Embarking IR 4.0 Journey Through Visualization, Informatics and Computing Technology.

The 1st International Visualization, Informatics & Technology Conference (IVIT2022). A Virtual Conference by UniKL. Organized by UNIKL-MIIT, technical co-sponsor by IEEE SMC Malaysia Chapter. 1 - 2 November 2022

Editors
Ts. Dr. Husna Sarirah Husin
Dr. Mohd Hafiz Faizal Mohamad Kamil
Dr. Jawahir Che Mustapha @ Yusuf
Ahmad Syakirin bin Ahmad Shukri

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Preface

The 1st International Visualization, Informatics & Technology Conference (IVIT2022) is organized by Universiti Kuala Lumpur Malaysian Institute of Information Technology (UniKL MIIT). The conference is held virtually as Malaysia in still in the early phase of endemic, and to encourage participation from all over the world.

In line with the theme of Embarking IR 4.0 Journey Through Visualization, Informatics and Computing Technology that has transformed Information Communication Technology (ICT) to provide a better service and product using Internet of Things and Big Data, IVIT2022 is seen to be the flexible online conference that aims to gather scholars, experts and researchers in getting academic exchange focuses on various aspects of advances in information and communication technologies.

We are honoured to have received a lot of paper submissions for the conference during this pandemic period. However, we have selected 63 high-quality papers and compiled them into the proceedings after going through rigorous reviews and process to meet the requirements of IEEE Explore. These papers feature the following topics namely Big Data, Data Analytics, Data Science & Data Mining, Visualization, Multimedia and Information Technology and Computing Systems. This conference is expected to offer academics and professionals a fantastic arena for exchanging a variety of research-related ideas as well as identifying the developments and challenges associated with encouraging cross-disciplinary cooperation between academia and industry. Hopefully the IVIT2022 virtual conference was enjoyable and educational for the speakers and attendees.

Welcoming Remarks from the Dean of Malaysian Institute of Information Technology Universiti Kuala Lumpur
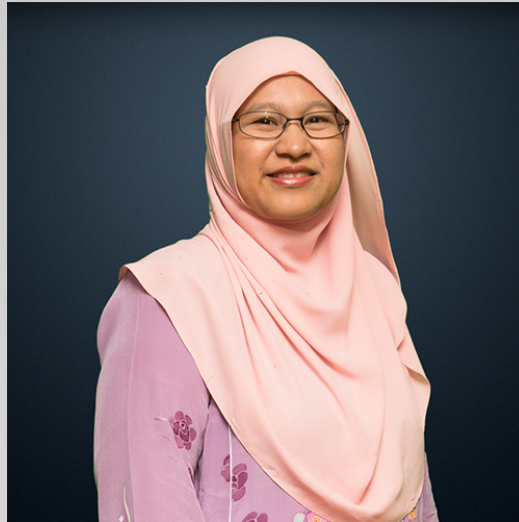
Assalamualaikum and warmest greetings from UniKL MIIT.

On behalf of UniKL MIIT, I would like to express a hearty greeting to all attendees and participants of IVIT2022. I have no doubt that IVIT2022 will have a big impact on encouraging data analytics, visualization and information management research and development in our rapidly digitalized society.

IVIT2022 is the first conference that is solely organized by UniKL MIIT. As we are still in the endemic stage, we are taking cautious steps by organizing this conjuction virtually. The theme chosen for this conference, "Embarking IR 4.0 Journey Through Visualization, Informatics and Computing Technology," is in line with current advancement and buzz on Big Data, Analytics, Data Science, Data Mining and Visualization.

The advanced technologies which have evolve as one of the fourth industrial revolution have resulted by connecting processes and systems that were previously unconnected, creating new insights and innovation, and the rise of artificial intelligence. Due to the importance and centrality of data, the field of data science has rapidly evolved. Data scientists can now rely on machine learning models, computational algorithms and visualization to extract insights from massive data sets – to better understand what information previously disparate systems can offer them.

It is intended that participants and attendees would benefit from the conference's focus on supporting the digital society, including the extremely fascinating fields of Big Data, Data Analytics, Visualization and Multimedia to solve the different needs of social development.

I want to sincerely thank everyone of the esteemed keynote speakers, sponsors and invited guests for being here and for their contributions to the conference. Congratulation to the members of the programme committee for their tireless efforts to make this joint conference a success.

Last but not least, I have faith that this conference will mark the beginning of something great for all researchers as they continue to collaborate closely in order to serve as a catalyst and to position the nation for success in science and technology. With that said, I sincerely hope and pray that the first virtual IVIT2022 will go without a hitch.
Once again, congrats to all of the participants and good luck with the paper presentation!
Thank You.

Assoc. Prof. Ts. Dr. Zalizah Awang Long
Dean
Universiti Kuala Lumpur
Malaysian Institute of Information Technology

Officiating Speech from the Director of Center of Research & Innovation (CoRI), Universiti Kuala Lumpur

Assalamualaikum Wa Rahmatullahi Wabarakatuh and Warmest Greetings from UniKL. Alhamdulillah, let us extend our sincere gratitude to Allah S.W.T for giving us the opportunity to be here today for the International Visualization, Informatics & Technology Conference (IVIT2022). I would like to welcome all of you and especially the overseas speakers and participants "Selamat Datang" and welcome to the first ever virtual conference organized by UniKL MIIT.

I want to thank the committee for their efforts in making this conference a success. According to what I've been told, the conference has gotten many entries from local universities as well as those in Thailand, India, Indonesia, and the Philippines. Additionally, the committee was able to get sponsorship for the event from numerous business associates and secure eminent speakers from Malaysia, Austria, and Australia to provide the keynote address.

The theme chosen for this IVIT2022 conference "Embarking IR 4.0 Journey Through Visualization, Informatics and Computing Technology" is an ambitious and realistic goals for IT and Computer Science area which are moving towards Data Analytics, Visualization and different technology in the computing domain.

I believe conferences, seminars, and intellectual discussions such as IVIT2022 are important and are able to assist the CORI in planning and executing effective future programmes for each

campus and UniKL in general. I hope the outputs obtained through various studies and presented during this two-day conference will shed some light on the issues and challenges as well as opportunities related to advancement and research in data science, informatics, and visualization. Indeed, we hope that there will be potential for collaboration between the participants involved in this conference, albeit it being conducted virtually.

Before I conclude, once again I would like to congratulate the organizing committee organising this conference. This effort, I must say, is very commendable and should be continued in future. Syabas! To all participants, thank you for committing your time and energy towards this conference. I wish all of you the best and a fruitful discussion.

With Bismillahirrahmanirrahim, I hereby declare the International Visualization, Informatics & Technology Conference (IVIT2022) officially open.

Wabillahi Taufiq Walhidayah Wassalamualaikum Warahmatullahi Wabarakatuh.

Thank You.
Assoc. Prof. Ir. Dr. Mohd Khairil Rahmat
Director
CoRI - Center For Research & Innovation
Universiti Kuala Lumpur

Remarks from the Head of Section Research & Innovation
Malaysian Institute of Information Technology, Universiti Kuala Lumpur

Alhamdulillah, my deepest gratitude goes to ALLAH SWT because it is with His grace and permission, we are able to participate at 1ST Universiti Kuala Lumpur (UniKL) Malaysian Institute Information Technology Conference (MIIT) International Visualization, Informatics & Technology Conference (IVIT2022), held through VIRTUAL CONFERENCE on 1-2 November 2022. This conference is organized by the Universiti of Kuala Lumpur (UniKL MIIT) and supported by IEEE Systems, Man, and Cybernetics Society (SMC) Malaysia Chapter. This conference is providing a platform for intellectuals from various fields and disciplines in the area of Visualisation, Informatics, Information Technology, and Computer Technology, also to debate and discuss the current issues worldwide as well as finding solutions to the problems, exchange and share their knowledge with others. Playing host to IVIT 2022 showcases Malaysia's capabilities as a competitive digital nation and at the same time, this effort ensures that Malaysia is not left behind in the technology and innovation ecosystem.

IVIT 2022 indeed was the able to attract many researchers, scholars and participants from around the world including India and Indonesia, and also from local IPTs in the country including UITM, Al-Bukhary University, UTAR, Taylors College University, UPSI and many more. Hence, as all listed papers in IVIT 2022 will be included in Scopus Proceedings IEEE Explore. Even though this IVIT is the first conference for UniKL MIIT to organized, but it has able to attract almost 130 papers submission. This indicate that the conference is well accepted and able to create "network" among the peers and scholars to exchange idea and knowledge in the respective field, in-line with IVIT

2022 conference theme "Embarking IR 4.0 Journey Through Visualization, Informatics and Computing Technology". IVIT 2022 has also attracted several industries and individual sponsors to ensure that the conference effort to stimulate the technology and innovation ecosystem, prosperity and well-being of Keluarga Malaysia.

We hope that IVIT 2022 conference will able to promote digital literacy, an effort that will increase awareness on the importance of technology adoption and innovation among Malaysians, in line with current developments that are happening around the world. Malaysia's ability in utilising new and innovative technology to ensure the country's recovery amid the pandemic was evident. It is my sincerest wish that IVIT 2022 would be utilised in the best way possible to aid discussion, inspire and spark new ideas in the development of technology and innovation to elevate the country to an international level. Also, not to forget my extreme gratitude to all UniKL MIIT, UniKL MIIT academic and industry Partners and IEEE management and committee members for support and leading this momentous event.With these wishes and words, I end my note with Wabillahi Taufik Wal Hidayah Wassalamualaikum Warahmatullahi Wabarakatuh. Happy Conferencing Thank You.

Assoc. Prof. Dr. Dahlan Abdul Ghani
Head of Section Research & Innovation
Universiti Kuala Lumpur
Malaysian Institute of Information Technology

Keynote Speech 1

PROF DR. ADAM JATOWT

jatowt@gmail.com

Department of Computer Science, University of Innsbruck

Title: Towards Automatic Question Answering and Generation from Large Temporal Document Collections.

Abstract:

The fields of automatic question answering, reading comprehension, and question generation have recently been rapidly advancing. Open-domain question answering, in particular, assumes automatically answering arbitrary user questions from a large document collection. The existing approaches are however designed to work on synchronic document collections such as Wikipedia, Web data, or short-term news corpora. We propose automatic question answering over temporal news collections which can contain millions of news articles that were published over several decades. Temporal aspects of both news articles and user questions form an additional challenge for this kind of question answering task. We will first discuss a re-ranking approach for news articles that works by utilizing temporal information embedded in questions and in the underlying news archive, thus combining methods from Temporal Information Retrieval and Natural Language Processing.

Next, we will discuss a dedicated solution for answering "When" type questions which require finding occurrence dates of events based on an underlying news archive. Finally, we will introduce ArchivalQA - a large-scale question answering dataset which has been automatically created from two decades' long news article collection, and which contains over 500k question-answer pairs. The dataset has been processed to remove temporally ambiguous questions and is designed for training question answering systems operating over long-term news article collections.

