameter is not available impromptu. A technique of estimation using previous samples and readings is used to overcome this shortcoming. One of the exemplary computer system-based methods known as the Long-Short Term Memory (LSTM) Recurrent Neural Network (RNN) is implemented. This paper reviews and compares several LSTM-RNN approaches that have been studied or used in determining the water quality by the previous implementation. Based on this review, the strengths and limitations of each implementation are analyzed and discussed. Understanding intelligent computation using LSTM-RNN is essential not only for data prediction but also for choosing the appropriate method to suits the limitation in predicting the quality of the river water. Therefore, we foresee that with a proper technique chosen based on the behavior of the input, we will be able to achieve a better river water quality prediction.

**Keywords:** water quality prediction, artificial neural network (ANN), long short-term memory (LSTM), recurrent neural network (RNN).

---

**A HYBRID SEGMENTATION PATTERN OF PARTIAL TRANSMISSION IN COMPUTER NETWORKS TO REDUCE THE COMPLEXITY LEVEL**

Rasha Subhi Hameed, Noora Shihab Ahmed, Tameem Mohammed Mahmood

Department of Computer Science University of Diyala, 32001, Diyala, IRAQ, Computer science department, College of Science, University of Halabja, Kurdistan, Iraq, 46018, Halabja, IRAQ, Al-Yarmouk University Collage 32001, Diyala, IRAQ

**Abstract:** Partial transmission sequence (PTS) is seen as a related project in the framework of the Orthogonal Frequency Division Multiplexing (OFDM) to suppress the medium to high Peak-to-Average Power Ratio problem. The PTS chart data is based on dividing the back into subdivisions and their weight by combining step-by-step factors. Despite the fact that PTS can reduce the high specifications. The Computational Complexity Level (CC) limits the scope of application to match PTS use with ground applications. In PTS, there are three main distribution schemes. Interleaving projects (IL-PTS), arbitrary and alternate (PR-PTS) and Ad-PTS. In this paper, another algorithm called the Hybrid Pseudo-Random
and Interleaving Cosine Wave Shape (H-PRC-PTS) is presented and the PR-PTS equilibrium is established by stabilizing the cousin waveform between languages (S-ILC-PTS), which was suggested in the previous work. The results showed that the proposed algorithm could reduce the validity of PAPR as a PR-PTS scheme, although the CC level was significantly reduced.

Keywords: Partial Transmit Sequences, Peak-to-Average Power Ratio, Computational Complexity, Orthogonal Frequency, Division Multiplexing

BIOMETRIC IDENTIFICATION OF IRIS RECOGNITION BASED ON CONVEX HALL AND SHARK- SMELL OPTIMIZATION

Ali Hussein Fadel, Mohammed Jasim Ridha, Jamal N. Hasoon and Salama A. Mostafa

Department of Computer Science, University of Diyala, 32001, Diyala, Iraq, College of basic education, Mustansiriyah University, Department of Computer Science, Mustansiriyah University, 10001, Baghdad, Iraq, Faculty of Computer Science and Information Technology, University Tun Hussein Onn Malaysia, Parit Raja, 86400, Johor, Malaysia

Abstract: The retina is regarded as the most reliable and precise biometric, owing to its nature of uniqueness and unchangeability. It is considered as one of the vital issues that need high accuracy in the process of recognition, as well as the speed in distinguishing process. Subsequently, the new iris recognition methods reduce the dimensions of the region of interest (ROI) while maintaining accuracy in higher order. In this paper, an iris recognition model is proposed for biometric authentication application. A shark-smell optimization (SSO) algorithm is used for extracting the features of the retina as a biometric, which works on the ROI of the retina. The ROI is specified using Haugh transform in which the unity of features needed to fix some input parameters that are specified to control the result. Consequently, using Convex Hall in determining the area that surrounds the points designated by the SSO. The accuracy of the model is tested using a probabilistic neural network (PNN) for proofing the unity of the extracted features. The classification accuracy of the PNN scores 99.74% in the Casia V2.0 dataset. The experiments results show that the characteristics of each input image produce the same features when entering the same parameters.

Key words: Biometric authentication, Iris recognition, convex hall, shark-smell optimization.

