

ICIST 2016

**THE INTERNATIONAL
CONFERENCE ON
INFORMATION SYSTEMS
& TECHNOLOGY**

Programme and Abstract

**28-30 Nov 2016
KOTA KINABALU, SABAH**



UMS
UNIVERSITI MALAYSIA SABAH



**Faculty of
Computing
& Informatics**



KEMENTERIAN SAINS, TEKNOLOGI DAN INOVASI
MINISTRY OF SCIENCE, TECHNOLOGY AND INNOVATION

Center Of Excellence
In Semantic Agents

PROGRAMME & ABSTRACT BOOK

The International Conference on Information Systems and Technology (ICIST 2016)

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Conference Overview



The International Conference on Information Systems and Technology (ICIST 2016) will take place in Kota Kinabalu, Sabah, Malaysia from the 28th until 30th November 2016. The purpose of the conference is to bring together researchers, academicians, and practitioners who are interested in the advances and applications of information systems and technology. It aims to address the issues related to design, development and use of information systems in organisations from a socio-technological perspective, as well as to discuss information systems practices, researches and teaching.

The ICIST conference covers all topics related to information system and technology such as business intelligence and management, business strategy and IT, computer simulation, cloud computing, e-commerce, e-government, e-learning in IS, geographical IS, human computer interaction, IS in healthcare, IS in education, as named a few.

Message from the Conference Chair



On behalf of Universiti Malaysia Sabah, I would like to extend a warm welcome to all our honorable guests, keynote speakers, and participants of the first International Conference on Information Systems and Technology (ICIST 2016).

This conference aims to provide a platform for knowledge sharing on latest information systems and technology research which also addressing challenges, problems and issues in the related area.

We have invited four distinguished keynote speakers for sharing their research knowledge in various computer science, information systems and technology research fields: Professor Jooyoung Lee from Korea Institute for Advanced Study, Korea, Professor Hiroyuki Iida from Japan Advanced Institute of Science and Technology (JAIST), Japan, Professor Ali Selamat from Universiti Teknologi Malaysia (UTM), Malaysia, and Professor Yong-Jin Park from Universiti Malaysia Sabah (UMS), Malaysia.

ICIST 2016 has accepted a total of 22 papers out of 52 submissions, an acceptance rate of 42.3%. I gratefully acknowledge the wonderful support provided by all of the technical reviewers who generously sacrifice their time and spirit for reviewing the papers.

My utmost thanks and sincere gratitude goes out to the Dean and Colleagues from Faculty of Computing and Informatics, as well as Center of Research and Innovation, Universiti Malaysia Sabah. Thank you for your generous contribution and supports.

I also greatly appreciate the dedicated support of our ICIST, ICCST, and ICCSE committee members, workshop speaker, and postgraduate committee members who have worked tirelessly to ensure the successful of conference.

I sincerely hope that ICIST 2016 has provided a venue for knowledge sharing, publication of research findings and new industry-university collaborations. Last but not least, I wish everyone an enjoyable and memorable experience at ICIST in Malaysia.

Thank you.

Dr. Chin Kim On

Conference Chair

Keynote Speakers

KEYNOTE SPEECH 1



Professor Jooyoung Lee

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Korea Institute for Advanced Study, Korea.

Jooyoung Lee is a theoretical physicist currently working on the protein folding problem. Throughout his career, he has developed new methodologies to provide breakthroughs for outstanding problems. The research area of Lee's earlier career was mainly focused on critical phenomena and phase transition in statistical physics. After switching to the protein folding study in 1994, he realized that a much more powerful sampling method than then-available ones was needed. For this he developed the conformational space annealing (CSA) method, with which he was able to obtain more optimal solutions than reported in the literature for many hard problems. Lately, using CSA, Lee is performing researches in the area of protein structure prediction, protein structure determination using incomplete experimental data computational materials design. In the CASP12 protein structure prediction experiment, Lee's method was officially recognized as the best template-based-modeling method. As of September 2016, his total citation excluding self-citation is 3,199, among which he was either the first author or the corresponding author for 2713 citations. His H-index is 29. The Complete list of Lee's published work in Google Scholar is available from: <http://scholar.google.com/citations?hl=en&user=UIQhP6kAAAAJ>

Title Global Optimization by Conformational Space Annealing and its Applications

ABSTRACT

Many problems in science and engineering can be mapped into combinatorial optimization problems, and examples include protein folding problem, protein structure prediction/determination problem, materials design problem, and community/module detection problem in the network science. In this talk, I will discuss our recent progresses in solving these problems in terms of the application of the Conformational Space Annealing (CSA) method.

KEYNOTE SPEECH 2



Professor Hiroyuki Iida

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Nomi, Ishikawa, Japan Advanced Institute of Science and Technology (JAIST), Japan.

