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<table>
<thead>
<tr>
<th>Authors:</th>
<th>Rajkumar N, Viji C</th>
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<tr>
<td>Paper Title:</td>
<td>An Efficient Software Fault Prediction Scheme to Assure Qualified Software Implementation using Improved Classification Methods</td>
</tr>
</tbody>
</table>

**Abstract:** Software quality is a main concern of software developers to ensure the required software that can provide user required services. However quality of software would be degraded considerably due to presence of the software faults in the programming language. Detection and removal of software faults requires more concern to be taken which needs to be concentrated more for improved performance. In the existing research work, accurate software fault prediction is done by introducing two stage data pre-processing stage which would select the more important features from the training data set and will result with the optimal training dataset thus the training accuracy can be improved. However existing research method doesn’t concentrate the dependencies between software modules and it doesn’t focus on the classification performance. These challenges are highlighted in the newly introduced research methodologies to obtain the accurate software prediction outcome by introducing the novel proposed research methodology namely Optimal and Eliable Prediction of Software Faults (ORPSF).

In the proposed research methodology, Optimal feature selection is performed by considering the inter relationship between the different features using Genetic Algorithm. This technique would select the optimal features which can detect the software faults accurately than the existing research methods. And the SVM classification approach is introduced to perform classification which can learn the training instances more accurately. Thus software fault prediction can be done accurately. The overall implementation of the proposed research technique is performed in the java simulation environment from which it can be shown that the proposed research methodology yields optimal results compared to the available research techniques.

**Keyword:** Software fault prediction, feature selection, Training software instances, optimal analysis, Software quality

**References:**


Authors: A.Mohanbabu, S.Deepika, R.Janani vidhya, M.Santhana, R.Sruthilakshmi

Paper Title: Retinal Microaneurysms Detection using Local Convergence Index Features

Abstract: In this article we present Microaneurysms is an eye-created blood dot, which is the result of eye disease indication. The resultant of microaneurysms is due to sugar in the eyes which is “DIABETES”, which is a characterized by uncontrolled hyperglycaemia. Diabetes is caused by a failure in our body to suppress endogenous glucose production due to insulin shortage. Diabetes may also cause due to gene from the ancestors. Our project is used to light the microaneurysms (blood dots), and to classify the severity of the Diabetic Retinopathy. Due to this we can able to control and save the patients by the best treatment and food control. If we leave this disease, then will lead to increase of sugar in body and also leads to death so this project is used to save the youngsters and old people. If a Diabetic Patient injured, even it is a small wound, it is difficult to cure. So it is must for all people to check their eyes using automatic detection of microaneurysms, and cure the disease earlier, if the blood dots found in the fundus image. PCA is used to classify the severity of Diabetic Retinopathy.

Keyword: Blood vessel; micro-aneurysms; fundus; hemorrhage

References:

Authors: P. Rathnavel, T.Baldwin Immanuel, P. Rayavel

Paper Title: Energy Saving Light Monitoring and Control Architecture using Arduino

Abstract: In this paper, we recommend an energy effective radio frequency based strengthening light checking and controller system that is it tends to invigorating and handle empowering lights all the more effectively when compared with the traditional systems. The planned system utilizes the radio frequency based remote gadgets which permit increasingly productive lights organization. The planned system utilizes sensors to control the ideal system parameters. To acknowledge adequacy of the planned system, where the trial results demonstrated that the proposed system spares around 69.18% energy for the empowering expressway condition in view of utilizing sensors, LED lights, and Radio Frequency based correspondence organize. To execute GPRS control arrangement of lights. In the plan of the smart lighting system by considering the congruity cost as the principle factor close to the energy sparing. In creator endeavors to be decreased sensors on each lighting hubs, yet this decrease will result in less exactness of the system. Besides, the planned the energy effective lighting controls system by using the GPRS as backbone innovation separately, to speak with the control focus. One of the downsides of using GPRS is the usage of authorized range, which will result in obstruction with the current GPRS clients. It pursues that; the lighting system will be productive obstruction. The previously mentioned systems likewise have no capacity to change the light force as per the clients necessity and the client's essence while diminishing or killing the lights. We design the energy efficient Radio Frequency transreceiver based invigorating light monitoring and control system. In addition to all these things, an additional LED is given as backup light, which will be used during main LED light failure or when the operating temperature of main LED exceeds the optimum range.

Keyword: WSN (Wireless sensor Network), MSD (Mass Storage Device), HID (Human Interface Device), LDR
Blood Vessel Segmentation in Fundus Images

Abstract: In this paper, image segmentation model based on hierarchical pixel is proffered to obtain blood vessels from fundus images of the eye. A hierarchical design adopting the durability and flexibility of retinal blood vessels is articulated into the image segmentation designs for blood vessel segmentation. Retinal blood vessels show a mesh-like structure, so its fundamental features viz., thickness, dimension plays a vital role in interpretation, early detection and healing of various systematic disease's viz., veinocclusions, diabetes, hypertension. Morphological features which is required for image segmentation which was found as inappropriate.

Keyword: Image Segmentation, hierarchical design, fundus, threshold value, domain characteristics, segmentation, vessel.