Speaker's Bio:

Adam Jatowt is an academic researcher from University of Innsbruck. The author has contributed to research in topic(s): Web page & Automatic summarization. The author has an hindex of 27, co-authored 228 publication(s) receiving 2794 citation(s). Previous affiliations of Adam Jatowt include National Institute of Information and Communications Technology & Kyoto University.

Keynote Speech 2

PROF TS. DR. MAZIDAH PUTEH

mazidahputeh@uitm.edu.my

Universiti Teknologi MARA (UiTM) Terengganu

Title: Machine Learning & Smart Agriculture

Abstract:

Machine learning (ML) is a subfield of artificial intelligence and computer science that focuses on using data and algorithms to mimic how humans learn. Based on historical data, ML trains machines to perform various tasks such as prediction, recommendation, classification, and so on. With minimal human intervention, machine learning can learn from data, identify patterns, and make decisions.

Agriculture is a significant machine learning application. Machine learning has already begun to play an important role in increasing the efficiency and effectiveness of agriculture. Machine learning has the potential to address a wide range of issues in the development of knowledge-based farming systems.

IoT, sensors, drones, and cloud connectivity are examples of digital technology tools that can help to make farming practises more sustainable. These tools can collect and provide a large amount

of data for machine learning processes. Agriculture using digital technology, also known as digital agriculture, aids in cost reduction, crop yield improvement, and increased food production.

Speaker's Bio:

Mazidah Puteh (Ph.D.) is a Professor of Computer Science at Faculty of Computer and Mathematical Sciences, Universiti Teknologi MARA (UiTM), Terengganu Campus, Malaysia. She has 32 years of teaching experience in the field of Computer Science specifically in object-oriented programming, artificial & computational intelligence, and business intelligence. She also has more than 20 years of research and publications in the area of machine learning especially in bio-inspired computational intelligence such as artificial immune systems, gravitational search algorithms, ant colony algorithms, artificial neural networks, and genetic algorithms. She also has an interest in data science and data analytics. Currently, she is serving as Rector of UiTM Terengganu Campus since July 2019.

Keynote Speech 3

PROF DR. JENNY ZHANG

xiuzhen.zhang@rmit.edu.au

School of Computing Technologies, RMIT University, Australia

Title: Combating misinformation on the social media: from early detection to effective mitigation.

Abstract:

The term "infodemic" is coined to refer to the wild spread of health misinformation during the COVID-19 pandemic. Indeed recent years have witnessed the wild spread of all sorts of misinformation — fake news, rumours, satire and conspiracy theories — on social media platforms, and their topics range from politics, natural disaster, celebrity news to health. The topic diversity, multi-modality and multi-linguality of voluminous misinformation and its complex interaction with humans on social media platforms presents significant challenges to media professionals and computing researchers. In this talk, I will share some research outcomes from our group on using machine learning, text mining and natural language processing as well as recommender system technologies for the early detection of multilingual rumours and mitigation of fake news on Twitter.

Speaker Bio

Xiuzhen (Jenny) Zhang is Professor of Data Science at School of Computing Technologies, RMIT University. She specialises in data mining and machine learning, text mining and social media data analytics. She has published over 100 papers in these areas. Her research has been

supported by the Australian Research Council, Australian and Victorian governments, as well as industry partners. She is an associate editor of the journal Information Processing and Management. She obtained her PhD from The University of Melbourne.

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Program Overview – Day 1: 1 November 2022

9:00 AM – 11:00 AM	**PRESENTATION SESSION 1** Big Data and Data Management and Quality https://bit.ly/3sgivDP
9:00 AM – 11:00 AM	**PRESENTATION SESSION 2** Visualization Multimedia https://bit.ly/3Tl8Esh
9:00 AM – 11:00 AM	**PRESENTATION SESSION 3** Multimedia https://bit.ly/3Tl31KB
11:00 AM – 1:00 PM	**PRESENTATION SESSION 4** Data Analytics https://bit.ly/3Sm8Y90
11:00 AM – 1:00 PM	**PRESENTATION SESSION 5** Data Analytics https://bit.ly/3MQt221
2:00 – 2:30 PM	**IVIT 2022 Opening Ceremony** https://bit.ly/3gtj9uZ Welcoming Speech by Assoc. Prof. Ts. Dr. Zalizah Binti Awang Long, Dean, MIIT UniKL Officiating Speech by Assoc. Prof. Ir. Dr. Mohd Khairil Rahmat Director CoRI - Center For Research & Innovation Universiti Kuala Lumpur
2:30 – 3:30 PM	**KEYNOTE SPEECH BY PROF DR. ADAM JATOWT** Department of Computer Science, University of Innsbruck Towards Automatic Question Answering and Generation from Large Temporal Document Collections https://bit.ly/3gtj9uZ
3:30 – 5:00 PM	**PRESENTATION SESSION 6** Information Technology & Computer Systems https://bit.ly/3ToijhJ
3:30 – 5:00 PM	**PRESENTATION SESSION 7** Information Technology & Computer Systems https://bit.ly/3grRbjv

DAY 2: 2 NOVEMBER 2021, WEDNESDAY

TIME	PRESENTATION SESSION
9:00 AM – 10:00 AM	**KEYNOTE SPEECH** BY PROF DR. MAZIDAH PUTEH (UITM, MALAYSIA) https://bit.ly/3gtj9uZ
10:00 – 10:50 AM	**KEYNOTE SPEECH** PROF DR. JENNY ZHANG School of Computing Technologies, RMIT University, Australia Combating misinformation on the social media: from early detection to effective mitigation https://bit.ly/3gtj9uZ
11:00 AM – 1:00 PM	**PRESENTATION SESSION 8** Information Technology & Computer Systems https://bit.ly/3MV0q86
11:00 AM – 1:00 PM	**PRESENTATION SESSION 9** Information Technology & Computer Systems https://bit.ly/3CQmk7L
11:00 AM – 1:00 PM	**PRESENTATION SESSION 10** Data Science & Data Mining https://bit.ly/3Slac4u
2:00 – 4:30 PM	**PRESENTATION SESSION 11** Data Science & Data Mining https://bit.ly/3SlHCQn
2:00 – 4:30 PM	**PRESENTATION SESSION 12** Data Science & Data Mining https://bit.ly/3VI4a0J
4:30 – 5:00 PM	**CLOSING CEREMONY** **Award Giving Ceremony** https://bit.ly/3gtj9uZ

Presentation Session 1

Track:

- Big Data
- Data Management and Quality

Microsoft Teams link https://bit.ly/3sgivDP

Session Chair: Mohd Helmy Abd Wahab
Co Chair: Dinda Sasmito

Title:
Internet of Things Implementation in Manufacturing Value Chain Process

Author:

- Rahimah Kassim
- Hasnah Mustapa
- Azizah Rahmat
- Adnan Bakri

Abstract:

In the manufacturing industry, value chain process is crucial to operation success. Thus, to avoid any mistakes, manufacturing industries need to streamline their operation as efficiently as possible. The Internet of Things (IoT) is indeed a support technology that enhance the quality of the operation in organizations. To make IoT a reality, the manufacturing sector must be able to engage in and implement this technology in its day-to-day transactions. Several studies have been conducted to investigate the potential of IoT for numerous organizations. However, IoT is still not widely used by many industries, including the Manufacturing industry in developing countries. This article aims to identify and evaluate the influencing factors and propose an IoT implementation model in Malaysia manufacturing industry. Drivers were identified through a review of previous tests. Furthermore, the technology organization-environment framework is proposed, which is based on information system adoption theory (TOE). The Delphi technique is applied on a survey of IoT users, and the results showed that the factors chosen in this study had a significant impact on IoT implementation in the Malaysia Manufacturing industry. This study is assisting Manufacturing firms in understanding the aspects of IoT implementation, improving their business structure and IoT investment, and inspiring scholars to pursue research into new IoT adoption or implementation variables.

Title:

Bulletin Board Dapp using Ethereum and Solidity

Author:

- Anup Lal Yadav

Abstract:

Bulletin Board is decentralized application which lets participants share information across multiple users at same time. This paper demonstrates a way to implement web application on the emerging technology of Ethereum blockchain. The website that will allow people to connect their wallets and interact with your smart contract. Ethereum is a permissionless, open blockchain with smart contracts functionality. Smart Contracts are programs which act just like viruses, enabling themselves to run in predetermined scenario set by the participants. We'll create a simple bulletin DAPP (Decentralized application) using react library. Bulletin board is example which shows how we can tackle censorship in mass.

Title:

An instrument to Measure the Use of Electronic Communication Channels with MTAM

Author:

- Wan Dorishah Wan Abdul Manan
- Syahrul Hezrin Mahmud
- Zawawi Abdul Wahab
- Nazuha Muda @ Yusoff

Abstract:

The effectiveness of communication is very crucial in ensuring the goals of an organization's are achieved and thus in this context communication channels play a significant role. Due to issues of internal communication effectiveness, a study was conducted in an organization to find major problems and opportunities in communication. MTAM, an adaptation of the Technology Acceptance Model (TAM) was used to understand and determine the effectiveness of electronic communication channels in an organization. Based on the model, a set of questionnaires were developed and distributed to staffs of the organization. The questions were adapted or adopted from previous studies. Some of the questions were also customised to suit the requirements of the organization. Empirical analysis on the results clearly indicated that all constructs have significant influences on the dependent variable and the model is statistically a valid basis for the study. The findings of this research will contribute towards the theory and practical refinement of TAM and communication through electronic means. A mobile application will be developed based on the findings, with the goal of having more effective internal communication within the organization.

Title:

Design and Implementation of Rotary Automated Car Parking System

Author:

- Raed Abdulla
- Subhashini Gopal Krishnan
- Zeiad Ahmed Taha Abdelhamid

Abstract:

The main aim of this project is to design, develop and implement an Automated Rotary Car Park System. In this project, a Graphical User Interface using MIT APP Inventor which is an IOT platform, was developed to allow the user through his/her mobile application controls the whole rotary car parking system in such an easy and automated way as well as a prototype for the rotary car park had been designed and built-up where it could hold up 5 vehicles slots in order to test and apply the developed IOT system. The performance of the pervious developed proposed systems were mainly dependent on non-automated methods for controlling the parking & retrieving process, which lead to physical interface from the user to either park or retrieve his/her car, that's why developing an automated system which mainly depend on the IOT technology was the main aim and innovation for the system comparing to what had been proposed before. Finally, the system proved to be efficient and facilitate the parking and retrieving process as well as save time and effort for the user as compared to the various techniques developed in the literature.