Dr. Hiroyuki Iida has been an enthusiasm researcher in the domains such as computer games and entertainment computing, while acting as important roles of international activities such as conference chair, program chair and journal editor. He has also organized Mind Sports Computer Olympiad and Computer Games Conference as the secretary/treasurer of ICGA (International Computer Games Association) for each year since early 2000. He supervised many Master and PhD students until now, while acting as PhD committee member (external assessment) for PhD candidates in other universities such as Maastricht University and Tilburg University in the Netherlands. He also served as an external assessment for international research funding such as Canada and Holland.

Title Game Theory, Game Refinement Theory and Gamification

ABSTRACT

Game theory (Nash 1950) is used to study the game play. Games should be fun to play for all the players irrespective of the level of expertise. Game refinement theory (Iida 2004) studies the entertainment and intelligence part of games. Earlier works on game refinement theory resulted in the development of a logistic model of game uncertainty based on the principle of seesaw games (Iida 2013). Further studies resulted in a model based on the game information progress for various games. The second derivative, which is the acceleration in game information dynamics, was derived from the game information progress model to determine the game refinement value (Sutiono 2014). It is expected that the game refinement theory will be widely used as a tool to assess the quality of various types of games in the framework of gamification.

KEYNOTE SPEECH 3



Professor Ali Selamat

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Universiti Teknologi Malaysia (UTM), Malaysia.

Ali Selamat is a professor at Faculty of Computing, Universiti Teknologi Malaysia, Malaysia. He is currently a Chief Information Officer (CIO) and Director of Computer and Information Technology, Universiti Teknologi Malaysia (UTM). He was the Dean of Research, Knowledge Economy Research Alliance, UTM. He is currently a Chair of IEEE Computer Society Malaysia Chapter. He is also the Editorial Boards of Knowledge Based Systems Elsevier, International Journal of Information and Database Systems (IJIDS), Inderscience Publications, Vietnam Journal of Computer Science, Springer Publications, Advances in Distributed Computing Intelligence Journal (ADCAIJ), Salamanca University Press. He is the Program Chair of International Conference on Software Engineering Tools, Methodologies (SOMET), 2017 to be held in Kanazawa, Japan. He has been a visiting professor at Hradec-Kralove University, Czech Republic, Kuwait University, and few others universities in Japan. His research interests include cloud based software engineering, software agents, information retrievals, pattern recognitions, genetic algorithms, neural networks and soft-computing, knowledge management, key performance indicators.

**Title Detection of Vulnerable Plaque Using Virtual Histology Intravascular
 Ultrasound Images Using Machine Learning Approach**

ABSTRACT

Virtual Histology Intravascular Ultrasound (VH-IVUS) is a clinically available for visualizing color coded of coronary artery plaque. However, it has the limitation to provide medical relevant information to identify vulnerable plaque. In this research, a hybrid k-means and PSO (KMPSO) algorithm is proposed for VH-IVUS segmentation. KMPSO algorithm first executes the K-means algorithm for seeding the initial swarm. PSO algorithm is then applied to optimize the seed points which are cluster centroids. The next process is integration of the plaque feature and texture feature in order to extract complex features. Plaque feature include necrotic core in contact with the lumen (NCCL), confluent necrotic core (CNC), confluent dense calcium (CDC), and plaque burden (PB). Moreover, three commonly used statistical methodologies of textural features are presented consist of Local Binary Patterns (LBP), Gray Level Co-occurrence Matrix (GLCM), and Modified Run Length (MRL). Finally, Back propagation (BP), KNN (K-Nearest Neighbor), and SVM classifier are applied to select the best classifier for classifying plaque into two classes include Thin cap fibroatheroma (TCFA) and Non-TCFA. The proposed method is applied to 546 in-vivo VH-IVUS images. Results proved the dominance of our proposed method with accuracy rates of 98.15% for TCFA.

KEYNOTE SPEECH 4



Professor Yong-Jin Park

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Universiti Malaysia Sabah (UMS), Malaysia.

Yong-Jin Park received B.E., M.E., and Ph.D. degrees in Electronic Engineering from Waseda University. From 1978 to 2010, he was a Professor at Hanyang University, Seoul. He was a Visiting Associate Professor from 1983 to 1984 in the Department of Computer Science, University of Illinois, Urbana-Champaign. He was a Research Fellow at the Computing Laboratory, University of Kent, Canterbury, England from 1990 to 1991. He was the President of the Open Systems Interconnection Association from 1991 to 1992, the Chairman of the IEEE Seoul Section from 1999 to 2000, and the Director of the Secretariat of the Asia Pacific Advanced Network (APAN) from 1999 to 2003. He was the President of the Korea Institute of Information Scientists and Engineers (KIISE) in 2003 and the Director of IEEE Region 10 from 2009 to 2010. He was also a Professor of Waseda University, Tokyo, during 2010-2016. He joined University Malaysia Sabah in 2016, where he is a Professor of Faculty of Computing and Informatics. Currently he is Professor Emeritus of Hanyang University.