References:

Authors: Robert P, Celine Kavida A

Paper Title: Classification of Microscopic Cervical Cancer Images using Regional Features and HSI Model

Abstract: The main purpose of this paper is to classify the microscopic cervical images in order to identify the true impact of cancer that helps the patient to be treated properly. The Pap smear test is most efficient medical test, but it generates problem at the time of interpretation under the microscope. In order to unravel this drawback, automatic cancer detection is developed. This detection process includes few techniques of the image processing such as segmentation, and enhanced SVM classification algorithm. The final outcome of this proposed technique is compared to previous classification techniques such as ANN (Artificial Neural Network), KNN (K-Nearest Neighbor). The proposed algorithm is found to yield a good result from the experimental results & performance evaluation.

Keyword: Cervical Cancer, Microscopic Images, Classification, CIN

References:
3. M.Anosouya Devi, S.Ravi, J.Vaishnavi and S.Punitha, “Classification of Cancer using Artificial Neural Network” 1877-0509 © 2016 The Authors. Published by Elsevier B.V. This is an open access article under the CC BY-NC-ND license.

Authors: Manoharan S, Janani T, Jagadeesh P, Jeevan Raju M, Bhuvarneswari G

Paper Title: Design and Development of Automated Dumpster Management System

Abstract: Waste is an important issue, which needs to be tackled smartly. Due to the improper disposal of waste, it causes many diseases. The improper disposal of waste causes water borne diseases like Hepatitis, Cholera,
Dysentery, and Typhoid, air borne diseases like respiratory infections, allergies, nausea and vomiting due to foul smell, vector borne diseases like malaria and Dengue. This improper disposal of waste causes unhealthy environment which leads to approximately 12.6 million death every year. This diseases spread can be solved by proper disposal of waste. We can use modern technique to design the automatic garbage collection. The proposed system automatically open the lid of the dustbin when the human presence is detected. The shaking mechanism is implemented for evenly filling of the dustbin. The message is send to the corresponding authority to clean the waste.

**Keyword:** arduino, GSM module, Servo Motor, DC Motor, UltraSonic Sensor.

**References:**

7. SauroLonghi, DavideMarzioni†, EmanueleAldor, Gianluca Di Bu’o, Mario Prist, Massimo Grisostomi and MatteoPirro “Solid Waste Management Architecture using Wireless Sensor Network technology” in UniversitàPolitecnica delle Marche, Dipartimento di Ingegneriaedell’Informazione Via BrecciaBianche, snc, 60131 Ancona, Italy 2012


**Paper Title:** Water Quality Analyzer using IoT

**Abstract:** In the modern world, Water pollution is one of the major causes for various types of water-borne diseases such as dengue, cholera and malaria etc., for human beings. 40% of deaths in worldwide are caused by water pollutions. So, the quality of the drinking water needs to be measured in real time while it is supplied to consumers. In this article, author offered a design and expansion of a real time water quality measuring system at reduced cost using Internet of Things (IoT). To compute the physical and chemical parameters of the water such as temperature, pH, turbidity, conductivity (Total Dissolved Solids – TDS in ppm), and several sensors were used. The centralised system receives the measured values from various sensors over a period of time. Thorough the Wi-Fi system, the sensor output data is sent to the concern authority for further steps to improve the water quality. The water quality test carried out in the samples collected from various parts of the Coimbatore district.


**References:**

2. Dong He Li Xin Zhang, I The Water Quality Monitoring System Based on WSN, I Institute of Mechanical and electronic information, China University of Geosciences (Wuhan), WuHan, China, 978-1-4577-1415-3/12/2012 IEEE.
4. Mo Deqiang,Zhao Ying.Chen Shangsong, 'Automatic measurement and reporting system of water based on GSM' Department of Electronic and Technology, 978-0-7695-4608-7 © 2011 IEEE.
5. ESP8266 serial Wi-Fi wireless Transceiver Module for IoT, ESPRUIINO-Wireless.
8. ThingSpeak-Understanding your Things-The open IoT Platform with MATLAB analytics, MathWorks.(SECON), 978-1-4673-1905-8 © 2012 IEEE.

7. 34-37
Artificial Neural Networks are the machine models impressed by the human brain and this intelligence technique that has found major applications in engineering and science. Several of the recent advancements are created within the field of computing, together with Voice Recognition, Image Recognition, and AI victimization Artificial Neural Networks. Artificial neural network (ANN) has been used for several years in sectors and disciplines like bioscience, defense business, robotics, natural philosophy, economy, forecasts, etc. These biological ways of computing are thought of to be consecutive major advancement within the Computing business. An outsized kind of mathematical ways are developed for load prediction. During this paper, I discuss and reviewed numerous approaches to load prediction victimization artificial neural network.

Key: Neural Network, Load Forecasting, Back-Propagation, Regression technique, Symbolic logic

References:
explosion, in ensuring effective services. The paper also among other things discusses various ICT resources that can be used for effective library operations and services. Also the paper highlighted benefits and challenges of integrating ICT to library operations. This paper concluded by discussing possible solutions to various challenges to successful integration of ICT to library operations for effective services.

Keyword: Information Communication Technology, Information Needs, Time Duration and Faculty Member in Pharmacy and Kerala State.

References:

Authors: T. Manoranjitham, Aniketh Mohanty, Samarth Misra

Paper Title: Performance Testing of 4G (LTE) Networks in SRM University Kattankulathur New Campus

Abstract: This paper is aimed at testing the performance of various 4G (Long Term Evolution) network carriers in the SRM University, Kattankulathur campus. Increasingly most telecommunication companies today are encouraging users to move towards 4G connections. Handset devices are also 4G compatible now, and 4G enabled SIM cards are widely available in the Indian market. Due to this transition, the performance of various carriers is vital to understand which carrier provides the best quality of service in SRM campus. The tests are carried on the three prevalent network carriers, namely, Airtel, Reliance Jio, and Idea. The comparison between the three carriers has been illustrated by means of various graphs and tables.