ISOLATED MAGNETIC DIPOLE MIMO ANTENNA WITH LINEAR PORT CONFIGURATION FOR WIRELESS APPLICATIONS

M. A. Aris, H. Jaafar, A. N. Jaafar, F. N. M. Redzwan, R. Abdullah

Universiti Teknologi MARA Cawangan Terengganu, Malaysia

Abstract: This paper is presenting preliminary research to design Isolated Magnetic Dipole MIMO Antenna for wireless application. Isolated Magnetic Dipole (IMD) structure is one of the unique geometries that offers compact and low damaging electrical current at the ground surface. However, less attention in discussing design the MIMO antenna using IMD structure. The two elements MIMO antenna using IMD with linear port configuration has constructed at 2.4 GHz. Then simulated and analyzed to validate the feasibility of the
IMD-MIMO antenna. The simulation and analysis cover S-Parameters, radiation, Gain, Correlation coefficient, and diversity gain. In addition, simple Semi-circle structure etched on the ground layer to improve the isolation of MIMO antenna. From the simulation results, the IMD-MIMO antenna has better results and highly recommended for designing compact MIMO antenna.

**Key Words:** Simulation, Linear Configuration, Wireless, Semi-circle, MIMO

---

**CREDIT-RISK DETERMINATION: ANALYSIS OF ISLAMIC AND COMMERCIAL BANKS IN MALAYSIA**

Suhaily Maizan Abdul Manaf, Yusnabilah Mohd Yusri, Fathiyah Ismail

Faculty of Business and Management, Universiti Teknologi MARA Cawangan Terengganu, Terengganu, Malaysia

**Abstract:**

Purpose – The financial market plays a major role in order to facilitate the risk-sharing and efficient allocation of assets between investors. This study investigates the determinants of credit risks for listed Islamic and commercial banks in Malaysia.

Methodology – The observations are based on banks’ inefficiency, loan-to-deposit ratio, and exchange rate in relation to the return-on-asset and return-on-equity performance. The Random Effect Regression has been used for a set of data from year 2009 until year 2019.

Findings – Findings suggest that all the independent variables have a positive and significant relationship towards credit-risk measurement.

Significance – It is finally concluded that future researchers should fill the gaps by investigating these variables in other countries to compare and give some suggestions on policymakers on credit-risk situations for such countries.

**Keywords:** Credit risk, Islamic and commercial banks, loan-to-deposit ratio, banks’ inefficiency.

---

**DEVELOPMENT OF AUGMENTED REALITY (AR) FOR INNOVATIVE TEACHING AND LEARNING IN ENGINEERING EDUCATION**

Nur Idawati Md Enzai, Norhayati Ahmad, Mohd Amir Hamzah Ab. Ghani, Siti Sara Rais, Syazilawati Mohamed

Faculty of Electrical Engineering, Universiti Teknologi MARA, 23000 Dungun, Terengganu, Malaysia

**Abstract:** Engineering education in particular requires substantial equipment and apparatus and this poses safety risks as well as financial constraints. Recent pandemic has also affected engineering education teaching and learning process as all the classes as well as laboratory sessions need to be conducted via online distance learning (ODL) method. Therefore, this research selects Augmented Reality (AR) Method for innovative teaching and learning process. AR is known for its ability to overlay rich media into the real world by viewing through web-enabled devices such as phones and tablets, making it accessible anywhere anytime. In addition to improving interest and motivation of students during learning process, AR could also address the financial and space constraints pertaining to science and technology laboratory equipment and apparatus. In this research, an AR has been developed according to system development method by using Assemblr application. The developed AR system is then given to selected educators for them to evaluate in terms of their awareness and the system’s usability. The educators’ responses are obtained through a questionnaire survey and the findings are then analysed and presented in this paper. The responses are
taken into account for improving the AR system and the development process will be continued in parallel with more testings. The final prototype will then be implemented in real classes in the future.

**Keywords:** Augmented Reality, Education, Engineering

**PERSON-ENVIRONMENT FIT AND ITS IMPACT ON EMPLOYEES’ STRAIN**

Siti Nurul Akma Ahmad, Mohamed Saladin Abdul Rasool & Siti Zaleha Abdul Rasid

Faculty of Business and Management, Universiti Teknologi MARA, Melaka, Malaysia, Azman Hashim International Business School, Universiti Teknologi Malaysia, Centre of Islamic Philanthropy and Social Finance (CIPSF) and Faculty of Business and Management, Universiti Teknologi MARA, Melaka, Malaysia.