Title Information-Centric Networking for Future Internet Architecture

ABSTRACT

Information Centric Networking (ICN) has been attracting attention as a promising future Internet architecture. The recent network usage is information-centric rather than host-centric. ICN accesses information by using its information object name, instead of a location address like the current IP network. In this talk the background and technological features of ICN are described. NDN (Named Data Networking) is described in detail as the typical ICN technology. The research activities at Waseda University are also introduced, including the GreenICN project which is EU-Japan Cooperation Research. Finally, the applications to IoT and 5G mobile communication and perspectives of ICN are mentioned.

Conference Programs

Day 1: Nov 28th (Monday)

08:00 - onwards	Registration
09:00 – 12:00	Workshop
12:00 – 13:00	Lunch Break
13:00 – 17:00	Workshop
17:45	Adjourn

Day 2: Nov 29th (Tuesday)

08:00 - onwards	Registration
08:30 – 09:00	Opening Ceremony
09:00 – 09:45	Keynote Speech 1 Title: Global Optimization by Conformational Space Annealing and its Application. Speaker: Prof. Dr. Jooyoung Lee
09:45 – 10:30	Keynote Speech 2 Title: Game Theory, Game Refinement Theory and Gamification. Speaker: Prof. Dr. Hiroyuki Iida
10:30 – 10:45	Coffee Break
10:45 – 12:25	Parallel Session 1 - ROOM 5 Session Chair (Patricia Anthony) 1. [10:45 – 11:05] Entrepreneurship for commercialization of University IT Research Outcomes (Paper 01) Ainnur Hafizah Anuar Mokhtar, Tamrin Amboala, Joan Richardson 2. [11:05 – 11:25] Adaptation of Enjoyment in Learning through Gamification (Paper 07) Nurtihah Mohamed Noor, Fakhrol Hazman Yusoff, Marina Ismail, Rahmah Lob Yussof 3. [11:25 – 11:45] An Examination of The effects of Task Technology Fit and Hospital Information System Satisfaction in Public Hospital Malaysia: A Structural Model (Paper 15) Lee Heng Wei, Ramayah Thurusamy 4. [11:45 – 12:05] Capturing Risks in Agile Methods (Paper 34) Edzreena Edza Odzaly, Des Greer, Darryl Stewart 5. [12:05 – 12:25] Analyzing 4BL Mechanisms in an Augmented Reality Environment (Paper 44) Jee Geak Ying, Manjit Singh Sidhu
12:25 – 14:00	Lunch

14:00 – 15:20	<p>Parallel Session 2 - ROOM 5 Session Chair (Jamaiah Yahaya)</p> <ol style="list-style-type: none"> 1. [14:00 – 14:20] Cloud Services Evaluation For NonFormal Learning Implementation (Paper 11) Mohd Norafizal Abd Aziz, Norazlina Khamis, Rafidah Md Noor 2. [14:20 – 14:40] Software Process for Dynamic Website Development: Practitioner’s Perspective (Paper 13) Jamaiah H. Yahaya, Aziz Deraman, Azhar Abdulridha Ibrahim 3. [14:40 – 15:00] Factors affecting Software Quality in SME’s practicing Agile Development (Paper 16) Murugan Thangiah, Shuib Basri 4. [15:00 – 15:20] Critical Review on M-Retail Cloud-Based Application for Textile Cyberpreneurship in Malaysia : Constraints, Challenges and Opportunities (Paper 26) Wan Safra Diyana Wan Abdul Ghani, Nik Zulkarnaen Khidzir, Tan Tse Guan, Mohammad Ismail
15:20 – 15:45	Coffee Break
15:45 – 17:45	<p>Parallel Sessions 3 - ROOM 5 Session Chair (Hui-Shan Lee)</p> <ol style="list-style-type: none"> 1. [15:45 – 16:05] High Readability of Font Type and Font Size Among Dyslexic Students (Paper 14) Rozita Ismail, Azizah Jaafar 2. [16:05 – 16:25] TrafficSys: Traffic Light Fault Notification Mobile Application (Paper 21) Afiqah Hazirah Elias, Khairul Shafee Kalid, Wan Fatimah Wan Ahmad, Saipunidzam Mahamad, Aliza Sarlan 3. [16:35 – 16:45] Video Adaptation Algorithm for Mobile Learning Environment (Paper 33) Mohd Faisal Ibrahim, Rosanita Adnan, Saadiah Yahya, Mohd Nasir Taib, Kamilia Kamardin 4. [16:45 – 17:05] Profitability Determinants of Information Technology Software Companies in Malaysia (Paper 36) Hui-Shan Lee, Wai-Mun Har, Sin-Yee Lee
17:45	Adjourn
19:00	Conference Dinner – Rose Garden, Magellan Sutera.