Keyword: 4G, LTE (Long Term Evolution), throughput, jitter, latencies, Airtel, Jio, Idea, mobile application module, QoS

References:
2. 4G vs LTE, digital trends website: http://www.digitaltrends.com/mobile/4g-vs-lte2/
3. 3G vs 4G is it worth it, ITRW web-site: http://www.itrw.net/michiganprovider/3gvs4gisworthit
8. Syahiran Ahmad, Sameha Musleh, Rosidiadee Nordin; The Gap Between Expectation and Reality: Long Term Evolution(LTE) and Third Generation (3G) Network Performance in Campus with Test Mobile System (TEMS); IEEE
9. For Netflix Airtel is the least terrible option, Quartz web-site; https://qz.com/913935/if-you-must-use-netflix-in-india-airtel-is-the-least-terrible-option/

Authors: Muhammad Danial Bin Ismail, Mohd Hadi Habaebi
Empirical Evaluation of LORA Link Performance for Smart City/Smart Campus Environments

Abstract: The Concept Of Smart City Become Undeniable Mission By All The Major City In The World To Improve Human lifestyle, assets and resources efficiently. Smart city concept really depends of advancement of network technology, to be specific internet of things (IoT). One of the recent innovations that enable smart city concept to be operated with low power consumption and low cost is LoRa (long range). LoRa’s advantages such as convenience, low cost, high efficiency and strong scalability might be a reliable gateway for sensors, transducers and monitoring devices to establish a seamless connection with centralized monitoring system [11]. This report aims to provide data analysis on implementation of LoRa technology as gateway for smart city. In the report, LoRa gateway link performance will be tested using RF1276 LoRa modules from Appcon Wireless for Kuala Lumpur smart city and International Islamic University Malaysia Gombak Campus for smart campus. The performance metrics to be used are the Packet Deliver Rate (PDR), Data Extraction Rate (DER), the number of dropped packet, delay, Node Energy Consumption (NEC) and Ping Statistics. The study is expected to consider the effect of foliage specifically for the smart campus environment. Furthermore, the overall channel effect, payload size and different LoRa PHY transmit configurations (different bandwidths and coding rates) will be quantified in terms of the performance metrics mentioned above. Initial tests were carried out in IIUM Gombak campus indicated severe degradation due to foliage effect, hence, the report will focus on its effect on the link performance. Several LoRA physical parameters will be studied including the bandwidth and spreading factor.

Keyword: LoRA, LoRaWAN, smart city, empirical evaluation.

References:

Follow Me Travel Bag

Abstract: Follow Me Travel Bag is basically a smart bag to be used by travelers in away that provide them with additional features the normal travel bag does not. This bag will be empowered by a built-in tracking system that provide automatic self-control over the bag. It will integrate modern technology to provide easier usage of a travel bag, and enhance the security and movement issues. The main objective of this project is to ease the travel experience of individuals in handling their travel bags throughout their movement. This is accomplished by firstly making the bag following its owner without a need to drag it. Secondly, the bag will contain a location finder system to overcome the possibility of being lost, forgotten or stolen. This will solve the problem of losing the bag forever among with its contents which are valuable in much cases. This research is investigating the most suitable approach to achieve these targets though designing, controlling and testing of a smart programmable tracking system inserted in a travel bag.

Keyword: following system, smart bag, Pixy sensor, camera, tracking system.

References:
Adoption of Wireless Sensor Networks (WSN) is rising dramatically and a subsequent amount of research has done on WSN power efficiency. Node power consumption reduction is an important part of study in ZigBee WSN, in order to reduce overall WSN power consumption for different applications. One approach is transmission power control for reducing WSN power consumption. In this paper, we present a Transmit Power Control mechanism (TPC), where we use Received Signal Strength Indicator (RSSI) matrix to determine the minimum required level for successful packet delivery utilizing periodically broadcast signals in WSN. We analyze the behavior of the proposed mechanism with respect to different parameter settings such as node position and antenna polarization. A testbed is used for collecting data. After that, we benchmark the result with Non-TPC mechanism. It is observed that the proposed mechanism could provide up to 60% power saving in a specific testbed setup. We also notice that the average transmitting power is inversely proportional with respect to the height of WSN nodes (from 0 meter height).

**Keyword:** wireless sensor networks; transmit power control mechanism; received signal strength indicator; antenna polarization; internet of things; sensor nodes; power management; ZigBee.

**References:**

Paper Title: The Antecedents of Online Shopping Website Continuance Intention

Abstract: Internet, adoption and continuance are the key building blocks of present purpose framework in consumer behavior. Many scholars in information system research has come to the agreement that continuance behaviors gave tremendous effect on continued use of a particular information system that lead to the continued use of a particular online business. It has been noted that online shopping is an online business context which dependent on information technology. The emergence of Internet technology has change an important aspect of network life such as improvement of individual lifestyle and preference towards online purchasing. As the results, consumers were intent to switch online retailer’s websites regularly in order to fulfill their preference from time to time. Online business company will need to integrate these social media sites into their marketing and consumer strategies. Many scholars and practitioners have come to the agreement that consumer continuance intention gave tremendous effect on online business survival. This paper aims to understand the concept of continuance intention in online shopping. In addition, this paper also aims to review the influence of individual’s lifestyle factors towards online shopping continuance intention.