Title:

IoT-based Data Monitoring and Environment Controlling System for Oyster Mushroom Mini-farm

Author:

- Mohd Shafiq Shafri Shaiful
- Radzi Ambar
- Mohd Helmy Abd Wahab
- Muhammad Mahadi Abdul Jamil

Abstract:

Despite the perception people may have regarding the agricultural process, the reality is that today's agriculture industry is data centered, precise and smarter than ever. This is because the rapid emergence of the Internet-of-Things (IoT) based technologies in almost every industry in Malaysia. This project describes the development of a monitoring and controlling system for oyster mushroom mini-farm using IoT based application. The system is mainly consists of a small Styrofoam box installed with an ESP8266 NodeMCU microcontroller that receives temperature and humidity data from a DHT11 sensor, and a thermoelectric cooler to control the temperature of the mini-farm. An IoT-based application using Blynk is developed to monitor the temperature and humidity, and also also to control a mechanism that can change the temperature and humidity of cultivation environment. This paper also demonstrates the preliminary experimental results that show the functionality of the mini-farm to gather environment data and also controls the environment condition of the mini-farm.

Title:

Student's Acceptance of Video Lecture: An Extension of the Technology Acceptance Model (TAM)

Author:

- Nur Hidayah Md Noh

Abstract:

Since the emergence of COVID-19, virtual learning has been the norm at institutions of higher education. Video lectures have emerged as a useful tool for academics in delivering distance education courses. Furthermore, video lectures are expected to keep the educational system running smoothly despite the pandemic. Therefore, the purpose of this study is to assess university students' acceptance of video lecture by extending the Technology Acceptance Model (TAM) with internet self-efficacy and learner-content interaction as the extended variable. Data from 390 students were gathered and analysed by Partial Least Squares-Structural Equation Modelling (PLS-SEM). The results shows that all path relationships in TAM were significant with both internet self-efficacy and learner-content interaction significantly influence perceived ease of use and perceived usefulness.

Presentation Session 2

Track: Multimedia

Microsoft Teams link https://bit.ly/3Tl31KB

Session Chair: Dr. Nur Syahela Hussien
Co Chair: Putry Wahyu Setyaningsih

Title:

Interactive Multimedia For Promoting Cultural Heritage Tourism In Penang

Author:

- Siti Azreena Mubin
- Lee Sin Yin

Abstract:

Penang, also referred as the "Pearl of the Orient", is one of the most well-known tourist destinations in Malaysia due to its unique cultural, architectural properties and diversity range of heritage arts and crafts. Research revealed that digital technologies in today's world are almost needed for presenting all types of cultural heritage and boosting the tourism sector especially after the imposition of Covid-19 anti-epidermic measures, resulting in the significant loss of tourists. The main aim of this research project is to promote cultural heritage tourism in Penang with the use of interactive multimedia tools. The methodological approach is formed through the examination and evaluation of a comprehensive reference and an online survey that distributed to the visitors in Penang to discuss the current issues, challenges, and the solutions in promoting the cultural heritage tourism in Penang. This paper also explores the benefits and methods to develop an interactive website that includes 360o virtual tours, detailed travel guides, animation for introducing the histories of the heritage building and video for promoting the cultural heritage tourism in Penang.

Title:

UTAUT2 to Analyze the Factor Influencing the Use of Virtual Reality Head Mounted Display Device

Author:

- Azir Rezha Norizan
- Mohd Hafiz Faizal Mohamad Kamil
- Faridzatul Shahira

Abstract:

Virtual reality (VR) Head Mounted Display (HMD) is not something new for the development aspect, yet still young in terms of commercialization. Various previous studies have been seen to focus on the potential use of VR headsets for productivity, especially in the fields of education, training and simulation. The emergence of affordable HMD VR products in the market raises questions as to the actual use of VR headsets in general. The UTAUT2 model was used in the analysis of data obtained through online surveys. Based on the data analysis, there are differences in terms of 'purpose of use' and 'enjoyment rate' from different user demographics. The data collection from this study is also seen to have the potential to be used as supporting data in application development for future virtual reality.

Title:

Halal Cosmetics Awareness Through Augmented Reality Application: To Assist Consumer In Cosmetic Product Purchase Decision Making

Author:

- Mohd Hafiz Faizal Mohamad Kamil
- Azir Rezha Norizan

Abstract:

Muslim populations are expanding over the world, and so is the need for Halal products. In recent years, the word of Halal cosmetics has become more common in the mainstream. Even so, there are Muslims in Muslim countries like Malaysia who have never heard of Halal cosmetics. They only know the Halal label on food and drink. As a result, people are spending more money on cosmetics, particularly multinational brands of makeup. Using augmented reality in the beauty industry could make things easier for both consumers and marketers. This project uses augmented reality (AR) to share information about halal cosmetic products so that it's easier to meet consumers expectations. This will make consumers satisfied with their purchases and help them understand what they're buying. This research targets on women who wear cosmetic products. Awareness about halal cosmetic products for Malaysian Muslim women is the aim of this study. The awareness will guide them in purchasing cosmetic products. The development of this project uses Vuforia SDK together with Unity, 3DS Max and Blender. Meanwhile, this project uses Adobe InDesign and Illustrator to design magazine layout templates. The ADDIE model was used for this study, which consist of Analysis, Design, Development, Implementation, and Evaluation phase. As a result, this augmented reality application will be able to increase consumer awareness on halal cosmetic products and assist them in cosmetic products purchase decision.

Title:

The Exploration of Emotions from Print Design Course using Augmented Reality

Author:

- Perline Siek Hwee Ling
- Kin Meng Cheng
- Dennis Chee De Wong

Abstract:

This paper is based on the reflexivity approach towards teaching and learning using action research process of a print design learning course. The initial motivation is to explore and guide students to integrate Augmented Reality (AR) with print book design because the current digital trajectory allows prospective designers to showcase their artwork's uniqueness. The action research method was applied to explore factors affecting planning and the processes from print content to AR; namely, Taboo Augmented Reality book (TARbook). This study uses Zappar, the AR technology to project motion graphics, as a tool to bridge the gap between the physical and digital realm and it is believed that this study is helpful for the professional growth of graphic design lecturers as well as students' learning; 6 students were chosen for an FGD session after they experienced the TARbook. SentiStrength's results positively affect the overall trinary score, which shows that the TARbook gives positive emotions towards the students. Future directions of research are to create more such motion graphics pictures book.

Title:

Application and study of neo-pop art in art toys：Monkey King

Author:

- Wang Qi Ming
- Kin Meng Cheng

Abstract:

This research project explores how the Chinese mythological character, the Monkey King, can be used to design art toys in a new pop art style. China has a rich traditional culture, but with the changing times, young people in China are losing interest in traditional culture. As a derivative of neo-pop art, art toys are trendy in China, and more and more young people are joining the ranks of art toy collectors. However, the art toy market in China is currently mostly 'imported IP', while there is little academic criticism of neo-pop art and art toys, and no research summarising the characteristics of neo-pop art toys; therefore, the significance of this study is to fill the gap in academic research on neo-pop art toys and the lack of local IP in the Chinese art toy market. The researcher adopted a qualitative research approach, interviewing 12 art toy enthusiasts. The study summarised the characteristics of neo-pop art toys. Secondly, the study also verified that the Monkey King art toys positively impacted the promotion of traditional Chinese culture, which provides the necessary support for developing original art toy brands and local IPs in China.

Presentation Session 3

Track: Visualization and Multimedia

Microsoft Teams link https://bit.ly/3Tl8Esh

Session Chair: Dr. Azir Rezha Norizan
Co Chair: Dr. Mohd Hafiz Faizal Mohamad Kamil

Title:

Digital Planning of High Tibial Osteotomy Using Dicom versus Jpeg formats

Author:

- Norazimah Awang
- Riza Sulaiman
- Abdul Halim Abdul Rashid
- Nurulnadwan Aziz
- Nur Saadah Mohd Shapri

Abstract:

This paper aims to test the reliability of digital osteotomy's correction angle between the two-image formats; Dicom and Jpeg using new software (OsteoAid). This is to ensure that the new software is reliable for both image formats for the correction. The hypothesis is to compare the reliability of the Centre of Rotation of Angulation (CORA) angle for each intra-rater and inter-rater reliability. CORA was defined and the angles of all patients' legs were checked for correction to determine the accuracy of both image formats using an intra-class correlation coefficient (ICC). Thirteen digital long leg radiographs with long-standing positions from the frontal axis showing patients with both tibia deformities were examined. Those images were accessed from the Picture Archiving and Communication System (PACS). Three medical officers (raters) who were involved in an osteotomy used the same medical image format twice at a two-week interval. Using the Dicom format, the mean correction angle score of each rater is at excellent level: 0.949 (Intra-rater1), 0.987 (Intra-rater2) and 0.968 (Intra-rater3). Scores of each rater for Jpeg format are also excellent: 0.904, 0.928 and 0.962 respectively. The inter-rater reliabilities of the correction angle were 0.979 and 0.972 ($p < 0.001$) respectively for each format. The principal finding of this study was that OsteoAid showed excellent reliabilities and consistency in preoperative planning in finding CORA and correction angle using both image formats. This indicates that the two image formats are comparable in obtaining CORA angles.

Title:

Benefits of Digital Printing for Fashion Entrepreneurs: A Case Study at Alia Bastamam

Author:

- Hanisa Hassan
- Nadirah Ansun

Abstract:

Digital textile is an inkjet-based method that allows manufacturers to print different design that can be virtually made on any kind of fabric. The inks used in digital printing are manufactured according to the type of fibre, such as cotton, silk, or polyester. During digital printing, the fabric is fed into the printing device using a roller. The process involves adding ink to the surface in the form of small droplets. After that the fabric is then finished by using either steam or heat treatment, increasing the efficiency. In addition, some inks need washing and drying. The technology allows a steady production of textile printing, minimize wastage for smaller production, fast production and provide consistency in pattern and colours in huge production. Digital printing can also be exclusive if made in a smaller volume, indubitably the price of each design will be higher. Therefore, such technology should be a leverage to exclusive boutiques to produce limited designs with higher selling price. For an exclusive boutique like Alia Bastamam, higher pricing for its design pieces would not be a problem as the pricing are targeting high-end customers. A design line was made to test the idea of producing exclusive line through digital printing method. From the feedback, it was indeed beneficial to the company in a longer run.

Title:

COVID-19 Vaccination Data Visualization: Issues and Challenges

Author:

- Hamidah Jantan

Abstract:

Data Visualization plays an important role for patterns and trends analysis in trillion of data rows Big Data analysis, where the data can be represented in some graphical forms. Hence, the data could be more comprehensible in its visual summary in dashboards and storyboards. This study aims to discuss some issues and challenges in visualising COVID-19 vaccination datasets. There are some possible issues in data visualisation, as it is not easy and may be challenging to produce a good dashboard that are interesting and easy for viewers to understand. Therefore, this study focuses on some issues that may arise during performing a data visualisation on the COVID-19 dataset. In this study, there are three dashboards have been studied, which are the COVID-19 tracker, its effectiveness, and its acceptance. The first two dataset are derived from Ministry of Health Malaysia bank data, whereas the third dataset is from a survey to support this analysis. The selected attributes are states, the number of people who have received the vaccine as adults, children, and teenagers, and the number of people who already received boosters, and reasons to not get a booster. The visualisation issues found within the dashboard are mis-choice of colours, mis-choice of visual object type, lack of interactivity, and plotting too much data. As a result, this proposed alternative solutions for those issues such as colour deliberately, pick a suitable visual object, create an interactive dashboard, and reduce the information overload in visualising the data.