Day 3: Nov 30th (Wednesday)

08:00 - onwards	Registration
08:30 – 09:00	Opening Ceremony
09:00 – 09:45	Keynote Speech 3 Title: - Speaker: Prof. Dr. Ali Selamat
09:45 – 10:30	Keynote Speech 4 Title: Information-Centric Networking for Future Internet Architecture. Speaker: Prof. Dr. Yong-Jin Park
10:30 – 10:45	Coffee Break
10:45 – 12:25	Parallel Session 4 - ROOM 5 Session Chair (Terrence Daim) 1. [10:45 – 11:05] Preliminary Investigation of Radio Frequency Interference on Potential Satellite Ground Station Development Site (Paper 06) Terence Jerome Daim, Maszlan Ismail, Hamid Salim, Nurliza Salim, Abadi Azhar, Hafizah Mustapha, Ooi Sock Theng, Siti Farasahida Jamil, Karthigesu Thanarasi 2. [11:05 – 11:25] Agent Negotiation Patterns for multi agent negotiation system (Paper 12) Loh Chee Wyai, Cheah WaiShiang, Marlene Valerie AiSiok Lu 3. [11:25 – 11:45] Optimization of Travelling Salesman Problem with Precedence Constraint using Modified GA Encoding (Paper 17) M.F.F. Ab Rashid, M. Jusop, N.M.Z. Nik Mohamed, F.R.M. Romlay 4. [11:45 – 12:05] Integration of Malay Confinement Dietary and Phytochemicals Ontology Model (Paper 19) M. Hamiz, Haryani Haron, Azlin Sanusi, M. Bakri 5. [12:05 – 12:25] A Min-Max Operator Allocation Formulation, Computer Simulation and DEA Cross-Efficiency in Determining the Optimal Operator Allocation (Paper 42) Ruzanita Mat Rani, Wan Rosmanira Ismail, Mohd Nizam Ab Rahman
12:25 – 14:00	Lunch
14:00 – 15:20	Parallel Session 5 - ROOM 5 Session Chair (Chin Kim On) 1. [14:00 – 14:20] Development of Rule-based Procedural Content Generation for 2-Dimensional RPG (Paper 02) Chin Kim On, Ng Wai Fong, Rayner Alfred, Wang Cheng, Tan Tse Guan

	<p>2. [14:20 – 14:40] Improving the Accuracy of Stock Price Prediction using Ensemble Neural Network (Paper 43) Phang Wai San, Tan Li Im, Patricia Anthony, Chin Kim On</p> <p>3. [14:40 – 15:00] BioGenTool: A Generic Bio-Inspired Neural Tool (Paper 45) Kim Soon Gan, Sim Vui Chang, Kim On Chin, Patricia Anthony</p> <p>4. [15:00 – 15:20] A Review of Computer Vision Methods for Fruit Recognition (Paper 46) Ian Kevin Witus, Chin Kim On, Rayner Alfred, Ag Asri Ag Ibrahim, Tan Tse Guan, Patricia Anthony</p>
15:20 – 15:45	Coffee Break
15:45 – 17:45	Other conference tracks
18:00	Closing Ceremony

Paper ID : 01

Entrepreneurship for commercialization of University IT Research Outcomes

Ainnur Hafizah Anuar Mokhtar, Tamrin Amboala, Joan Richardson

Commercialization of research by academic scientist have been recognized as an important driving force for technology transfer and wealth creation yet the level of success of commercialization of inventions (innovations) for IT products from universities to industry are questionable. There is a paucity of agreed commercialization in terms of execution processes to support inventions of prototypes and products moving from laboratories to the right market. This research aims to investigate the commercialization of research outcomes for IT products from the research centers to facilitate the commercialization objective. The analysis is carried out based on selective case studies in the technology and science park with venture capitalist and firms from industry in the commercialization program engagement. The outcomes are expected to offer a research commercialization model and practical contribution for successful commercialization and licensing among academics.

Keywords : Academic Entrepreneurship, Academic Scientist, IT/IS Products and Artifacts, Research Outcomes

Paper ID : 02

Development of Rule-based Procedural Content Generation for 2-Dimensional RPG

Chin Kim On, Ng Wai Fong, Rayner Alfred, Wang Cheng, Tan Tse Guan

This paper demonstrates the capabilities of developing a 2-dimensional role-playing game from scratch using only VB.net without other additional extension. Although Vb.net which is usually not preferred by game developers, it has the potential to create a simple game prototype. The main aims of this project are to: test the feasibility of VB.net in developing a 2-dimensional role-playing game from scratch, and create a functional game prototype that can be used for future researches which are on procedural generation of item and users' preference of item. This game prototype is essential to the listed researches as direct implementation of item drop mechanism is easier. Experimental results demonstrate success with all aims: VB.net is capable in developing 2-dimensional role-playing game, and a functional game prototype has been created which can be used for future researches.