Keyword: Individual’s lifestyle, continuance intention, online shopping.

References:
22. A. Nabavi, M. T. Taghavi-Fard, P. Hanafizadeh, and M. R. Taghva, "Information Technology Continuance Intention: A Systematic
Intention Toward Online Grocery Shopping

**Abstract:**
In this work, the characterization of calix[4]arene (C4) and calix[8]arene (C8) were studied using Langmuir-Blodgett (LB) technique, surface potential meter and UV-Visible spectrometer. The surface pressure - area isotherms demonstrated stable Langmuir C4 and C8 monolayers formed at the air/water interface. Several properties such as limiting area per molecule and molecular radius of C4 and C8 were determined using different spreading volumes in LB technique. Besides that, effective dipole moments and maximum surface potential of C4 and C8 were determined from surface potential values. In addition, UV-Vis spectroscopy stated that the peak absorbance of C4 occurred at 275nm with one “shoulder” peak exists at 283nm, whilst peak absorbance of C8 occurred at 287nm. Surface topography for C4 and C8 thin layer also been observed. This study wasper formed to determine several basic properties of these calixarenes for future works.
Keyword: Calixarenes, Langmuir-Blodgett, surface potential, UV-Visible property

References:

Authors: Wiwit Setyowati

Paper Title: Overlay Mapping Technique to Determine the Boundary of Semarang City in 14th Century

Abstract: Semarang has developed into a different city form than it was in 14th century. In addition to the shape of the city, Semarang also experienced several periods of development, starting from the initial period, the period of trade settlements and city in the fort, the Indish city period, the transition period, the colonial city period, and finally the current period as a modern city. Therefore the architectural styles that can be found in the Semarang Kampongsget the influence from the period its goes through. To see the original Semarang style architecture, it is necessary to see the locus where the building is located. Therefore, the determination of the boundary of Semarang City at the early period that is in the 14th century is very necessary to be studied so it can determine the locus in viewing the original Semarang style architecture. The research method is using Overlay Mapping Technique, where the current map is overlaid with old-year maps and the historical map of Semarang city where the north of Semarang area is the sea and Central Semarang area (Pragota now Bergota area) still island. The result is a Semarang map on the 14th century so can be discovered the locations where the original Semarangstyle architecture buildings is located.

Keyword: Overlay mapping technique; Semarang City; map; history; cultural heritage

References:
<table>
<thead>
<tr>
<th>Authors:</th>
<th>Muhamad Safuan Mat Yeng, Mohd Farid Mohamad Yusof, Shahrul Kadri Ayop</th>
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<tbody>
<tr>
<td>Paper Title:</td>
<td>Thickness Dependant Effective Radius of an Optical Trapping Toward Water-Air Interface</td>
</tr>
<tr>
<td>Abstract:</td>
<td>This study aimed to determine the effect of sample thickness on optical trapping towards water-air interface. 3 μm polystyrene bead was diluted in deionised water and transferred to special test cell design to form 18, 70 and 141 μm. Bead was trapped by 975 nm laser from 20 to 220 kW/cm2 from the bottom glass-water interface towards water-air interface. The result showed that the bead is more confined with smaller effective radius in higher water thickness.</td>
</tr>
<tr>
<td>Keyword:</td>
<td>Effective radius, optical trapping, water-air interface</td>
</tr>
</tbody>
</table>

| Authors: | Bonavian Hasiholan, Dhaief Allah Dhaief Allah Ahmed Al-Saiedy |
| Paper Title: | Gas and Water Reinjection Strategy to Enhance Oil Productivity with Voidage Replacement |
| Abstract: | During the last few years enhanced oil recovery (EOR) methods including water alternative gas (WAG) have been sufficient in recovering a portion of the unrecovered oil specifically when it is combined with other strategy such as voidage replacement. In this paper oil productivity enhancement is observed by implementing voidage replacement with WAG process. Secondary plan and WAG are simulated and evaluated by ECLIPSE-100 software. WAG achieved a recovery factor of 63% during 30 years of solution prediction process with primary and secondary plans. Surface facility was designed to run under WAG & voidage replacement ratio (VRR) principles. VRR values of 1.5-1.2 & 2.0-1.4 were maintained in WAG-1 and WAG-360 scenarios respectively for the last five years of production life when it was at high VRR value before. That VRR drop essentially due to the WAG process and as it was correlated with the reservoir-X average pressure that was maintained at (3100-3300) psi in reservoir-X performance. |
| Keyword: | enhanced oil recovery WAG & voidage replacement ratio (VRR) principles |
Time series models can be classified into linear and nonlinear where among the nonlinear models, the simplest is bilinear model. The process of estimating model parameters is an important phase for time series modelling. However, the existence of outliers in the data will affect the estimated parameters, which consequently will jeopardize the validity of the model. To alleviate this problem, the existence of outliers in the data must first be detected before further actions could be taken. Therefore, it is crucial to step up the outlier detection procedure to get the best parameter estimation results. Obtaining the magnitude of outlier effects is generally done using a bootstrap method yielding classical bootstrap mean and variance. However, with existence of outliers, the classical bootstrap variance value may be slightly disturbed. Therefore, this study proposed two robust detection procedures namely bootstrap-MOM with MADn and bootstrap-MOM with Tn to improve the performance of outlier detection for additional outlier and innovational outlier in bilinear (1,0,1,1) model. Modified one-step M-step (MOM) is a known robust location estimator while Median Absolute Deviation (MADn) and alternative median based deviation called Tn are known as robust scale estimators. For the magnitude of outlier effect, MOM is used to obtain the mean while MADn and Tn are used separately to estimate variance. The performance of bootstrap-MOM with MADn and Tn procedures for outlier detection is found better compared to the classical procedure. The suggested robust outlier detection procedures proposed in this study are beneficial to improve the parameter estimation of bilinear models.