Title:

A Systematic Literature Review of Virtual Reality Utilization in Tourism During COVID-19 Pandemic

Author:

- Ummu Fatihah Binti Mohd Bahrin
- Siti Nurul Hayatie Ishak Action
- Sharifah Nurulhikmah binti Syed Yasin
- Hayati Adilin Mohd. Abd. Majid; Rajeswari Raju
- siti salbiah Hamzah

Abstract:

Virtual reality (VR) is an innovation that is increasingly applied in many fields of study. Although VR is adapted in most of simulation works like aviation, cargo movement, surgery, and phobia therapy, the application in tourism has different intention compared to other contexts, which is for promotion purpose. Therefore, this study provides a systematic literature review of how VR has been applied to help promoting tourism industry during the pandemic of COVID-19, when most people in the world are restricted from traveling, and ordered to stay at home. A research question that would address application of VR in tourism is identified. A comprehensive literature search has been carried out resulting 87 journals and proceeding papers are filtered. Data extraction and synthesize is performed on the selected studies based on the research question. From the SLR process, we have found that VR is utilised in tourism for promotion purposes, and to evaluate the attitude and emotion of users towards the application of VR in virtual tourism during the pandemic. Our result suggests that tourism industry players need to pay more attention and widen the intention in utilizing VR in the future to confirm the sustainability of tourism industry.

Title:

Instilling the Spirit of Ramadan to Malaysian Muslim Children through Mobile Game Approach

Author:

- Suhaili Din

Abstract:

Ramadan is special for Muslims all over the globe. During this month, Muslims seek the opportunity to do good deeds and aim to improve their good moral character and habits. Parents in Malaysia wish that their children also get the same value and spirit of Ramadan. Passing down the value and knowledge to children is not an easy task. Game-Based Learning is popular nowadays, especially in educating children effectively. The amount of existing mobile games that contain Islamic content especially related to Ramadan suitable for Malaysian values is limited. Therefore, this game aims to motivate and educate Muslim kids in Malaysia about fasting and good deeds during Ramadan. The objective of this study is to develop a mobile game application on Ramadan that is suitable for children according to Malaysian values. This research focuses on the development of User Interface (UI), User Experience (UX), gameplay, game design, environment, and narrative. Unity, Adobe Illustrator, and Adobe Photoshop are the applications used to produce the 2D mobile game aimed at Android users. Game Development Life Cycle (GDLC) model is used as the methodology in the development of this research. The completed game was evaluated for effectiveness among selected target audiences aged 6-12 and families with children aged 6-12. Technology Acceptance Model (TAM) was adapted to measure user acceptance in terms of game design, functionality, and overall game performance. The result shows that 100 % of the respondents agreed that the Ramadan Spirit game provides knowledge that can be applied in their life.

Presentation Session 4

Track: Data Analytics

Microsoft Teams link https://bit.ly/3Sm8Y90

Session Chair: Ts. Dr. Abdul Hadi Mohamad
Co Chair: Dr. Yasmin Yahya

Title:

A Mathematical Model to Predict a Coastal Erosion: Case Study Chalathat Beach, Songkhla, Thailand

Author:

- Sasalak Tongkaw
- Pintipa Buadang
- Supaporn Prompitak
- Kamonnawin Inthanuchit

Abstract:

Geographical condition in the south of Thailand stretches along both sides of the sea, causing coastal erosion problems. Especially at Chalathat Beach of Songkhla Province, problems caused by erosion are caused by many reasons. However, the rate of erosion is increasing every year. This research combines existing and new data to analyze coastal erosion trends using geographic measurement techniques using Google Earth Pro and Linear Regression to obtain a coastal erosion rate forecasting model that can forecast the area caused by the erosion of the coast of Chalatat Beach Songkhla Province in the next ten years. In 2032, the area of Chalatat Beach will be eroded by approximately 213,448.8232 square meters. This model can be applied to assess coastal erosion in the area nearby. In addition, this research is helping environmental agencies in coastal erosion assessments where they can assess the damage caused by coastal erosion and used for editing plans for long-term coastal erosion solutions.

Title:

House Price Forecasting Using Complex Machine Learning Techniques

Author:

- Aditya Kumar Singh
- Prabhneet Singh

Abstract:

The typical phrase for estimating house prices is the House Price Index (HPI). It is because housing prices are strongly linked to other elements such as road type, neighborhood, demographic, building type, and physical region, predicting individual house values requires more data than just the HPI. There have been a significant number of studies that use traditional machine learning algorithms to successfully predict home prices, but they rarely assess individual model performance and ignore sophisticated models that are less popular. To examine the various consequences of features on prediction approaches, this research will use both machine learning methodologies traditional and advanced to investigate the differences between several advanced models. One of the most common sectors where machine learning is employed to enhance and anticipate expenses with good accuracy is real estate. The aim of the article is to evaluate the market price of a real estate property. This Machine Learning-based technology aids in determining a property's base price based on location and other factors. Clients will be able to deposit money into a bequest without having to go via a trader with the assistance of this analysis.

Title:

Pharma Assist: (Disease Prediction by Machine Learning model)

Author:

- Prabhneet Singh
- Kavita Verma
- Anuradha Kumari

Abstract:

In today's scenarios of almost polluted environment, its very important to keep check on our health. Curing our health before it gets into serious disease is also very important. Online prediction model have made this very useful and userfriendly. The best thing is for the doctor who can predict the disease easily and accurately. Even normal people can also use this easily, the only requirement will be of "X-ray image" for prediction. This model prediction basically extracts the features from "X-ray image" and then compares it using model. So, this research is around the predicting of disease using python model by integrating it with web-application for easy user-interface

Title:

Knowledge and Skill Sets for Big Data Profession: Assessing Student's Quality using Exploratory Factor Analysis

Author:

- Sarah Yusoff
- Nur Hidayah Md Noh
- Norulhidayah Isa
- Siti Musliha Nor-Al-Din

Abstract:

Recently, several higher education institutions in Malaysia announced discontinuing some courses to ensure employability post-graduation. Finding a job that fits their qualifications is a hurdle that graduates frequently face. The International Labor Organization states that when the education and training system does not deliver the skills the labour market needs, there is a mismatch between skills and jobs. This paper presents research on big data analytics knowledge and skills acquired by students throughout their studies. A sample of 185 UiTM students from various campuses participated. These students were among those who had formally taken big data courses during their studies. Data analysis was done using exploratory factor analysis (EFA) to identify the knowledge and skills obtained. Those are important to UiTM students' preparedness for the big data profession. Only 26 of the 40 items are included in the six constructs with factor loading above 0.6: teamwork, student awareness and university readiness, programming language, students effort, data storytelling and visualization, and data organization. These factors align with the finding made by [26] which identified the key competencies the employer needs for big data professions. In conclusion, more actions are needed by the higher educational institutions to improve the existing program, and design programs to meet better market demand, satisfy employer expectations since the factor loading obtained are just satisfactory.

Title:

G-DCNN: GAN based Deep 2D-CNN for COVID-19 Classification

Author:

- Suja A. Alex
- Noor Zaman
- Navid Ali Khan
- Husna S Husin

Abstract:

Recent progress in COVID-19 detection techniques involves deep learning models. The patient's image data like Chest X-Ray Images, CT-scan data help the physician for analysing whether the patient is COVID-19 positive or negative. However, huge data size is essential for improving the classification accuracy of deep learning models. Data Augmentation (DA) is a promising solution to generate synthetic samples of data. Sampling is a traditional data augmentation technique to generate synthetic samples. Recently, Generative Adversarial Networks (GAN) have been declared in generating high-quality synthetic data from actual small data to treat imbalance issue. This work proposed a method called GAN-based Deep 2D-CNN (G-DCNN) for COVID-19 recognition. In this study, GAN has been used for synthesising Chest X-Ray and CT-scan images followed by Deep 2D-CNN to detect COVID-19

Presentation Session 5

Track: Data Analytics

Microsoft Teams link https://bit.ly/3MQt221

Session Chair: Dr Suriana Ismail
Co Chair: Ts Nurdatillah Hasim

Title:

Cyber-Crime Detection: Experimental Techniques Comparison Analysis

Author:

- Marina Md. Din
- Asmidar Abu Bakar

Abstract:

Cyber-crime is one of the main problems the world face, and machine learning plays a key part in contemporary operating systems for giving better transformation in the security environment and cybercrime detection. While detecting cybercrimes is difficult, it is possible to gain advantages from machine learning to generate models to assist in predicting and detecting cybercrimes. The researchers have proven that the majority of the models can work effectively in identifying cybercrime, they can span from 70% to 90% in accuracy measuring. The objective of this research paper is to conduct experimental techniques comparison analysis for cyber-crime detection by reviewing all possible machine learning algorithms for automatic detection. The key focus of the study is on the use of eight classifiers models which are Logistic Regression (LR), Decision Tree (DT), K-nearest Neighbors (KNN), Support Vector Machine (SVM), Naïve Bayes (NB), Random Forest (RF), eXtreme Gradient Boosting (XGBoost) and Multiple layer perception (MLP). From the experiment conducted, the high prediction came from MLP which is 96% accuracy of the cyber-crime methods based on existing cyber-crime data.

Title:

Smart Cities with Recognizance in Air Quality

Author:

- Megat F. Zuhairi
- Ritu Chuahan Action
- Eiad Yafi
- Mukesh Prasad

Abstract:

The worldwide populace keeps on developing at a consistent speed, and more individuals are moving to urban communities. This led to the generation of idea of smart cities which eventually builds the sustainable environment around the world by advancing technologies which can implacably applied to understand and control various processes of the city which are subjected on water, air and energy. In current study of approach, the focus relies specifically on atmospheric pollutants which arise due to industries, factories, mining, and the combustion of fossil fuels. These activities release air pollutants that are harmful to all living things including Sulphur dioxide, nitrogen dioxide, carbon monoxide, ozone, and various others air pollutants. Additionally, it is a major risk factor for several health conditions, including bronchitis, lung cancer, heart problems, throat and eye disorders, asthma, skin infections, and respiratory system ailments. The aim of the current study was to conduct discrete factor analysis to analyze the factors which are responsible for degradation of the air quality. The proposed study is carried out in two phases, with the first phase measured the variation in the AQI (Air Quality Index) value of different smart cities of India for years 2015-2020, whereas in second phase we analyze the contribution of different gases such as NO_2, NO, benzene, toluene, xylene, O_3, CO, SO_2, NOx towards the AQI value.