Keywords : RPG, 2-dimensional, Game Development, VB.net

Paper ID : 06

Preliminary Investigation of Radio Frequency Interference on Potential Satellite Ground Station Development Site

Terence Jerome Daim, Maszlan Ismail, Hamid Salim, Nurliza Salim, Abadi Azhar, Hafizah Mustapha, Ooi Sock Theng, Siti Farasahida Jamil, Karthigesu Thanarasi

A satellite ground station serves as an important part within the ground segment of a typical satellite communication system. The operation of a satellite ground station can be degraded due to radio frequency interference and in some certain circumstances might also cause severe damage to the receiving system. In order to ensure the satellite ground station can achieve optimum operability as well as efficiency, investigation on potential radio frequency interference must be conducted. This paper described the preliminary investigation of radio frequency interference performed at two proposed locations.

Keywords : Satellite Ground Station, Radio Frequency Interference, Satellite Communication

Paper ID : 07

Adaptation of Enjoyment in Learning through Gamification

Nurtihah Mohamed Noor, Fakhrul Hazman Yusoff, Marina Ismail, Rahmah Lob Yussof

Enjoyment is one of the most prominent values in learning, and is among the most desired experiential qualities needed to satisfy users. Myriad approaches have been implemented and researched for bringing enjoyment in the learning process, and one of them is an emergence of a new approach called gamification. It emphasizes the use of points, badges, and other virtual rewards as well as the use of dynamic and aesthetic elements brought by digital games to be used in the non-entertainment area. Gamification has potential in many fields. Even though the gamification concept has been vastly explored for user engagement towards certain interventions or behavior, it is no doubt that gamification also promotes the effects of enjoyment to the users, a topic less discussed in previous studies. Therefore, this paper focuses on discussing related topics including enjoyment in learning, gamification and enjoyment, theories and guidelines and as well as additional approaches in gamification that can bring enjoyment to users in the learning process.

Keywords : Enjoyment, Motivation, Gamification, Augmented Reality, Learning

Paper ID : 11

Cloud Services Evaluation For NonFormal Learning Implementation

Mohd Norafizal Abd Aziz, Norazlina Khamis, Rafidah Md Noor

The advance of network technology has contributed a significant impact towards learning implementation. The use of cloud services to support the learning practices has given opportunities to the learners and practitioners in a various way. With the current observation and implementation of cloud services in education perspectives, there is still lack of consideration given to observe the impact of using cloud services in any learning implementation. The only reason is cloud services consider, as new technology to be used in the education perspective therefore there is no requirement needed to investigate nor observed the impact of having the technology to be adopting in this particular area. This paper will investigate the impact of using cloud services in supporting nonformal learning implementation based on three factors namely; network environment that support the cloud services, learning content and learners satisfaction. Each factor will have the specific indicators and it will be included in the questionnaires. The measurement of the indicators will be based on the learners' satisfaction rate on their experience during implementing the nonformal learning using the cloud services. It has been found, that there is a positive significant impact between factors towards the learners satisfaction and it also can determine future improvement needed to enhance the nonformal learning implementation.

Keywords : Cloud Services, Nonformal Learning, Evaluation

Paper ID : 12

Agent Negotiation Patterns for multi agent negotiation system

Loh Chee Wyai, Cheah WaiShiang, Marlene Valerie AiSiok Lu

The development of the multi-agent negotiation system is receiving much attention nowadays. Although there exist works like negotiation architecture, model based negotiation, negotiation algorithms, it is still insufficient to design and develop an agent based negotiation system. Thus, this research is carried out with an intention to alleviate the gap identified by proposing an alternative approach through the use of agent negotiation patterns. Agent patterns are used to document the multi-agent system development experience and to provide a generic solution to recurring problems within a problem domain. Through that, the agent's conceptual designs are reusable to expedite development process and to provide a structured guideline to the development of the multi-agent negotiation system. Altogether, nine patterns are derived for different negotiation strategies. To evaluate and demonstrate the reusability of the agent negotiation patterns derived, two patterns are used in the practical implementation of a case study of an eCommerce system, restaurant reservation system. It showcase the feasibility of the patterns in designing and developing multi-agent negotiation system.

Keywords : Multi agent system, agent negotiation, negotiation patterns, eCommerce

Paper ID : 13

Software Process for Dynamic Website Development: Practitioner's Perspective

Jamaiah H. Yahaya, Aziz Deraman, Azhar Abdulridha Ibrahim

Various sectors, such as industries, banking, travel, education, and government, moved towards the web as an improvement and enhancement to their businesses and services. Dynamic websites, which are considered as a type of web application, shall follow sound methodologies of development process to achieve quality and standard. However, previous studies have revealed that many websites which are available on the Internet do not fulfil the quality requirements to be considered as a successful quality website. This study investigates the current issues in dynamic website development including the methodologies; quality attributes, and processes for dynamic website development to achieve quality of the website as a product. This work also determines the factors that motivate developers to follow sound methodologies in developing the dynamic websites and the barriers of not following one. This paper presents the empirical investigation from practitioner's perspective. The findings of the empirical study will be applied in the development for dynamic website development model which focuses on attaining quality web products.