Keyword: Bilinear model, additional outlier, innovational outlier, robust estimators
date of data collection and self-reporting methods and how a better understanding of the process is needed to design effective cyber bullying interventions are discussed.

**Keyword:** Multiple online databases were searched to identify studies published between 2000 and 2018, to summarize the main findings and the nature of these studies

**References:**


**Authors:** C. K Lim, K. L Tan, A.B Isak, N.Hambira

**Paper Title:** Learning Chinese Characters via Stroke-based Mobile Game in Education

**Abstract:** The aim of this article is to propose an intelligent and flexible e-learning mobile game application based on learning objects to facilitate learning to write Chinese characters in correct stroke sequences. In designing the overall system architecture, the paper adopts an incremental approach to emphasize the system's extensibility. As part of the learning object metadata, the basic features of the system including the evolution and pronunciation of each Chinese character can be embedded to enhance students' understanding of Chinese characters. A prototype of the proposed e-learning game software was to be used built on smartphones to demonstrate the feasibility of this research so that students could learn to carry out the evaluation at anytime and anywhere as the case study. Quantitative approaches are used to for this assessment. A number of 31 foreign online players (Namibian and Thais) from UPSI are chosen to direct this experiment. Data were analyzed using descriptive and explorative data analysis. Descriptive analysis describes how well a player is performing by looking at the number of strokes the player traces without faults. Exploratory data analysis is to find new dilemma faced among the players, and players can provide comment and remarks as future recommendations. Findings showed that there are improvements in game play for experimental group, were the experiment group has gained significant experience whether they had not prior knowledge or not. The results also showed there was a significant critical thinking with significant experience for the group experiment. As a conclusion, a Chinese character writing board game, has improved students’ experience and critical thinking skills in Chinese character writing. As the outcome, the study implicates that the use of mobile games can enhance the effectiveness of teaching and learning to write Chinese character.

**Keyword:** Evaluation, Visual Informatics, Mobile Learning, Mobile Application

**References:**

### Authors:
Seola Han, Taew n Kim

### Paper Title:
Numerical Experiment on Two-Sided Tolerance Limit for Safety Analysis of Energy Generation Systems

### Abstract:
It is necessary to quantify the uncertainty in the safety assessment when the protection characteristics of energy generation systems are tested through first-class-estimate methodologies. Especially, the tolerance restriction for licensing must be carefully predicted taking into account the uncertainty within the protection analysis results. The tolerance limits are usually predicted as values with a probability of 95% and a confidence level of 95% for general industrial applications. Various statistical techniques were applied a good way to estimate the tolerance restriction of the great-predicted results and a methodology based totally on non-parametric facts is one of these methods which lets in to estimate the tolerance limit with reasonable attempt. Among non-parametric methodologies, a method primarily based on order statistics has been broadly used to decide the tolerance restriction for energy structures including nuclear structures. This method has benefits wherein the quantity of simulations is independent of the number of uncertainty parameters and the interpretation of the results has nothing to do with the distribution of the outcomes from uncertainty evaluation. In this technique, the quantity of simulations is determined by a formula recommended by Wilks but it is recently found that the quantity of simulation decided by Wilks’ formula should be revised considering the symmetric nature of the tolerance limits in case of two-sided approach, namely centered two-sided formula. In this study, the results from methods based on Wilks’ formula and centered two-sided formula are compared for three different trial output distributions. The comparison indicates that the tolerance limits estimated on the basis of Wilks’ formula shows lower confidence level, 80%, whereas the centered two-sided formula results in a proper confidence level of 95%. In addition, the distribution-free and order-free characteristics of non-parametric methodology have been demonstrated on the basis of the analysis results. The results indicate that the lower order formula tends to produce more conservative results. Thus, it is recommended for regulators to use the lower order formula for safety audit analysis for energy generation systems to secure higher safety.

### Keyword:
Wilks’ formula, Tolerance limit, Best-estimate analysis, Non-parametric method, Centered two-sided tolerance limit.

### References:

**Authors:** Azrul Azim Mohd Yunus, Tahir Ahmad

**Paper Title:** Sequence of Cubes of Finite Vertices Fuzzy Topographic Topological Mapping and $k$-Fibonacci Sequence

**Abstract:** Fuzzy Topographic Topological Mapping (FTTM) is a model for solving neuromagnetic inverse problem. FTTM consists of four components and connected by three algorithms. FTTM version 1 and FTTM version 2 were designed to present 3D view of an unbounded single current and bounded multicurrent sources, respectively. In 2008, Jamaian introduced some definitions on sequence of FTTM. One of the features produced from the sequences of FTTM is Cube of FTTM. A cube of FTTM is a combination of two or more FTTM in $\text{FTTM}_n$. In this paper, cube of finite vertices of FTTM, namely $\text{FK}_n$ are discussed. Consequently, some theorems are proven in order to describe patterns for sequence of cubes for $\text{FK}_n$ based on the $k$-Fibonacci sequence. Interestingly, the cube of $\text{FK}_n$ appears to be an example of generalized Fibonacci sequence, namely the $k$-Fibonacci sequence.