Title:

Analysis of Topic and Sentiment Trends in Customer Reviews Before and After Covid-19 Pandemic

Author:

- Dedy Suryadi
- Hanky Fransiscus
- Yoko Gunawan Chandra

Abstract:

The Covid-19 pandemic has impacted many people's lives. Many researches have studied the impact of the pandemic on customer opinion change regarding services, yet there are still few researches regarding the change towards products. As a product category that experienced a significant increase in sales since the pandemic began, headphones have become a suitable product category to analyze the change. To analyze the change, this paper aims to discover the topics that customers discuss in their reviews. Latent Dirichlet Allocation (LDA) is selected as the topic modeling method to obtain the topics (i.e., aspects of a product) that are discussed in the customer reviews. In the case study, six topics that are discussed by customers are discovered, i.e., Durability Issues, Usage Contexts, Noise Cancellation, Features, Quality, and Customer Service. The monthly proportion of sentences that discuss a topic provides the topic trend. Among those six topics, the discussion about the Usage Contexts topic has increased since the beginning of the pandemic, while the other topics do not show a clear trend related to the pandemic. SentiWordNet is selected as the sentiment analysis method to capture the positive and negative sentiment towards the topics. Among the six topics, the Durability Issues and Noise Cancellation topics showed an improved sentiment after the pandemic began, while the sentiment for Usage Contexts, Features, and Quality topics worsened. Future research may be suggested to explain the worsening trend for those topics, especially the Usage Contexts topic that gained significant negativity after the pandemic began.

Title:

An Extractive Educational Text Summarizer Tool using Hybrid Keyword Cluster-based technique

Author:

- Suraya Alias
- Mazliah Majalin

Abstract:

Automatic text summarization is a promising text mining tool for the future of natural language processing. Currently, the shifts toward online learning due to the pandemic of Covid-19 had demanded the various use of the technological application in the field of education. In this study, an extractive educational text summarizer tool is developed for secondary school students, especially for Science, Technology, Engineering, and Mathematics (STEM) subjects in Malaysia. Outstanding issue in these STEM subjects is to grasp and understand the main concepts from lengthy explanations to solving given problems. We improved the keyword extraction task to generate better summaries using the K-means clustering technique with a hybrid scoring of Word2vec embeddings and Yet Another Keyword Extractor (YAKE) approach. The automatically generated summary is highlighted by keywords and visualized using word clouds to engage students' attention to the STEM subjects before proceeding to problem-solving practice. For the summary evaluation, we compare against the benchmark Malay text summarizer and yielded promising results of the average recall of 0.5806, precision of 0.5626 and F-Score 0.5684 for the random summary article topic. The system usability testing was conducted with the participation of teachers and secondary school students. The result shows a minimum average result of 5.74 and a maximum average of 6.30 out of 7 in terms of the system's simplicity, pleasant interface, and ease of retrieving information. This has shown that educational tools such as the text summarizer can be used as a medium to support the education field with diverse user experiences.

Title:

The Sentiment Analysis on Mental Health Awareness by Non-Governmental Organisation's Twitter

- Author:
- Rohizah Abd Rahman
- Mohd Shahrul Nizam Mohd Danuri
- Fatin Haziqah Mohamad Zaini
- Azzan Amin

Abstract:

The Ministry of Health Malaysia's statistical analysis showed increasing mental health problems among Malaysians. However, Malaysians' stigma of society ignores mental health problems and lack awareness of the issues. The main purpose of this study is to determine the Malaysian community's awareness of mental health issues using data from the Non-Governmental Organization Twitter. The data had been taken from the Twitter application for NGOs related to mental health in Malaysia. NGOs often disseminate information such as health statistics, causes, and even ways to overcome their Twitter application. The data collected from the Twitter API application requires permission and application from Twitter even though the data is accessible publicly. The development of this study will be implemented using experimental methods where sentiment analysis is an appropriate way to study the Malaysian community's awareness of mental health problems. A few experiments will be conducted, such as data collection, pre-processing, Sentiment Analysis, machine learning techniques, Support Vector Machine, Neural Network, and Naive Bayes. The analysis shows that each NGO's total number of positive tweets was more than the number of negative snippets. The analysis of machine learning using the three techniques showed the highest percentage of positive data for Precision, Recall, and F1-Score. Furthermore, the awareness of mental health problems should be more positive text posts by the NGOs on social media to educate people.

Title:

MalCov: Covid-19 Fake News Dataset in the Malay Language

Author:

- Noor Hafhizah Abd Rahim
- Muhammad Syukri Hanafi Basri

Abstract:

The COVID-19 pandemic has drastically changed the world's atmosphere. The virus itself has spread worldwide, so the misinformation related to COVID-19 also created chaos in society. The inaccurate use of infodemic terminology created misleading info about the disease. This tragedy caused panic, confusion among the public, and miscommunication between government information and the public. Several attempts using automated classification via machine learning models have been recently made to avoid the spread of this fake news. These methods require the use of labeled data. However, the scarcity of available corpora for predictive modeling, particularly in languages other than English, is a big barrier challenge in this area. To date, our proposed research may be the first step in an extensive study of fake news detection in the Malay language. We introduce MalCov (Malaysia Covid) fake news dataset for the purpose. The MalCov which contains 79.5% fake articles or approximately 171 statements is gathered from main social media platforms. The remaining statements are valid articles that have been checked and manually validated by the local authorities. All these articles are gathered from a single portal called "Sebenarnya.my" Since we are using a non-English language for this dataset, the data has been separated into contents and titles. The most frequent words used are then analyzed. Several machine learning models such as Naïve Bayes, SVM, and Logistic Regression are utilized to build the classifiers. As a result, the decision tree achieves the highest performance, which is 93.48%.

Presentation Session 6

Track: Information Technology & Computer Systems

Microsoft Teams link https://bit.ly/3ToijhJ

Session Chair: Assoc. Prof. Dr. Megat Farez
Co Chair: Budi Sulistiyo Jati

Title:

Shrimp Farming Water Parameter Monitoring System using LoRa

Author:

- Roziyani Rawi
- Suhaida Salleh
- Husna S Husin

Abstract:

It is necessary to improve the efficiency of water parameter monitoring at the shrimp hatchery. Currently, staff at the hatchery use a traditional method where water is manually tested using a multiparameter instrument. Thus, this system is built with the aim of developing a system prototype to measure shrimp farming water parameters using LoRa technology and remotely monitor the status of shrimp farming water parameters using an IoT platform. The integration of sensors, Arduino UNO, and LoRa transmitter module will be placed at the shrimp farm, while the ESP32 and LoRa receiver module will be placed in the office. Data will be transmitted from transmitter to receiver and sent to ESP32 to be forwarded into the cloud via Wi-Fi connection. Blynk IoT will retrieve and display data from the cloud for user view. Therefore, the system is proof that LoRa-based communication and Blynk IoT monitoring systems can enhance the efficiency of water parameter monitoring at shrimp hatcheries.

Title:

LoRa Network Based Wearable Tracker

Author:

- Ahmad Hafize Ahmed Nasser
- Shafina Mohamed Salleh
- Mohd Ariff Majmi Zaaba
- Adam Shukry Ali

Abstract:

In Malaysia, it is reported that a huge number of deaths are linked to heart-related complications. Many of these deaths are preventable if the caretaker are able to be notified of the warning signs leading to the complication. However, to appoint a caretaker to monitor a patient around the clock is virtually impossible. The objective of this project is to create a system to notify the caretakers in realtime, of the locations of the patients and warn of possible risks of complication. The proposed system makes use of the LoRa Network in order to communicate without the needs of communication towers or routers as intermediary. The development is focused on the feasibility of this technology to be equipped in a small tracker device powered by a lightweight lithium battery and to find a way to bridge the connection between the LoRa network and smartphones, since currently, there is yet to be a smartphone that comes equipped with such technology. At the end of the project, we are able to conclude that it is indeed feasible to use LoRa as a means of transferring critical information, as it is able to transmit information for over 100-meters without the need for any intermediary device to facilitate the communications. However, further testing in urban areas and in different weather conditions are needed if such devices are to be widely used in real-life applications.

Title:

Impact of excessive use of social media on students learning performance: Gratifications theory perspective

Author:

- Shardha Nand
- Siti Haryani Shaikh Ali

Abstract:

Social media is a growing field, mostly everyone is availing the benefits of it. It seems that overuse of this technology may cripple academic standards of our next generations. The motive of this research is to explore how excessive social media use affects students' academic performance and come up with a suggestion to reduce social media usage and improve academic learning of an individual. Using primary data collected from Pakistani university students, 265 entries were analyzed using SPSS tool. Findings suggest that use of social media has a significant result on undue use of social media. Furthermore, results also indicated that unwarranted use of social media has a detrimental impact on learning performance. Findings also supported the idea that student technology self-efficacy moderates the undesirable association between excessive social media use and academic performance.

Title:

Implementation of Intelligent Chatbot in Student Portal: A Systematic Literature Review

Author:

- Eka Wahyu Aditya
- Shahrinaz Ismail
- Noormadinah Allias

Abstract:

The student portal gives users access to the channels of information and resources that they require for their academic pursuits. This includes access to the library services, information about their courses, and academic-related materials. On the other hand, this progress is not without its problems, as most of these services have a finite lifespan while the team still supports them. The student portal should build an artificial intelligence (AI) agent, like a chatbot, to provide 24/7 support for its users. This Chatbot must have a straight-forward user interface or GUI with excellent efficiency; hence it must be a simple system that users with minimal technical understanding can operate. It is intended that by acting as a customer support representative, a chatbot can enhance the user experience on student portal. This paper presents the findings from systematic literature review on previous works of intelligent chabot implementation in student portal.

Title:

Speech recognition incorporating Speech enhancement domain

Author:

- Jyoti Avinash Londhe

Abstract:

In this paper review work, we have tried to develop a novel way to improve the structure of a speech test during a speech, and to measure clear speech will be removed from the confusing speech limit. Automatic speech recognition consists of a sound speech spectrum using Fast Fourier Transform as well as a thoughtful reduction in the volume of the audio sound from the audio sound. Using the MATLAB software the audio reduction algorithm is developed to store audio speech data in half-time and calculate the spectrum of various sizes using Fourier Transform, reduce noise in audio speech, and recreate retrospective speech during high performance. Fast Fourier Transform (IFFT) opposite.

Presentation Session 7

Track: Information Technology & Computer Systems

Microsoft Teams link https://bit.ly/3grRbjv

Session Chair: Dr. Aznida Abu Bakar Sajak
Co Chair: Dr. Azizah Rahmat

Title:

A systematic literature review of gamification decision-making for online grocery shopping

Author:

- Qiuwen Tong
- Hafiza Abas
- Noraimi Shafie

Abstract:

Gamification has been identified as an effective user decision-making strategy capable of improving online user experience and platform participation. Consumer gamification behavior and decision-making process research have recently become an important research topic. Despite growing scientific interest in explaining how gamification promotes behavior and motivation, there is still a lack of a comprehensive review of the systematic literature on the gamification decision-making model, which is fragmented. This systematic review identifies, analyzes, and categorizes studies published between 2013 and 2022. The most critical research contributions are discussed, based on 51 journal articles, reports, and marketing books, highlighting the main trends over the years as well as applied research methods. Finally, future research directions are identified.