Abstract:
Purpose – The fundamental premise of the person-environment fit (P-E fit) theory is that stress arises from misfit between the person and environment. Work or job stress has been widely studied in the field of occupational health research due to its significant impact on organizational success and employees’ well-being. Unfortunately, about 160 million of occupational diseases are reported yearly with over two million deaths due to work. Therefore, gaining insight into these precursors is considered vital in developing intervention program to alleviate employees’ strain and improve their performance. This study aims to determine the relationship between P-E fit towards psychological and behavioral strain.

Methodology – This paper adopts cluster sampling technique and involves a total of 191 employees working in selected banks in Kuala Lumpur, Malaysia. For data collection, an online self-reported questionnaire was distributed among the bank employees via e-mail invitation from Human Resource Manager.

Findings – The obtained results indicated that all person-environment misfits (except for person-organization misfit) significantly affect the psychological strain of employees. The full structural model proposed in this study showed that the four predictors of person-environment fits accounted for 33% of variation in Psychological Strain (PSYST) (R2= 0.325) and 10% in Behavioral Strain (BHVST) (R2= 0.099), which are weak-to-moderate and weak values, respectively.

Conclusion and significance - Through the adoption of the P-E fit theory which covers the stressors and antecedents, this research provides a basis for occupational stress study. This study contributes to knowledge by providing basic guidelines for the development of measures for stress management among employees as well as the assessment of work-related stress.

**Keywords:** Person-environment fit; strain; occupational stress; COVID-19

**HEALTH-RELATED QUALITY OF LIFE (HRQOL) OF ACADEMICIANS IN PUBLIC UNIVERSITIES, MALAYSIA**

Nur Zainie Abd Hamid, Shamsinar Ibrahim, Hasyimah Razali, Kamarul Ariffin Mansor

Faculty of Business and Management, Universiti Teknologi MARA, Kedah Branch, 08400 Merbok, Kedah, Malaysia, Faculty of Computer and Mathematical Science, Universiti Teknologi MARA, Kedah Branch, 08400 Merbok, Kedah, Malaysia
Abstract: This empirical paper presents findings from a study concerning the Health-Related Quality of Life (HRQoL) of academicians in Malaysian publicly-funded universities. The main objective of the study was to compare the Health-Related Quality of Life (HRQoL) of the academicians in the selected public universities with the key indicators of the overall and the eight health domains of general Malaysian population norms. A structured e-mail survey was created that include a link to the validated Short Form 36 (SF-36) items. An e-mail was sent to all respondents of randomly selected public universities using registered organisational e-mail in order to collect the data. Descriptive analysis was used to analyse the data. The percentage of responses was 34.55% and 1235 data were deemed to be usable. The ratio of men to women was 1:1.42. The overall mean score of the Health-Related Quality of Life (HRQoL) in the study was juxtaposed with the overall mean score of the recommended Malaysian general population norms of 65.0. The accumulated score was 50.60, which is lower than the recommended value. All mean scores of the eight-health domain were also lower than recommended mean scores of the general Malaysian population for each health domain. Moreover, gender analysis indicated that male academicians had higher Health-Related Quality of Life (HRQoL) for all the health domains except for Role-Physical (RP) and Social Functioning (SF). Given the lower Health-Related Quality of Life (HRQoL) among academicians, fair attention should be given by the government and policy-makers to the state of their health, physically and mentally, in order to ensure continuous improvements in education.

Purpose – This empirical paper presents findings from a study concerning the Health-Related Quality of Life (HRQoL) of academicians in Malaysian publicly-funded universities. The main objective of the study was to compare the Health-Related Quality of Life (HRQoL) of the academicians in the selected public universities with the key indicators of Malaysian general population (overall and individual health domain).

Methodology – The study design was descriptive and cross-sectional study. A structured e-mail survey was created that include a link to the validated Short Form 36 (SF-36) items. An e-mail was sent to all respondents of randomly selected public universities using registered organisational e-mail in order to collect the data. Descriptive analysis using the IBM Statistical Package for the Social Science (SPSS) version 25.0 software was used to analyse the data.