**Keyword:** Fuzzy Topographic Topological Mapping, Sequence, $k$-Fibonacci Sequences.

**References:**

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### 23. Exploring the Internal and External Constraint of IT Business Start up in Bandung, Indonesia

**Authors:** Endang Chumaidiyah, Wawan Tripiawan, Rio Aurachman

**Paper Title:** Exploring the Internal and External Constraint of IT Business Start up in Bandung, Indonesia

**Abstract:** The digital era encourages a digital transformation that brings changes in the application of digital technology in all aspects of people's lives. The digital economy becomes a business opportunity that encourages the growth of various startup of IT business especially game product, content and digital application. Nevertheless, the IT startup business with all its new creativity and ideas remains vulnerable to obstacles due to its various limitations. Business management is essential to be done by startup IT by empowering internal resources owned and by always paying attention to external factors. This research aims to explore and analyze internal and external IT business startup constraints. This study uses a descriptive qualitative method by distributing questionnaires to 40 respondents selected through convenience sampling approach. The result of the research shows that the internal factors which become obstacles for a start-up IT from the are competence, capital, technology, and innovation. As for external factors that become obstacles for start-up; IT in a sequence is the regulation, competition, market structure, and market orientation.

**Keyword:** Digital Business, Descriptive Qualitative, Digital Application, Start-Up.

**References:**
2. Badan Ekonomi Kreatif Indonesia (Bekraf), Potensi Industri Kreatif dalam Promosi Diplomasi Ekonomi, Badan Ekonomi Kreatif Indonesia. Jakarta, 2017

Authors: Jin-uk Jung, Anugrah Moch Ilham, Min-tae Hwang, Kyo-hong Jin


Abstract: In the recent years, many SMEs (small and medium enterprises) are taking a strategy to combine and sell their products and services to find new markets and reduce unnecessary expenses. For instance, in the case of the manufacturing facility manufacturers, they sell the manufacturing facility and additionally support the service which can monitor the status of that facility in real time. This strategic movement is a reflection of the purchaser’s requirements to reduce losses caused by an unexpected breakdown. In this paper, we introduce the pre-response maintenance systems to monitor the status of the heat transfer machine in real time and to carry maintenance out before the breakdown occurs.

Keyword: ALA; ALISE; ASIS&T; iSchools; LIS professional organisations; SLA; Social media outreach; Twitter analysis; Twitter use

References:

31. Lee HJ, Kim YJ, Lim JI, and Kim YW, Analysis of field conditions and requirements for deploying smart factory, Journal of the Korean
Investigation of Key Performance Indicators using Balanced Scorecard Approach to Evaluate Academicians' Tacit Knowledge

Abstract: In the academic sector, academicians are viewed as the main knowledge resource. Such resources should be managed effectively to improve the competitive advantages of university services such as teaching, researching, and supervision. For effective management of knowledge resources in universities, the tacit knowledge of academicians needs to be evaluated in order to understand how to elicit and capture the knowledge resources to address the university missions. The evaluation of tacit knowledge is difficult due to its intangibility nature. This may result problems in identifying and determining the knowledge levels of the individual. The main objective of this study is to investigate the importance of key performance indicator (KPI) based on balance scorecard (BSc) approach to evaluate the performance and value of academicians’ tacit knowledge in universities. KPI-BSc is based on two types of indicators: (1) non-financial measurement and (2) financial measurement. The non-financial indicators evaluate the performance level of tacit knowledge according to knowledge quality and quantity, while the financial indicators evaluate the knowledge based on the financial returns that gained from knowledge activities and production. To address the objective of this study, a questionnaire survey was conducted among 179 academicians from three Iraqi universities. The results of this study significantly show that it is important to apply non-financial and financial indicators to provide a reliable evaluation of academicians’ tacit knowledge levels. This approach is novel as individuals tacit knowledge is evaluated based on the combined use of financial and non-financial measurement indicators.

Keyword: Academicians, University, Tacit knowledge, Knowledge evaluation, KPI, BSc

References:
The open science movement is gaining popularity due to the stability of data storage and network technologies besides the availability of open data portal in many countries. However, a case study that focuses on the requirement and design of the cyber-infrastructure for open science is limited. This paper reports the assessment of existing infrastructure for disaster information management as an open science activity based on the Sendai Framework. A framework that combines the open data quality and the next generation repository system requirements based on a case study on the flood and forest fire management in Malaysia and Indonesia is proposed. This paper fills the gap between the focus on open data framework and the next generation repository system based on the requirements from a recent international collaboration on climate change research studies.