Keywords : Dynamic websites, Web engineering, Software Process, Methodology, Practitioner's Perspective

Paper ID : 14

High Readability of Font Type and Font Size Among Dyslexic Students

Rozita Ismail, Azizah Jaafar

This paper discusses the study that have been conducted with dyslexic students to measures their reading performance on selected font types and font sizes. The objective of this study is to identify font types and font sizes that helps to increase readability among dyslexic when it comes to reading digital presentation such as reading from educational website or the use of educational courseware and online materials. Eight font types and five types of font sizes that have been chosen to be experimented by the dyslexic students. This paper summarizes the findings from the experiments which highlights the right font type and sizes that suited dyslexic students the most. Shorter reading time and less reading mistakes occurred for the Comic Sans MS font and 24-point size for dyslexic readers through the experiments. It is hoped that findings from this study will provide valuable insight on the impact of font types and font sizes to readability for dyslexic students.

Keywords : Dyslexia, readability, digital text presentation, fonts

Paper ID : 15

An Examination of The effects of Task Technology Fit and Hospital Information System Satisfaction in Public Hospital Malaysia: A Structural Model

Lee Heng Wei, Ramayah Thirusamy

There are very few studies of HIS adoption available in the literature, especially in the Malaysian context. This study aimed to understand the issues and barriers pertaining to ICT adoption in healthcare in Malaysia. This study extended the Human-Organization-Technology (HOT) Fit Framework to examine the HIS adoption in Malaysia by integrating the human factors, organizational factors, and technology factors. The results showed that adoption of hospital information system is not limited to human, organization, or technology alone, but rather affected by the combination of each of the mentioned variables. In addition, this study confirmed that attitude has a great impact on medical staff's satisfaction towards the system which indeed affects the level of usage (i.e., underutilized, average utilized, overutilized, or sabotage).

Keywords : Health Information Systems, Structural Model, Partial Least Square, Task Technology Fit, Hospital Malaysia

Paper ID : 16

Factors affecting Software Quality in SME's practicing Agile Development

Murugan Thangiah, Shuib Basri

Small and Medium software Enterprises (SME's) faces many challenges to create a quality software within the agreeing principles and standards for various reasons. The challenges started form requirement analysis and continues until the completion of the project, before being released to customers/stakeholders. This research work address the various issues surfaced in the SME's during the SDLC and how it affect the project quality. Furthermore the study will be useful to conduct a preliminary survey and to prepare a questionnaire for how testing in conducted in SME's practicing agile development process and to propose a new testing methods which eliminates the weakness in the current methods.

Keywords : Agile process, Requirement analysis, SPI, SMEs, Testing

Paper ID : 17

Optimization of Travelling Salesman Problem with Precedence Constraint using Modified GA Encoding

M.F.F. Ab Rashid, M. Jusop, N.M.Z. Nik Mohamed, F.R.M. Romlay

One of the challenges in combinatorial optimization is to optimize travelling salesman problem with precedence constraint (TSPPC). The optimization algorithm to deal with this problem is continuously developed and improved to enhance its performance. Genetic algorithm (GA) is one of popular algorithm used to optimize TSPPC. In this work, the Genetic algorithm is improved by using a discrete encoding instead of continuous encoding. The numerical experimental results indicated that the proposed algorithm able to search for optimal solution faster compared with original encoding.

Keywords : Travelling salesman problem, precedence constraint algorithm

Paper ID : 19

Integration of Malay Confinement Dietary and Phytochemicals Ontology Model

M. Hamiz, Haryani Haron, Azlin Sanusi, M. Bakri

Indigenous knowledge of confinement dietary by Malay traditional midwives is still being followed even though there is lack of scientific evidence that verify them. Observation of result from previous study shows that the food that are allowed to be taken by traditional midwives after giving birth based on the Malay Confinement Dietary (MCD) Ontology Model do have their relevance and advantages. Among the allowed foods to be taken are fruits and vegetables, which are rich in phytochemicals that are believed to aid the recovery process. Therefore, this research intends to integrate the Malay Confinement Dietary and Phytochemical Ontology Model to strengthen this theory. Both of the models are combined using manual approach. From this new constructed ontology, foods that are allowed by the midwives is not only supported by minerals and vitamins that it can offers to mother in confinement by the nutritionist, but together with the valid benefits and properties of phytochemicals. For future work, volume of food intakes will be considered in the model.