Findings – Both, the overall and individual health domain mean scores of the Health-Related Quality of Life (HRQoL) of the academicians in the study was lower than the recommended mean scores of general Malaysian population norms. A gender analysis indicated that male academicians had higher Health-Related Quality of Life (HRQoL) for all the health domains except for Role-Physical (RP) and Social Functioning (SF).

Significance – The findings of the study would be a great input for the regulators and policymakers to formulate strategies in rising the Health-Related Quality of Life (HRQoL) of the academicians for the benefit of education in the future.

Keywords: Academicians, Health-Related Quality of Life (HRQoL), Quality of Life (QoL), Short Form 36 (SF-36).

THE MEDIATING ROLES OF ATTITUDE BETWEEN KNOWLEDGE AND HEALTH BEHAVIOR CHANGE INTENTIONS

Mohamed Saladin Abdul Rasool, Nurul Amyra Mat Isa, Farah Shazlin Johari

Center of Islamic Philantrophy and Social Finance (CIPSF) Faculty of Business and Management Universiti Teknologi MARA

Abstract: This paper proposes a conceptual framework and states valid propositions to be tested empirically by future researchers. The framework explicates the mediating role of employees’ attitude.
between employees' knowledge and health behavior change intentions during COVID-19 pandemic. In line with the Movement Control Order (MCO) announced by the Government due to COVID-19 pandemic, all offices in Malaysia were closed and employees shifted to a work-from-home protocol. Based on AIA Validity Survey 2019, employees in Malaysia have poor health habits. In conjunction, it is well established that a health behavior intention is of benefit in the prevention of disease and promotion of well-being.

**Keywords:** Health behavior; attitude; knowledge; employee; covid-19

**FACTORS INFLUENCING SUPPORT FOR MEDICAL SAVING ACCOUNT (MSA) IMPLEMENTATION AMONG MALAYSIAN**

Siti Nurul Akma Ahmad, Norazmaniza Azizam, Mohamad Shahril Mohd Besir, Sharifa Ezat Wan Puteh & Nurul Amyra Mat Isa

Faculty of Business and Management, Universiti Teknologi MARA, Melaka, Malaysia, Faculty of Business and Management, Universiti Teknologi MARA, Selangor, Malaysia, Faculty of Medicine, Universiti Kebangsaan Malaysia Medical Centre, Bandar Tun Razak, Cheras, Wilayah Persekutuan Kuala Lumpur, Malaysia, Center for Islamic Philanthropy and Social Finance (CIPSF), Universiti Teknologi MARA, Melaka, Malaysia

**Abstract:**
Purpose – In the year 2015, Malaysia Total Health Expenditure (TEH) has seen a 28.8% increase in the macro-level health expenditure which equates to RM52,609 (11,889.04USD) million. To ensure the care and equitable healthcare access is continuously given at an optimum rate, it has to be sufficiently funded for the whole population. In that case, to enhance our health care financing system, a new supplementary financing mechanism such as the Medical Saving Account (MSA) is required. To ensure the care and equitable healthcare access is continuously given at an optimum rate, it has to be sufficiently funded for the whole population. The aim of this study is to determine the factors that influence the implementation of MSA in Malaysia.
Methodology – A cross-sectional study which involved 787 respondents from peninsular Malaysia, namely, Penang in the North, Johor Baharu in the South, Kelantan in the East and finally, Klang Valley in the West (West region) was conducted. Respondents were selected by convenient sampling technique.
Findings – Findings reveal that approximately 72% of respondents are in support of MSA implementation. In summary, the main factors that were found to significantly influence the support of MSA implementation are gender being female and occupation in the public sector. The populace will be ready to accept and willing to participate in the proposed health financing scheme only when the plan and its benefits are absolutely convincing.
Significance – Hence, it may be said that these financing mechanisms are significant in ensuring universal coverage for the healthcare needs of a population based on solidarity and equity.