Title:

Industry 4.0 for Pharmaceutical Industry: An Exploratory Review

Author:

- Amalia Mukhlas
- Shahrinaz Ismail
- Bazilah A. Talip
- Jawahir Mustapha, Yusuf

Abstract:

The pharmaceutical industry facing challenges despite digital transformation applies for the benefit of the industry. The companies and the industrial process need to be ready and adapt to the rapid changes or else be left behind by the competitors. The study provides a preliminary understanding of IR 4.0 within the pharmaceutical industry domain. The findings highlight the technology of IR 4.0 that is being discussed in the industry and the areas where the technology has suitably been applied. The research recommends in-depth the IR 4.0 technology practices specifically in the operation and process, the elements of technology in the areas, challenges and affected of technology implementation and the relatable concept and theories facilitating the future study.

Title:

Three-Level Password Approach in Granting User Access to Shared Folders

Author:

- Syarifah Bahiyah Rahayu
- Iqbal Shamsudheen
- Mohd Sidek Fadhil Mohd Yunus

Abstract:

An established file sharing infrastructure can be a huge convenience for organizations to allow members of all levels within an organization to collaborate and share data. While allowing multiple access to files and folders, the privacy and secrecy of files that reside in the shared space become something of a tradeoff among users. It has now become a major challenge to set folder exclusive access to certain users when shared media is accessible to all. Thus, this study proposed a method to lock a specific shared folder that can only be accessed by utilizing a three-level password approach. The proposed method required users to provide textual password at the first level, then employing a color combination picker at the second level and finally utilizing a picture password in third level. The knowledge of the passwords for each level can only be known by exclusive users in order to acquire access to the protected folder. This enhanced method will ensure the access right would only be granted to users with exclusive rights. Consequently, hard to guess password challenge has the added benefit of hindering illicit folder access attempt.

Title:

Identity Verification and Document Traceability in Digital Identity Systems using Non-Transferable Non-Fungible Tokens

Author:

- Munaisyah Abdullah
- Bazilah A. Talip

Abstract:

Currently, Identity and document verification uses either physical paper and file documentation or centralized digital databases. A central figure is responsible for verifying these documents and this is thought to prevent document tampering. However, this does not eliminate threats of external hacking or internal bad actors and individuals to commit acts of forgery. in addition, Bureaucracy and delays often occur with central entities validating documents that causes wasted time for users waiting. Blockchain technology has brought a positive impact to document traceability and transparency across institutions and industries. This research will analyse and use non-transferable non-fungible tokens (NFTs) with smart contract functions which is a new concept for projecting digital and physical goods on a blockchain, it's expected to represent complicated operations in an effective manner for document traceability systems, enabling a decentralized approach while preventing fraud, corruption, tampering, and counterfeiting.

Title:

Covid 19 Epidemic Spread Measures: Malaysian Authorities Experience from Technical and Nontechnical perspectives

Author:

- Abdulaziz Saleh, Aborujilah

Abstract:

The COVID-19 outbreak has resulted in a significant loss of human life around the world, and it poses an extraordinary threat to public health. Almost every government in the world is fighting to stop the disease from spreading. Governments have used harsh measures such as quarantines, lockdowns, social isolation, and movement restrictions. Malaysia reached 22nd places in Global COVID-19 recovery Index globally. However, the studied that present Malaysia technical and nontechnical experiences in countering COVID 19 still very minimum. This study reviews the Malaysia experience in courting Covid 19 epidemic Spread, A total of 92 articles related to the topic have been reviewed. Malaysian authorities have executed travel restriction, movement control, contact tracing, utilization of official, website and social media, regular press releases, manual contact-tracing, covid-19 digital contact tracing apps and education and information to counter Covid 19 epidemic spread, the importance of each measure has been highlighted and explained in detail. The digital contact tracing apps application technology indeed helped Malaysian to slow down the outbreak. This support policy makers in suppression of the pandemic and help in prevention of any possible wave of the coronavirus outbreak.

Presentation Session 8

Track: Information Technology & Computer Systems

Microsoft Teams link https://bit.ly/3MV0q86

Session Chair: Ts Dr Rajeswari Raju
Co Chair: Dr. Shafiza Mohd Shariff

Title:

Comparing Reusability Metrics Of Core Assets Identification In Model-based Testing For Software Product Line

Author:

- Nur Syairah Anuar
- Rabatul Aduni Sulaiman
- Abd Samad Hasan Basari

Abstract:

In Model-based testing (MBT) for Software Product Lines (SPLs), many metrics have been proposed to measure reusable core asset that represented as feature model (FM). This paper describes our experience in using four types of metrics, which are Functional Commonality (FC), Non-Functional Commonality (NFC), Variability Richness (VR) and Modularity (MD) by using two bench marks which is smart farming and mobile phone. Based on experimental result, it shown that two metrics which are functional commonality and non-functional commonality can maximize coverage compared to modularity and variability richness.

Title:

Behavioural Characteristics and Cyberbullying Profiles Among Malaysian Youngsters

Author:

- Rina Md Anwar
- Fiza Abdul Rahim
- Marina Md. Din
- Asmidar Abu Bakar
- Aliza Abdul Latif

Abstract:

Cyberbullying is a variation of bullying that involves the use of technology to abuse others. This study examined the relationship between behavioural characteristics and cyberbullying profiles among youngsters. A total of 221 youngsters aged between 15-30 in Malaysia were surveyed, and their raw scores ran through statistical analysis. Findings show that the majority of the participants have never engaged in cyberbullying, but a few of them had experienced cyberbullying. Findings from the survey revealed that the percentages of female participants as cybervictims are higher (63.7%) than male participants (36.3%), while the percentages of male participants as bullies are higher (52.9%) than female participants (47.1%). The most prominent behaviour of cyberbullies is sending mean messages directly to cybervictims and the most prominent behaviour of cybervictims is being excluded from online groups.

Title:

Design of Mobile Application For SME Business Sustainability During Post Covid-19

Author:

- Ahmad Anwar Zainuddin
- Rohilah Sahak
- Mohamed Ibrahim
- Asmarani Ahmad Puzi
- Siti Husna Abdul Rahman
- Ahmad Fairuzabadi Mohd Mansor
- Muhammad Farhan Affendi Mohamad Yunos
- Krishnan Subramaniam
- Satya Devu Svpk

Abstract:

Mobile and portable technologies are a vital aspect of 21st-century life, helping people manage work and personal obligations. This technology will help people, especially those who run SMEs, manage their enterprises using smartphones and other portable devices from anywhere and at any time. Many Malaysian SMEs don't have mobile apps. Economic development has halted during the Covid-19 epidemic. It has harmed all types of enterprises. Several large retailers are closed. Poor footfalls also hurt SMEs. Without a mobile app, they've lost all business. The delivery sectors were still working, so they could make money with their smartphone app. This study aims to educate SME business owners about mobile apps. According to this study, Silverseeds' basic mobile app was designed using Figma. This app's UI/UX was built with Figma. Figma simplifies design and prototyping. In user interface and user experience design, it's a tool used to build websites, apps, and other user interface components that may be included in larger projects to improve user experience. It was imported into Bravo Studio, where the login setting was enabled by connecting Bravo Studio to Firebase.

Title:

Systematic Literature Review for Telehealth System in Monitoring Health Failure for Midlife Individuals

Author:

- Zuberi Mfaki
- Shahrinaz Ismail

Abstract:

Heart failure is one of the leading causes of mortality in both developing and developed nations, with strokes and other brain illnesses coming in second and third. In terms of patient numbers, hospitalization rates, and expenses, it is one of the most pressing healthcare concerns. This study investigates the research trend for e-health applications and systems in the field of telemonitoring of heart failure since 2010, by conducting systematic literature review (SLR) on publications made available in several scientific databases, such as ACM Digital Library, IEEE Xplore, Science Direct, Google Scholar, and PubMed. The articles that portray most interest concerning evaluation of success and failure, treatment, prevention, self-empowerment, and patient satisfaction, were picked. Since 2010, almost 100 publications on telemonitoring of heart failure have been discovered, with the most relevant ones being chosen based on scientific value. Many of them demonstrate that telemonitoring of patients at high risk of heart failure is an effective way to lower the chance of developing the heart failure condition. Following the review, it can be concluded that telemonitoring systems can assist in lowering the expenses of treating heart failure, resulting in fewer re-hospitalization of patients. In addition to that, rural and distant residents are typically happy with telehealth as a way of service delivery since it may enhance access to health care while avoiding the difficulty of travel.

Title:

Information Quality, System Quality and Security in Mobile Marketplace Application - From the Perspectives of Malaysian Textile Cyber-Entrepreneurs

Author:

- Wan Safra Diyana Wan Abdul Ghani
- Nur Azimah Idris

Abstract:

In recent years, mobile retailing or mobile shopping has been booming and become a norm. The progress in smartphone usage and digital business technologies has sparked the rapid development of the e-commerce industry. Entrepreneurs are seizing the chances to expand their business by selling their products online including in the marketplace applications. To have a better understanding on the current mobile app, the factors influencing e-commerce were studied namely information quality, system quality, and perceived security. This research focused on the perceptions of Malaysian textile cyber-entrepreneurs where 348 questionnaires were analyzed using SPSS. Findings show that the cyber-entrepreneurs are leaning towards using the app because the completeness of information provided there. Next, the functionality and stability in the marketplace app assured them to utilize the app. Meanwhile for perceive security, most of them have confidence in the app's current level of security. In addition there is only a slight correlation between the three elements studied.

Presentation Session 9

Track: Information Technology & Computer Systems

Microsoft Teams link https://bit.ly/3CQmk7L

Session Chair: Ts. Dr. Farahwahida Mohd @ Abu Bakar
Co Chair: Dr. Nur Hazwani Dzulkefly

Title:

Timber Harvesting Decision-Making for Sustainable Forest Management: Elimination Process of Potential Tree To Be Harvested On Promoting Forest Regrowth and Minimize Damages

Author:

- Hana Munira Muhd Mukhtar
- Yasmin Yahya
- Azizah Rahmat
- Roslan Ismail

Abstract:

Sustainable Forest Management (SFM) is important to maintain the world's ecosystem. Forest conservation and natural regeneration are crucial as mitigation actions to preserve the species composition structure, and biodiversity of the forest. At present, there are studies indicate that the current logging practice is not sustainable. Hence, a revision and adoption of appropriate harvesting methods are critical to ensure forest regrowth. The adequate growth of residual forest stands and minimizing damages require high consideration towards improving forest management decisions on the timber harvesting process. Various options need to consider in selecting the potential tree to be harvested that complies with Sustainable Forest Management (SFM). The main objective of this study is to propose 4 cases of elimination process to determine the potential trees to be harvested by considering the forest re-growth and residual trees' minimum damage besides high production volume and production value. The methodology chosen is the waterfall model. Meanwhile, the finding of this research; the result provides a significant impact on promoting forest regrowth and minimizes damages.