Keywords : Ontology, Integration, Malay Confinement Dietary, Phytochemicals, Model

Paper ID : 21

TrafficSys: Traffic Light Fault Notification Mobile Application

Afiqah Hazirah Elias, Khairul Shafee Kalid, Wan Fatimah Wan Ahmad, Saipunidzam Mahamad, Aliza Sarlan

Traffic light plays an important role in ensuring the safety of road users particularly at road intersections. Therefore, it is crucial to make sure that the traffic light is operational as soon as possible when traffic lights become faulty. Faulty traffic lights may cause inconvenience to motorists and put them in dangerous situations especially during peak hours. When traffic lights are faulty, authorities are notified by motorists who would call or send a text message to the number attached to the faulty traffic lights. There are two problems that were identified in this situation. Firstly, authorities rely on the motorist to report on faulty traffic lights. Thus, the response time of the authorities to react to the faulty traffic light is dependent on the length of time that a motorist responds to a faulty traffic light. Secondly, motorist could have difficulties in describing the fault type and traffic light information due to language or lack of traffic signage. As a result, the traffic light maintenance personnel could have misunderstood the situation. Short messaging service is costly. Furthermore, the text from short messaging service are limited and unable to provide rich information to the authorities. This paper presents the development progress of a proposed traffic light failure notification system called TrafficSys. TrafficSys was developed using the waterfall development methodology. TrafficSys system consists of a mobile application that is used by traffic light contractors and a desktop-based application that is used by traffic light technicians. TrafficSys notifies faulty traffic lights to the users via email through push notification. The content of the email provides information to the users such as location of the faulty traffic light via Google Map and also the fault type. The design of TrafficSys system is simple and minimal. Thus, the results of the usability testing have indicated that TrafficSys is an easy to use system and that the information provided by TrafficSys is clear, understandable and well-organized.

Keywords : Traffic Light, Notification System, Mobile Application

Paper ID : 26

Critical Review on M-Retail Cloud-Based Application for Textile Cyberpreneurship in Malaysia : Constraints, Challenges and Opportunities

Wan Safra Diyana Wan Abdul Ghani, Nik Zulkarnaen Khidzir, Tan Tse Guan, Mohammad Ismail

In today's global business ecosystem, mobile devices are commonly used as effective tools in most of business activities especially for M-Retailing. However, there are still constraints and challenges that could affect the effectiveness of its implementation. Thus, it is essential to examine the constraints, challenges and opportunities by looking from the perspective of internet entrepreneurs and retailers. Although various efforts have been conducted by Malaysian government and trusted parties such as Malaysia Digital Economy Corporation (MDEC) to boost the e-commerce industry, the low adoption of latest e-commerce technology like cloud services especially among the small and medium enterprises (SMEs) has become a major issue. In addition, to incorporate new technology in retailing for fashion and textile industry, several requirements must be analyzed. Therefore, the major purpose of this paper is to emphasize the needs to conduct comprehensive studies in finding the suitability of cloud-based application in m-retail context among textile cyberpreneurs. Through extensive review of literatures about m-retail, cloud-based application and textile cyberpreneurship, the related constraints, challenges and opportunities have been identified for discussion. From the review, the uses of cloud-based m-retail application among the textile cyberpreneurs has a potential to succeed if being applied correctly, but future investigations should be performed in determining the factors of its usability.

Keywords : Cloud-based mobile application, Cloud-based application, M-retail, M-Shopping, Textile Cyberpreneur, Textile Industry

Paper ID : 33

Video Adaptation Algorithm for Mobile Learning Environment

Mohd Faisal Ibrahim, Rosanita Adnan, Saadiah Yahya, Mohd Nasir Taib, Kamilia Kamardin

This paper focuses on developing a video adaptation algorithm in order to present suitable video content according to device's capabilities, bandwidth availability and user preferences. Server-based content adaptation approach has been implemented to cater accessibility problem of the current mobile learning system. The video content is adaptively generated based on recognize mobile phone capabilities and sent back to the requested client. In the proposed algorithm, the decision mechanism in the video adaptation algorithm is based on three parameters, which are the device characteristics, network bandwidth and user preferences. This work extends the accessibility of the mobile learning system for access via mobile wireless technology specifically for the access of the video content. The result shows that the proposed algorithm offers very significant performance improvement which is a reduction of network access latency and file size. The proposed algorithm also provides low complexity and can be implemented efficiently.

Keywords : Video Adaptation, Content Adaptation, Mobile Learning

Paper ID : 34

Capturing Risks in Agile Methods

Edzreena Edza Odzaly, Des Greer, Darryl Stewart

Risk management is an important process in Software Engineering. However, it can be perceived as contrary to the more lightweight processes used in Agile methods. Thus an appropriate and realistic risk management model is required as well as tool support that minimizes human effort. The Agile Risk Tool (ART) uses software agents to carry out risk management tasks and makes use of the data collected from the project environment to detect risks. This paper describes the underlying risk management model in ART and uses two case studies for evaluation. The results show that agents are of use for detecting risk and reacting dynamically to changes in project environment. Within the tool, risk data was collected and stored in a Risk Register. For ongoing assessment of risk a new measure, Total Risk Score (TRS) has been developed related to the Risk severity, the risk results later was assessed and presented in form of graphs.