**Keywords:** Health Finance, Health Insurance, Health Plan, Medical Saving Account

**THE DEVELOPMENT OF AN E-WORKLOAD DISTRIBUTION SYSTEM: A FOCUS ON THE FAIR DISTRIBUTION OF TEACHING WORKLOADS OF LECTURERS**

Asma Hanee Ariffin, Rohaizah Abdul Wahid, Suliana Sulaiman, Marzita Mansor,
Mohd Helmy Abd Wahab

Abstract: Studies have shown excessive teaching workloads of teachers and lecturers have become a contentious issue in the academic realm, making them physically and emotionally strained. Therefore, this study was carried out to develop a workload distribution management system called e-WLOAD to help the management of universities in distributing workloads that are fair and acceptable to all lecturers. In this study, the researchers used the Evolutionary Prototyping method for the development of e-WLOAD. A series of interviews involving a head of a department, a faculty dean and an academic registrar as well as the analysis of the Academic Workload Guidance Document of the Malaysian Qualifications Agency (MQA) and the academic Annual Performance Assessment Report were carried out to reveal the relevant criteria for the distribution of lecturers’ workloads, namely Status, Minimum and maximum credits, Lecturer classification, Current Teaching Status, and Teaching Load Requirements. After running the system, the results of the functionality test indicated that the prototype had fulfilled all system requirements successfully based on such distribution criteria.

Keywords: Evolutionary Prototyping, lecturers’ teaching workloads, workload distribution criteria, workload distribution system

MINIMUM NUMBER OF FRIDAY PRAYERS: FIQH STUDY BASED ON SURAH AL-JUMUAH

Abdul Rahim Ahmad, Hayati Hussin, Nur Zainatul Nadra Zainol

UKM, USIM, UTHM

Abstract: In the wake of the Covid-19 outbreak, various sanctions were imposed by the government to overcome this pandemic, including the congregation's restrictions on Friday prayers. The minimum number is set to be between 3 and 40 people by state. The purpose of this study is to look at the details of the law in this regard, based on the reasons behind the Surah al-Jumuah and related laws. The methodology used is qualitative by looking at the interpretations of the surah and related fiqh books. The result was that the Shafii Mazhab had set a minimum of 40 prayers at the beginning of Friday Sermon and 12 at the Friday Prayer. There is also an odd opinion claiming it can only be started with 4 and 12 members. The implications of this study can be used to address situations of crisis in the event of illness, humanitarian crisis and natural disaster.

Keywords: covid-19, friday prayer, shafii mazhab, surah al-jumuah

CONSUMERS’ PERCEPTION, ATTITUDES AND INTENTION TO PURCHASE CELEBRITY ENDORSED FOOD AND BEVERAGE PRODUCTS IN KUALA LUMPUR.

Abdul Rais Abdul Rahman, Che Nurainina Najihah Mohd Najib, Siti Nur'afifah Jaafar* and Mohaini Mohamed
Faculty of Fisheries & Food Science, Universiti Malaysia Terengganu, Kuala Nerus 21030, Terengganu, Faculty of Hotel & Tourism Management, Universiti Teknologi MARA Cawangan Terengganu, Kampus Dungun, 23000, Terengganu

Abstract: Nowadays, consumers are well educated, diverse and technological-savvy thus it is a challenge to marketers to attract consumers’ attention. Celebrity endorsement has been used hoping to build credibility of the product, makes the brand stand out as well as opens up new markets. Despite that, it is costly and during endorsement period, celebrity image could shine or tarnish the brand of the product. Thus, the study is primarily aimed to investigate how consumers’ perception and attitudes towards celebrity endorsement influence their purchase intention of celebrity-endorsed food and beverage products in Kuala Lumpur. Survey by mean of self-administered questionnaire through purposive sampling was conducted among 120 respondents, in selected area in Kuala Lumpur. Data was subjected to obtain descriptive statistic and correlation analysis and multiple linear regression. Purchase intention of celebrity-endorsed food and beverage products was found to be influenced by consumers’ perception and attitudes. The finding indicated that positive perception and attitudes of consumers towards food products with endorsement could encourage repurchases. Food manufacturing companies could consider having celebrity endorsement for their products.

Key words: Celebrity Endorsed Food Products, Consumer Perception, Consumer Attitude, Consumer Purchase Intention

EFFECTS OF AUDIT COMMITTEE CHARACTERISTICS ON MALAYSIAN FINANCIAL RESTATEMENT

Suhaili Hasnan

Universiti Teknologi MARA

Abstract: Purpose – This paper discusses issues concerning audit committee characteristics that lead to the occurrence of financial restatements among companies listed on the Main Market of Bursa Malaysia.