**Keywords:** Open science, Next generation repository system, Open data, Disaster analytics.

**References:**

Authors: Mazidah Binti Ahmad

Paper Title: Information Sharing Requirement Model in Online Purchasing System among Small Medium Enterprises (SMEs)

Abstract: The innovations within the small and medium-sized (SME) companies in Malaysia are inspired by the utilization of e-business. Since this industry relies on online business, a good and effective platform should be used in order to gain customers’ trust. Information sharing plays a main role in this business platform. Slow response time, information availability, and security attacks on users’ information are the factors that bring weakness to the system. Hence, a good information sharing practice in implementing an online purchasing system amid the SMEs should be adopted in order to encourage innovation among SMEs. The primary aim of this research is to propose an
information sharing model to support the implementation of an online purchasing system in the SME industry in Malaysia. A theoretical study is conducted to analyse several prominent information sharing models to identify the appropriate information sharing practices in delivering the online purchasing system. The case study of SMEs in Malaysia has been applied to explore the current practices of information sharing models in the online purchasing system. Data has been collected from online surveys from 300 active users of an online purchasing system. The data was analysed using Structural Equation Modeling (SEM) and Partial Least Square (PLS) techniques to examine the relationships between the identified factors which were grounded on the IS Success Model. Result indicates that System Quality (SQ), Information Quality (IQ), Service Quality (SVQ), Intention of Use (IU), and Perceived Net Benefits (NB) are the important factors in a successful purchasing system. The findings suggested that, IQ, and SVQ positively correlate with IU, while IU positively correlates with NB. These outputs are also expected to formulate guidelines and procedures to best guide the information sharing framework to support the implementation of online purchasing system in the SME industry in Malaysia. It is very crucial for business organisations in order to obtain maximum profit and expand businesses in the future.

**Keyword:** Information sharing, Online purchasing system, SME companies, D&M IS success model

**References:**


**Authors:** Zulkhairi Md Dahalin, Mohd Rushdi Idrus, Mohd Khairstin Kasiran, Maslinda Mohd Nadzir, Rohaya Dahari, Rafidah Abd Razak, Nadratun Nafisah Abdul Wahab
<table>
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<th>Paper Title:</th>
<th>Online Services Index Performance: Countries' Analysis in OSI Ranking to Improve Malaysia UN Ranking</th>
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**Abstract:** This paper presents countries’ analysis in online Services Index performance (OSI) ranking to improve Malaysia UN ranking. The study found that the top 5 countries (Spain, Saudi Arabia, Slovenia, Malta, Serbia and UAE) by-passed Malaysia the most out of 35 countries in the last 10 years. This study proposed future research to find gaps and areas for improvement while gaining insights from international best practices that have enabled other governments to surge ahead. In particular, the study found how Malaysia can improve UN ranking through investigating what those countries that by-passed Malaysia the most in the last 10 years are doing that have enabled them to offer much superior e-Government services.

**Keyword:** E-Government, United Nation, Digital Index, assessment, OSI

**References:**

166-172
Scholars have been fascinated in the areas of the description and representation of fish species images so the Content-based Image Retrieval is adopted. Proposals have been made to use various techniques like the fusion of Zernike Moments (ZM) and Local Directional Pattern (LDP) to obtain good image representation and description results for feature extraction. To elaborate, ZM is characteristically rotation invariant and it is very robust in the extraction of the global shape feature and the LDP serves as the texture and local shape feature extractors. Nevertheless, extant studies on ZM-LDP fusion are only adopted for gray-level. The role of color is substantial for the fish. The proposal is that the ZM-LDP method is improved so that it can bring out the color features for the fish-domain effectively. By computing the LDP on the Hue plane of the HSV color space of the image, the color information is obtained. Improved ZM-LDP fusion to be able to obtain color information (Extended Zernike Moments-Local Directional Pattern-Hue Color Space) is experimented on Fish4Knowledge (natural image) dataset consists of 27370 images and able to achieve Mean Average Precision of 77.62%. Based on the experimental results, it is shown that the proposed method has successfully achieved higher accuracy compared to other comparable methods. A statistical comparison based on the Two-tailed paired t-test was carried out and has proven that the retrieval performance of the proposed method is improved.

Keyword: Zernike moment, Local directional pattern, Fish, Content-based image retrieval, Color feature


Authors: Ayi Purbasari, Achmad Nizar Hidayanto, Arief Zulianto

Paper Title: Parallelization Clonal Selection Algorithm with MPL.NET for Optimization Problem

Abstract: The idea of immune system as a computing inspiration has given rise to the Artificial Immune System (AIS). AIS has contributed in the field of optimization of complex issues, one of which is a clonal selection algorithm (CSA) for solving the Optimization Problem such as Traveling Salesperson Problems (TSP). Parallel characteristic inherently possessed by the immune system, provided an opportunity to give parallel computing to achieve better computational performance. The study resulted in two parallel models for the clonal selection algorithm. First model is a master-slave model, there is a master process that controls all communication. In the second model, all processes equivalent and communicate with each other. Both models are prepared to be built in system development with parallel environment using Visual C# language with MPI.NET framework. For both datasets, experiment gave consistent results. Model 1 is superior in getting the best-tour’s cost, although obtained with longer execution time, compared with Model 2. However, Model 2 is superior in less execution time needed.

Keyword: Clonal Selection Algorithm; CSA; parallel Clonal Selection Algorithm; message passing model; MPI.NET; TSP.

References:


### Paper Title
**Game Development to Train Critical Thinking in Science Subjects using Model of Digital Game Based Learning-Instructional Design**

### Abstract
Critical thinking ability is one of the important things that needs to be developed because using critical thinking human can to evaluate arguments, and determine acceptance based on the evaluation. As we improve our critical thinking skills, we can improve our problem-solving and thinking skills. Games can generate excitement and excitement while learning, gaming offers solutions for the educational environment. Evidently, there are studies that show that the use of computer games in students can improve critical thinking skills. Therefore, a critical thinking game can be devised to help solve the above problems. Critical thinking games are built using the Digital Game Based Learning - Instructional Design method, paradigm that uses computer games as a way to deliver learning content and utilize gamification to attract end users and engage them to understand the intended content. Design of Digital Game-Based Learning consists of several stages that must be carried out, including analysis, design, development, quality assurance, implementation, and evaluation. This critical thinking training game is named Lulu's Friend. Lulu's Friend game only implements 3 critical thinking skills, namely interpretation, analysis, and conclusions. The content of learning material in Lulu's Friend games is derived from IPA 4th grade science syllabus. So this game consists of 3 stages, namely the stage of animal food, animal life cycle stage, and stage care to animals.