Title:

Benefits and Limitations of Neuromarketing Techniques in Enhancing Marketing Strategies

Author:

- Mohd Fahmi Mohamad Amran
- Nurhafizah Moziyana Mohd Yusop
- Yuhanim Hani Yahaya
- Siti Rohaidah Ahmad
- Mat Razali Noor Afiza
- Nurul Natasha Awinda Mohammad Nizam

Abstract:

Neuromarketing study is a combination between neuroscience and marketing studies. it is done to get better understanding on consumer behaviors while making purchases. Since the advent of Covid-19 or also known as Coronavirus, eCommerce platforms are widely used by the consumers to purchase goods and services. Various techniques can be used to obtained the brain signals to observe consumers' emotions. There are two types of neuromarketing approaches which are neuroimaging and non-neuroimaging techniques. The neuroimaging techniques are frequently used by the researchers to study neuromarketing as the results obtained are based on the consumers' brainwaves and is not biased to any goods or services such the results from surveys, interviews, or other traditional marketing strategies. So, this describes review on previous research which use the neuroimaging techniques to study neuromarketing, especially using electroencephalogram (EEG).

Title:

Factor Effecting Cloud-VLE Implementation in HEIs

Author:

- Rahimah Kassim
- Adnan Bakri
- Fauziah Abdul Rahman

Abstract:

The use of cloud computing is becoming more common in network technology to assure the availability of resources and the sharing of those resources via virtualization. Despite its attraction and advantages, Higher Education Institutions (HEIs) are still reluctant to use cloud computing services owing to a lack of knowledge about difficulties and priorities in cloud technology implementation. As a result, the purpose of this research is to generate new ideas about the benefits and challenges of cloud computing implementation in HEIs, evaluate the related factors, investigate new possible factors potentially involved and propose the Cloud Computing based Virtual Learning Environment (Cloud-VLE) implementation model, and encourage the research community to explore more research in cloud computing implementation. By synthesizing literature from diverse sectors, this research provides a conceptual model-based cloud computing implementation for HEIs and incorporates it into the Technological, Organizational, and Environmental (TOE) framework. The study technique includes thorough data gathering and analysis, which allows for more meaningful findings to be formed in order to enable effective Cloud-VLE operation. The Delphi approach was employed in the data collecting and judgement procedure. To assist in the decision-making process, a two-round Delphi survey was conducted with 18 (1st round) and 13 (2nd round) cloud computing technology and VLE experts from local HEIs and service vendors. After the second round of the Delphi survey, this study indicated a consensus with recommendations on the high importance of several factors in implementing Cloud-VLE in HEIs.

Title:

Low-cost Modular Smart Home Controlling System for Minimising Energy Consumption - A Conceptual Study

Author:

- Zaid Mujaiyid Putra Ahmad Baidowi
- Muhammad Danial Hakim Nazrin
- Izuan Gerard
- Ruwaida Ramly

Abstract:

Internet of Things (IoT) has become one of the popular topics in Information and Communication Technology (ICT) recently. IoT has been widely used in many fields, and one of the most topics that had gained significant interest of many researchers is minimising energy consumption. IoT that is implemented in wireless network, connects multiple devices via internet. It allows data to be gathered and transferred without human intervention. In this paper, a new solution is to propose an automatic control of several electrical appliances such as air-conditioners, lights and fans. These three electrical appliances contribute to the highest energy consumption. The aim of this paper is to contribute to the solution of minimising power consumption by deploying a low-cost modular system to be installed into readily houses. Thus, it can adapt any old infrastructure to an efficient home. Minimising power consumption has been studied in smart home but less work deployed Arduino Nano 33 IoT as compared to the existing available Arduino system. Finally, this work is hoped lead to related studies in minimising power consumption.

Title:

A Room Light Controlling System Based on Curtain and Occupants' Motion - A Conceptual Study

Author:

- Zaid Mujaiyid Putra Ahmad Baidowi
- Adli Zahin Muhammad Ruslee
- Norzaidah Md Noh

Abstract:

Internet of Things (IoT), that allows multiple devices to be connected via Internet, has been widely used in various fields including residential. It is very popular nowadays as it could automate home and electrical appliances without human intervention. This leads to existence of smart home. By automating devices at home, electricity consumption can be saved and used at optimum level. Hence, the aim of this paper is to contribute to the solution of saving energy consumption by deploying a low-cost modular system, that controls lights based on input parameters such as room's brightness, occupants' presence and motion. The proposed design uses three main sensors such as load cell sensors, motion sensors, and photoresistors. The load sensors are used to detect the occupant weight on the bed, the motion sensors are to detect the presence of an occupant, and the photoresistors are used to detect the room's brightness. Besides, the proposed design is recommended to be integrated with any suitable intelligent system, such as back propagation neural network, to learn occupants' sleeping pattern. Finally, this work is hoped lead to light related studies for energy saving.

Presentation Session 10:

Data Science & Data Mining

Microsoft Teams link https://bit.ly/3Slac4u

Session Chair: Dr Adila Krisnadhi
Co Chair: Ts. Dr. Juliana Jaafar

Title:

Investigating Electrodermography (EDG) and Heart Rate (HR) Signals for Emotion Classification in Virtual Reality

Author:

- Aaron Frederick Bulagang
- James Mountstephens
- Jason Teo

Abstract:

Background: This paper shows the findings and results of combining Heart Rate and Electrodemography signals with KNN classifier for the experiment of multi-model emotions using Virtual Reality (VR). Method: The study was conducted by using a VR headset to show the participants 360 videos to elicit their emotional responses to the video. Their emotional response was captured by using a wearable that records both heart rate and skin activity in real-time. A total of 5 participants took part in the experiment where the results are classified for intra-subject classification using KNN classifier. Findings: In the study, for classification of intra-subject, the peak accuracy achieved amongst the five participants is 97.7% with HR and EDG signals combined with KNN as the classifier. Conclusion: These results demonstrate that by fusing HR and EDG signals, high accuracy results can be generated through the use of KNN as the classifier. The application and potential of this study can be useful in entertainment, VR rehabilitation, and gaming.

Title:

Improved Classification using Extended Hybrid Feature Selection Approach with Dimensionality Reduction

Author:

- Zi Xuan Tan
- Tong Ming Lim
- Boon Hui Kee

Abstract:

Heart Disease has become the major cause of death around the world. The World Health Organization has recorded around 17.million deaths caused by cardiovascular heart disease (CVD). This is popular among the low and middle-income population, where resources and benefits of healthcare programs are lacking and people are not able to pay for the expensive procedures. Hence, having an efficient and effective solution in detecting heart disease occurrence is crucial. In this research, a novel approach of hybrid feature selection with injection of feature dimensionality was studied. Where the proposed method combines the strength of different feature selection techniques and enhanced by dimensionality reduction techniques. This research has used various sources of heart disease dataset from Cleveland, and Z-Alizadash to study the potential of generalization of the proposed method. The performance of the feature subsets will be evaluated using various machine learning models. The model performance will be compared and studied using accuracy.

Title:

Malaysian Banknotes Counterfeit Detection Algorithm for Fifty Ringgit and One-hundred Ringgit

Author:

- Turki Action
- Wai Kit Wong
- Thu Soe Min
- Eng Kiong Wong

Abstract:

With the advent of high-definition color printing technology, the counterfeiting of Ringgit has become a formidable obstacle. Therefore, image processing techniques based on watermarks are vital for detecting counterfeit Ringgit. The fifty Ringgit and one hundred Ringgit counterfeit detection algorithms proposed in this work use fuzzy logic and Ultraviolet image processing techniques. The algorithm will first determine the inserted banknote's currency values, perform banknote position detection and re-adjustment, locate Ultraviolet watermarks (Rectangle Text "BNM50" or "BNM100", Logo "Stag Motif", and Security Fibers) and then employ fuzzy IF-THEN conditional statements to infer and decide whether the slotted in banknote is a real fifty Ringgit, a real one hundred Ringgit, or neither.

Title:

Modelling of Surface Ozone via Neural Network and Statistical Approaches

Author:

- Firdaus Mohamad Hamzah
- Ahmad Nazri Tajul Ariffin
- Siti Hasliza Ahmad Rusmili

Abstract:

Surface ozone is one of the air pollutants that contribute to the air pollution. Its sources could be from anthropogenic activities and natural disasters during the past few decades. The purpose of this study is to determine the most appropriate model for forecasting the surface ozone at Shah Alam Selangor. Several analytical model such as Time Series Regression (TSR), Multiple Linear Regression (MLR) and Artificial Neural Network (ANN) are fitted to the ozone concentration. Model comparison is carried out via performance indicators (RMSE, MSE, R square). The results show that ANN provides a minimum RMSE of 0.0042 ppm and MSE of 0.000018 ppm with higher R square of 0.6 as compared to TSR and MLR. Hence, ANN offers a great accuracy in forecasting surface ozone concentrations as compared to several statistical models.

Title:

Trend Detection and Modelling The Changes of Ground Level Ozone

Author:

- Siti Hasliza Ahmad Rusmili
- Firdaus Mohamad Hamzah
- Khairul Nizam Maulud
- Mohd Talib Latif

Abstract:

Air pollution is one of the world's most pressing environmental challenges, mainly when industrial and urban regions develop rapidly. One of the air pollutants that concern humans and the environment is the increase in ozone concentration. This study aims to identify the trend between ground-level ozone with parameters of meteorological factors and to evaluate the best-fitted model in urban areas, Cheras, Kuala Lumpur, from 2004 to 2020. Boxplot and Mann Kendall Test are used to define the availability of trends at each parameter, while the generalized additive model (GAM) is used as the analytical model. Based on the result, there is a trend for ozone and temperature. In GAM, temperature shows significant ($p < 2e-16$) to ozone concentrations, and using the performance indicator (AIC, BIC, R square), the first model is chosen, including temperature and humidity, because of the better performance. The findings show that meteorological factors control the changes of ozone concentration in urban areas.

Title:

Influencers Selection Model Using Association Rules

Author:

- Munaisyah Abdullah
- Mohammad Faizuddin Md Noor
- Hilda Alnayef Action

Abstract:

Since social media users are on the rise, influential users play a crucial role in online social networks. As a result, social media influencers can be an effective marketing tool for brands. This study proposes a model for evaluating the associations between social media influencers based on association rules. In this paper, we propose an association rules model to detect relationships between influential users. The results demonstrate that association rule learning can identify the most influential users.

Presentation Session 11:

Data Science & Data Mining

Microsoft Teams link https://bit.ly/3SIHCQn

Session Chair: Mr. Irfan Pratama
Co Chair: Assoc. Prof. Dr. Munaisyah Abdullah

Title:

Classifying Body Type based on Eating Habits and Physical Condition using Decision Tree Induction Technique

Author:

- Ummu Fatihah Binti Mohd Bahrin
- Hamidah Jantan

Abstract:

Nowadays, due to busy schedules, many people are unaware about what they are eating and their physical condition. This scenario will lead to various health issues such as obesity, diabetes, blood pressure etc. Hence, it has become very essential for people to have a good balanced nutritional healthy diet to deal with those issues. Therefore, it is important to determine what factors may be conducive to healthy eating behaviors among people with different Body Mass Index (BMI). A predictive analysis approach in Data Mining can be used to identify the food consumption pattern in people's eating habits and how it is related to their body type. This study aims to classify body types based on eating habits and physical conditions using a decision tree induction algorithm. Several phases have been conducted in this study such as data understanding, data preparation, modeling, and evaluation. In the experimental phase, the datasets that are known as full dataset and reduced dataset have been used to identify which dataset will produce high accuracy. As a result, it is shown that a full dataset produces higher accuracy compared to a reduced dataset. Perhaps there is room for improvement for attribute selection in a reduced dataset by applying other attribute selection methods to generate better accuracy. This study brings a high significance for effectiveness and efficiency in eating habits and physical condition analysis based on body type, and it can also be explored for other classification methods for future work enhancement.