Design/methodology/approach – The audit committee characteristics are measured using the size, independence, frequency of meetings, audit tenure, gender, expertise, age, ethnicity, legal qualification, and political connection. The data in this study were extracted from the annual reports of 100 firms that had restated their financial statement between 2006 and 2015, and, a total of 200 non-restatement firms were matched and observed as the control firms. In order to examine the effect of audit committee characteristics on the occurrence of financial restatement, the agency theory was adopted to support the conceptual aspect.

Findings – Using the univariate and multivariate statistical analysis, the results prove that there is a significant association between audit committee size, frequency of meetings, ethnicity, and the political connection of audit committees, and the occurrence of financial restatement among Malaysian public listed companies (PLCs). However, none of the other audit committee characteristics were found to have a significant association with the occurrence of financial restatement. The results prove that larger and rigorous audit committees are able to strengthen the monitoring role, and, consequently, reduce the occurrence of financial restatement. In addition, the results also provide evidence that those of Malay
ethnicity have widespread political connections, which negatively affect the decisions by the audit committee and increase the occurrence of financial restatement.

Originality/value – The main value of this paper is the impact of audit committee characteristics on the likelihood of financial restatement in Malaysia. The findings of this study provide useful insights for regulators in order to improve and reconsider the current regulations on audit committee mechanisms.

Keywords: Audit Committee Characteristics, Financial Restatements, Malaysia

KNOWLEDGE, ATTITUDE, PERCEPTION, AND BEHAVIOURAL INTENTION OF FOOD CONTAINING ADDITIVES AMONG PARENTS IN SELANGOR, MALAYSIA

Siti Nur’ Affah Jaafar, Ng Kuan Yee, Mohamad Khairi Zainol, Mohaini Mohamed@Naba
Faculty of Fisheries and Food Science, Universiti Malaysia Terengganu, Faculty of Hotel and Tourism Management, Universiti Teknologi Mara Cawangan Terengganu

Abstract: Food additives is defined as any substance the intended use of which results or may reasonably be expected to result, directly or indirectly, in its becoming a component or otherwise affecting the characteristics of any food. The main objective of this research is to study the knowledge, attitude, perception and behavioural intention of food containing additives among parents in Selangor. A total of 125 parents who have children aged 1-12 years old participated to be the samples of this study. Data was collected through face-to-face administered survey, from the questionnaires which made up of 5 sections, namely knowledge on food additives, attitude on food containing additives, perceptions on food containing additives, behavioural intention on food containing additives, and demographic status of parents. Based on the results, the parents showed medium knowledge level (M=42.64%) regarding food additives in overall. The parents were having positive attitude towards food containing additives (M=3.74, S.D. =0.55). It was also discovered that respondents’ perception towards food containing additives is rather neutral (M=3.60, S.D. =0.44) and they have low intention to purchase food containing additives (M=2.47, S.D. =0.78). Apart from that, the knowledge level was found to be weak positively related to attitude while perception moderate positively related to attitude. Also, weak positive relationship was observed between perception of parents and behavioural intention of food containing additives. This study adds new knowledge regarding consumers’ knowledge, attitude and perception as well as intention behavior of food containing additives, which could help retailers to improve their food products in the local market.