Keywords : Software Risk Management, Agile projects, Risk factors

Paper ID : 36

Profitability Determinants of Information Technology Software Companies in Malaysia

Hui-Shan Lee, Wai-Mun Har, Sin-Yee Lee

Digital technologies revolutions have make information technology an essential platform for business and elevate the important of software companies to justify giving focus in this research. Objective of this paper is to study profitability determinants of information technology software companies in Malaysia with intangible assets included as an important independent variable. Other variables used are profitability (ROA), change of total revenues, opportunities growth, past earning growth and size. The results show all independent variables have positive and significant relationship with profitability except relative size of firm variable. Negative result between size and profitability could be due to the role of flexibility by smaller size software firms to transform rapidly as the peripheral business surroundings change and suggest that it is unnecessary to expand the size of the firms in achieving prosperous profit. Moreover, engagement in innovative intangibility can enhance competitive capability and reputation of software firms, hence it will improve firms' profitability.

Keywords : Profitability, Information Technology Software, Intangible assets

Paper ID : 42

A Min-Max Operator Allocation Formulation, Computer Simulation and DEA Cross-Efficiency in Determining the Optimal Operator Allocation

Ruzanita Mat Rani, Wan Rosmanira Ismail, Mohd Nizam Ab Rahman

The operator allocation decision is presented in this paper. A combination of min-max operator allocation formulation, computer simulation and DEA cross efficiency are used in determining the optimal operator allocation. The use of computer simulation offers more flexibility in designing and determining the inputs and outputs of each operator allocation alternative. Then, DEA cross efficiency further aids in the decision of optimal operator allocation. The advantage of this approach over the previous computer simulation and DEA based operator allocation methods, is all operator allocation alternatives can be identified using min-max operator allocation formulation. An application of operator allocation among 17 operators in SME food manufacturing company is conducted to define the effectiveness of the proposed approach.

Keywords : Min-Max Operator Allocation Formulation, Computer Simulation, DEA Cross-Efficiency, Operator Allocation

Paper ID : 43

Improving the Accuracy of Stock Price Prediction using Ensemble Neural Network

Phang Wai San, Tan Li Im, Patricia Anthony, Chin Kim On

This paper describes performance of different classifiers (established/combinations/new prediction methods) that are used in predicting stock price. Artificial Neural Network (ANN) was chosen as the target candidates for the forecasting model in this work because of its ability to solve complex problems such as the stock price prediction. We experimented three types of neural network namely Feed Forward Neural Network (FFNN), Elman Recurrent Neural Network (ERNN), Jordan Recurrent Neural Network (JRNN) and compared their predictions' accuracy. We then designed an ensemble neural network that combined FFNN, JRNN and ERNN using bagging method to build a more accurate predictive model. Based on the results obtained, our proposed ENN outperformed the other ANNs by achieving the highest prediction's accuracy.

Keywords : Stock Price Prediction, Ensemble Neural Network, Elman Recurrent Neural Network, Jordan Recurrent Neural Network

Paper ID : 44

Analyzing 4BL Mechanisms in an Augmented Reality Environment

Jee Geak Ying, Manjit Singh Sidhu

Due to the complex process of calculating and analyzing four link bar (4BL) mechanism problems for students, we designed a novel application that allows users to perform real time analysis 4BL mechanisms in an augmented reality (AR) environment. More specifically we improved and tested a new interface i.e. multiple touch based function approach. The application is found to be better than the existing 4BL mechanisms whereby users are able to manipulate the input variables of the 4BL mechanisms, manipulate and interact, and view the 3D rotational model and complete analysis of the problem. An experimental study was conducted to compare the application to traditional instructional methods. The effectiveness of the interaction and visualization process was compared using the rating scores after using the application.

Keywords : Augmented reality, 4BL mechanisms, simulation, interaction, visualization

Paper ID : 45

BioGenTool: A Generic Bio-Inspired Neural Tool

Kim Soon Gan, Sim Vui Chang, Kim On Chin, Patricia Anthony

Artificial neural network (ANN) is a bio-inspired algorithm which has been shown to perform well in many domains in solving non-linear and complex problems. However, in order to apply ANN to solve a particular problem, the implementer is required to not only possess the domain problem knowledge and ANN knowledge but also the programming language knowledge to carry out the experiments. Hence, this paper describes the development of a generic bio-inspired neural tool that provides an interactive and intuitive GUI for setting up ANN experiments for numerical problem domain utilizing feed forward neural network in supervised learning. This tool is developed specifically for researchers with non-computing background who wishes to design an ANN based-solution to a particular numerical problem.

Keywords : Artificial Neural Network, Supervise Learning, Feedforward Neural Network, Tool

Paper ID : 46

A Review of Computer Vision Methods for Fruit Recognition

Ian Kevin Witus, Chin Kim On, Rayner Alfred, Ag Asri Ag Ibrahim, Tan Tse Guan, Patricia Anthony

This paper reviews the use of computer vision methodology in the field of fruit recognition. A fruit recognition process usually consists of three steps which are image acquisition, pre-processing, and image analysis. Various approaches are employed in the pre-processing and image analysis stages and some of these are presented in this paper. This review is conducted in order to understand the current state of the art of these approaches and to study the improvements and the advances in this area. A comparison between these methods will also be discussed.

Keywords : Computer vision, fruit recognition, image recognition, image processing.

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