Title:

A Review of Artificial Neural Network Applications in Variants of Optimization Algorithms

Author:

- Farizawani Ab Ghani

Abstract:

The artificial neural network (ANN) is typically one of the most famous artificial intelligent (AI) field which inspired based on biological human brain model. The model of real human brain known as neurons have been transformed into a mathematical formulation, works as an artificial neuron that connected one to another in very systematical manners. Connected neurons imply an optimization notion as a major practice for training the neurons. Two main optimization problems; constraint and unconstraint have both viewed as a decision problem techniques use to find the best vector of decision variables over all possible vectors in certain optimization problems. The maximization of objectives function can be considered as main factor to determine convergence of trained neurons. Most popular of optimization algorithm such as Gradient, Newton's, Conjugate or Quasi-Newton have shown different results depend on efficiency, accuracy, convergence time and overall performance based on the problem to be solved. The feedforward or backpropagation neural network models mostly apply the optimization algorithm as mentioned. Therefore, the goal of this paper is to review and study the difference types of optimization techniques used in neural network applications. Besides, the purpose of this review is also to give an overview of how optimization algorithms and its modified models have been applied and implemented in neural network architecture. Besides, this paper is intended to study in what manner optimization can change the execution of performance result and training analysis.

Title:

Personalised Geriatric Health Monitoring: The Need for Process Mining Approach

Author:

- Shahrinaz Ismail

Abstract:

It is common for an elder person to live alone in today's environment, away from family care, especially during the movement control order due to the COVID-19 pandemic since 2020. This has brought to the concern of this study to justify the need for personalized geriatric health monitoring that adopts the process mining approach. Constant monitoring is deemed required in order to reduce the risk of sudden illness among the elders, as well as to reduce the need to be treated at the hospital when the capacity could be limited during critical time. As part of the findings, this paper presents the process flow of data capture on one of the four vital signs, showing the significance of time, frequency and duration in reading the data for further analysis to understand the pattern in health monitoring. The importance of process mining approach is amplified in terms of the context of time in health monitoring, and the context of personalization due to the veracity across ageing population. This paper proposes the concept of health monitoring process model, which is produced by collectively analyzing the process models of the vital signs.

Title:

Estimation of Aircraft Engine Emission of Peninsular Malaysia Airspace's from ADS-B Data Using Data Mining Approach

Author:

- Masnawi Mustaffa
- Nazli Ahmad Aini
- Shaharudin Ahmad
- Rosmadi Ghazali
- Nur Farahiyah Mohd Roslan

Abstract:

This study gathered raw data of the Automatic Dependent Surveillance Broadcast (ADS-B) system from the antenna, receiver, and decoder used in our laboratory. A Web-based application was then developed to analyze the data and all data was stored in our database server. Using a data mining approach, the information was then used to estimate total emissions from the aircraft for 2019 in Peninsular Malaysia airspace. Analysis also includes estimation of emission types released. Several parameters are taken based on the aircraft emission such as aircraft type, number of engine, fuel flow and also type of emission. The average total number of aircraft for every month recorded and average emissions per month was estimated and the range of the aircraft emissions that have been emitted to the atmosphere of Peninsular Malaysia are also identified. This emission is analyzed based on the most dangerous gasses emitted from aircraft engines which are hydrocarbon (HC), carbon monoxide (CO) and nitrogen oxides (NOx).

Title:

Movie recommendation system using Machine Learning

Author:

- Tania Mehra
- Sudhanshu Sharma

Abstract:

In this paper we will discuss about the movie recommendation system using machine learning, as we know that in today's time of entertainment play a major role in our daily stressful life. People like to watch movie of their favorite artist but there are some people who watch movies of particular genre. So we have made a recommending engine which will suggest movies to the user as well as it will recommend some user who likes to watch that respective genre movie. So that they can connect each other movie via messages without any third party involvement. They can directly message each other without sending request. This will help users to connect with other users who have same interests. This system will remove excess information from the database and show only what user wants to watch movies.

Presentation Session 12:

Data Science & Data Mining

Microsoft Teams link https://bit.ly/3VI4a0J

Session Chair: Miss Putri Taqwa Prasetyaningrum
Co Chair: Dr. Husna Osman

Title:

Air-Written Word Recognition by Letter Extraction Using Mask Region-based Convolutional Neural Network

Author:

- John Randolf L. Batain
- John Adrian P. Desamero
- Aristotle Q. Evasco
- Mark Lauren M. Giatao
- James Aaron D. Padillo
- Roselito E. Tolentino

Abstract:

The study aimed to apply the use of Microsoft Kinect for Xbox One with Mask Region-based Convolutional Neural Network to recognize air-written words. Letter extraction in the word image was implemented in the system to recognize any air-written word made by the user.

Microsoft Kinect for Xbox One was used as the main camera for obtaining the image of the air-written word. The background of the image was removed to capture only the hand of the user. As the user performs air-writing, the movement of the fingertip was recorded and traced to visualize the air-writing of the user. The created images were acquired which were used for both the training and validation process. The proponents applied the concept of Mask Region-based Convolutional Neural Network that can detect multiple objects and objects of different scales in an image to detect individual letters in the air-written word. The values of the x-coordinates of the recognized letters in the image were acquired and sorted from lowest to highest (from left to right) to represent the word. The extracted letters within the air-written word are displayed as a whole word through its interface.

Title:

Urine Crystal Classification Using Convolutional Neural Networks

Author:

- Ariel B Germano
- Jewel A Angeles
- Jessica A Macalindong
- Kathlene P. Aglibot
- Jomar F. Gecana
- Roselito E. Tolentino

Abstract:

This study focuses on classifying different types of urine crystals using Convolutional Neural Networks (CNN). 1100 data samples are collected from medical books and hospitals and divided as training and testing datasets in a 70:30 percentage ratio. To yield an optimized reliability rate in classifying the types of urine crystals, CNN, a deep learning algorithm is used. First, the images underwent preprocessing stage to eliminate noise, to smooth, and to convert it as a binary image. In the segmentation process of the system, some images that contains overlapping urine crystals, indefinite in shape and colorless crystals become major factors and caused these images not to be optimally segmented. Layers of CNN are trained in a way that it can detect patterns from simple to further complex patterns. A convolution examines the entire image in search of information required for greater prediction accuracy. The system's overall reliability is to be equal in 87.88%. The error rate for classification was often caused by the overlapping of urine crystals in the test image and differences of some urine crystals in terms of its shape and appearance.

Title:

Soil Nutrient Deficiency Detection of Lime Trees using Signal-based Deep Learning

Author:

- Raja Fazliza Raja Suleiman
- Muhamad Kamalkhairie Riduwan
- Aina Nabilah Mohamed Kamal
- Nur Asyikin Wahab

Abstract:

This research work is initiated to create another alternative for the small farmers to identify crop nutrient deficiency by using a modern technology that is more efficient and more precise than the conventional method of using eyes and hands. Most of the current plant health classification techniques focuses on image-based learning methods. The presented work employs signal-based techniques to identify plant nutrient deficiencies. The classification process uses datasets retrieved via Xiaomi plant sensor that measures soil moisture and fertility, surrounding light, and ambient temperature of three lime trees. Each plant has different condition that represents healthy plant, and sick plants (one is less fertilizer, another is less water). The objective of this project is to detect plant nutrient deficiency using signal-based deep learning methods. A comparison of based deep learning methods between RNN (Recurrent Neural Network) and MLP (Multilayer Perceptron) is performed using Python. Based on the findings of this experiment, MLP performs better with maximum accuracy of 98.6% using softmax activation function while RNN maximum accuracy is 95.4% using sigmoid activation function.

Title:

Sentiment Analysis On Covid-19 Outbreak Awareness Using Naïve Bayes Algorithm

Author:

- Norlina Mohd Sabri
- Norulhidayah Isa
- Ummu Fatihah Binti Mohd Bahrin

Abstract:

Sentiment analysis has gained much attention nowadays among the researchers especially during the Covid-19 pandemic. Due to the increasing volume of data coming from the social media platforms, researchers have been using sentiment analysis to analyse topics regarding commercial products, daily issues among the society and also to detect important events from the community. Since the social media users are consisting of the community, content that are shared could also be used to detect possible situational hazard such as the outbreak of Covid-19 in advanced. The result from the sentiment analysis could be beneficial to government organizations in order to contain the outbreaks and public health crisis related to Covid-19. The objective of this research is to explore Naive Bayes algorithm for the sentiment analysis on the Covid-19 outbreak awareness based on Twitter data. In this research, the data were collected during the Malaysia's second lock down, which was between the months of April to June 2021 using the Twitter API Tweepy. After the pre-processing and feature extraction stages, the data have been divided into the training and testing dataset for the Naive Bayes sentiment classification. The result has shown that Naive Bayes has been able to generate high performance with more than 90% accuracy for this classification problem. Future work would include the improvement of data preprocessing, more balance of dataset, enhancement of the algorithm and also comparing the performance with other well-known classification algorithms.

Title:

A Malay Language Cyberbullying Detection Model on Twitter using Supervised Machine Learning

Author:

- Nurina Farhanah Johari
- Juliana Jaafar

Abstract:

This research detects cyberbullying for the Malay language using supervised machine learning (ML) and Natural Language Processing (NLP). Due to the high number of cyberbullying cases in Malaysia over the years and the belief that there is an increased number of unreported cyberbullying cases, there needs an intelligent way to detect cyberbullying on social media. Thus, this research explores how supervised ML and NLP can help detect cyberbullying incidents for the Malay language on social media. The dataset was collected from Twitter by scrapping tweets based on some common Malay words used in cyberbullying incidents before being labelled into six cyberbullying classes: appearance, intellectual, political, racial, sexual, and non-abusive. The resulting cyberbullying dataset is an imbalanced dataset with 45,580 tweets. The model is then built using Logistic Regression (LR), Naïve Bayes (NB), Support Vector Machine (SVM) and Random Forest (RF) algorithms combined with three different feature extraction techniques, that is Bag of Words (BoW), Term Frequency-Inverse Document Frequency (TF-IDF) and Word2Vec. The result indicates that the best model uses LR combined with the TF-IDF feature extraction technique. The model was improved further by using an oversampling technique (Synthetic Minority Oversampling Technique, SMOTE) to deal with the imbalanced dataset and tuning the model hyperparameters. The F-Score of the optimised TF-IDF - LR is 0.46.

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