Keywords: Food additives, Behavioral intention, Knowledge, Attitude, Perception

THE EFFECTIVENESS OF MITIGATION SCHEME ON ELECTRIC FIELD INTENSITY (STRESS CONTROL) FOR OVERHEAD LINE GLASS INSULATOR

M. A. F. Rosli, N. M. B. Sham, M. S. Kamarudin, M. F. M. Yousof, R. Abd-Rahman, N. A. M. Jamail
TNB Labs Sdn. Bhd., Faculty of Electrical and Electronic Engineering, Universiti Tun Hussein Onn Malaysia, 86400 Batu Pahat, Johor, Malaysia.
Abstract: This study was carried out to assess mitigation schemes towards field grading within suspension insulators, which are mainly used on transmission lines. The overhead line glass insulator on the transmission line is one of the critical areas prone to failure due to the effects of pollution deposited on its surface, influenced by weather and environment conditions such as moisture and rainfall. Therefore, the concern of high electrical stress towards insulators for the upcoming national grid uprating is justified. The effectiveness of zinc oxide (ZnO) micro-varistor and grading ring as a tool for the electric field intensity enhancement was examined in this study. The whole analysis was done using COMSOL Multiphysics 5.3a. This software has the capability to execute finite element analysis in order to examine the behaviour of electric field distribution along the insulator profile. The first analysis was to characterize the electric field behaviour for dry-clean condition with induce voltage of 33 kV, and then followed with the effect of pollution. This setup was tested with zinc oxide micro-varistor and grading rings to examine the electric field distribution. Other than that, tests were also conducted on the dual conditions, which are dry-cleaned and polluted condition. The reference data from the dry-clean condition was used to examine the effect of pollution on electric field distribution on the insulator surface. It was found that the application of combined technique of zinc oxide micro-varistor and grading ring is the best scheme to be used as it reduced the electric field intensity up to almost 84% for both dry-clean and polluted conditions, respectively. This study also stated that the positioning of the grading and corona ring on the insulator is crucial as it will enhance the electric field intensity distribution rather than decreasing it.

Key words: Electric field, stress control, glass insulator, grading ring, zinc oxide micro-varistor, ceramic insulator.

A SYSTEMATIC REVIEW OF THE DESIGN OF AUGMENTED REALITY APPLICATIONS FOR YOUNG CHILDREN

Masyarah Zulhaida Masmuzidin, Nor Azah Abdul Aziz, Suhazlan Suhaimi

Faculty of Art, Computing and Creative Industry, Universiti Pendidikan Sultan Idris Tanjung Malim, Perak, Malaysia

Abstract: Of late, Augmented Reality (AR) has become one of the important tools in teaching and learning, which is made evident by an increasing number of studies focusing on such technology over the past few years. However, studies focusing on the design of AR learning tools or applications for young children have been seriously lacking. Therefore, this paper provides a detailed account of the findings of a study carried out by the authors in which the Preferred Reporting Items for Systematic Review and Meta-Analysis (PRISMA) method was used to select and critically review related articles from two leading databases, namely Scopus and Web of Science (WoS) databases. Overall, 17 articles relating to the design and development of AR learning applications were selected from such databases, which revealed five themes and nine subthemes as follows: (1) information design (with three sub-themes), (2) interface design (with one subtheme), (3) interaction design (with two subthemes), (4) imagination (with two subthemes), and (5) immersion (with one subtheme). As such, all five themes relating to the design aspects of AR learning applications need to be carefully addressed and taken into account in developing efficacious AR learning applications for young children. In summation, the findings of this study based on the systematic review of the current AR literature can be used a guideline for developers of AR learning applications to ensure their products can be both efficacious and entertaining, the impact of which can surely improve children's learning performance, motivation, and interest.
Keywords: Augmented reality, design of learning applications, motivation, systematic literature review, young children.

THE IMPACT OF INNOVATION CAPABILITY AND TECHNOLOGY CAPABILITY TOWARDS SUSTAINABLE COMPETITIVE ADVANTAGE OF THE SERVICES SECTOR IN MALAYSIA

Nurul Huda Md Yatim, Muhamad Saufi Che Rusuli, Rohana Shamand Suhazlan Suhaimi

Faculty of Information Management, Universiti Teknologi MARA, Cawangan Johor, Johor, Malaysia, Faculty of Entrepreneurship and Business, Universiti Malaysia Kelantan, 16100 Pengkalan Chepa, Malaysia, Faculty of Business Management, UCSI University KL, Malaysia, Faculty of Arts, Computing and Creative Industry, Universiti Pendidikan Sultan Idris, Malaysia

Abstract: The landscape of business nowadays seems to change due to the COVID19 pandemic crisis, thus changed the way business being developed and running compared to those early days. The digital transformation is believed to increase competitiveness since the needs to rely on the technology utilization and innovation seem to be crucial as its help to smoothen the business. Therefore, with the emergence of technologies in all aspects of activity, this paper desired to further investigate whether innovation capability and technology capability give impact to SCA of SMEs in Malaysia by looking from Resource Based View theory. The findings indicated that SMEs have the capability to accept any changes when it comes to innovation and technology, which helps in placing a firm in an advantageous position compared to its competitors.

Keywords: technology capability, innovation capability, sustainable competitive advantage, Resource Based View, RBV, Small medium and enterprises, SMEs.