### Keyword
Critical thinking; Elementary school; Science lesson; Education Game; Game Development

### References
3. [LUP07] Luppa, Nicholas, dan Terry Borst. 2007. Story, Simulations, & Serious Games. USA: Elsevier

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**Authors:** Handoko Supeno, Mellia Lithany, Eri Herlin Nurul Huda
Cost Modeling es resource allocation in the distributed data centers of a technology. Nowadays social networking system serves as an important information technology (IT) infrastructure of growth for community. Demands for scalable resource sharing in the system have become extremely important due to strong requirements imposed by the dynamic behaviour of users and resource communities. With the increasing number of entities in the system, inadequate information and unsuccessful accessibility of resources have becoming critical factors that degraded system performance. We present a hybrid resource provision scheme for improving resource communication in terms of availability and reliability while aiming for cost-effective processing. Specifically, our resource provision scheme incorporates an automated analytic for achieving accurate resource information while minimizing processing overheads and inter-communication latency. The provision scheme then incorporates trust-based scheduling policy to deal with diverse processing requirements and heterogeneous resources. Simulation experiments proved the efficacy of our scheme in achieving better trade-off between system scalability and performance; and helps sustain cost-effective computing.

Abstract: Nowadays social networking system serves as an important information technology (IT) infrastructure of growth for community. Demands for scalable resource sharing in the system have become extremely important due to strong requirements imposed by the dynamic behaviour of users and resource communities. With the increasing number of entities in the system, inadequate information and unsuccessful accessibility of resources have becoming critical factors that degraded system performance. We present a hybrid resource provision scheme for improving resource communication in terms of availability and reliability while aiming for cost-effective processing. Specifically, our resource provision scheme incorporates an automated analytic for achieving accurate resource information while minimizing processing overheads and inter-communication latency. The provision scheme then incorporates trust-based scheduling policy to deal with diverse processing requirements and heterogeneous resources. Simulation experiments proved the efficacy of our scheme in achieving better trade-off between system scalability and performance; and helps sustain cost-effective computing.

Keyword: Resource management, Communication infrastructure, Social computing, Social networking system.

References:


The demands of modern market have led construction companies to implement a competitive strategy that represents a new business approach, which should be concentrated on the effective use of all usable resources, capacities and capabilities. Knowledge has been considered as an organization’s strategic resource and as such, it needs to be managed to promote the competitive performance. For enterprises to be successful, they must exploit methodically their knowledge assets since these have an enabling role to play in the formulation of winning strategies, the organization’s mission, vision, and objectives where the knowledge management strategy should then be aligned. While addressing the organization strategy, competitive advantage is a decisive outcome. This is because of the acceptance that learning processes associated with knowledge management are instrumental in strengthening organizations’ competitive position and maintaining their sustainability. However, in the knowledge management process, individual efforts are often seen to clash with organizational culture, because it consists of the basic, taken-for-granted assumptions and deep patterns of meaning shared through organizational participation as well as the manifestation of these assumptions. Thus, this study investigates the relationship between knowledge management processes, organizational culture, and competitive advantage, by investigating the relationships between those factors in construction companies in Malaysia. Its main objective is to empirically investigate the mediating effect of organizational culture on the relationship between knowledge management and competitive advantage. Using simple random sampling, 84 CIDB Malaysia’s Grade-7 (G7) construction companies were sampled from 4,462 of total population from West and East Malaysia. The sample size was justified with Post-Hoc Power Analysis using G*Power to calculate the appropriateness of sample size. The research instruments used were the Knowledge Management Assessment Instrument (KMAI) by Lawson (2003), Organizational Culture Assessment Instrument (OCAI) by Cameron and Quinn (2006), and Competitive Advantage instrument by Byrd and Turner (2001). The main data analysis was performed using structural equation modelling (SEM) – partial least squares (PLS). The findings indicate that organizational culture partially mediates the relationship between knowledge management processes and competitive advantage.

**Abbreviations:**
- KM: Knowledge Management
- OCAI: Organizational Culture Assessment Instrument
- KMAI: Knowledge Management Assessment Instrument
44. Bharadwaj, S. G., Varadarajan, P. R., & Fahy, J. Sustainable competitive advantage in service industries: a conceptual model and
66. KLIICON. ‘The role of information technology in knowledge management within the construction industry’, Project Report of Knowledge Learning in Construction Group at the Centre for Research in the Management of Projects, University of Manchester Institute of Science and Technology. (1999)
81. Bollen, K. A., & Stine, R. Direct and indirect effects; Classical and bootstrap estimates of variability. Sociological methodology, 20(1),
Gamification Design for Teaching Numeracy to Slow Learners

Abstract: Slow learners in school are students who have difficulty in learning due of their limited cognitive abilities. Most of these students have difficulty in literacy and numeracy. There is an existing debate on how to motivate them to learn and become literate. This paper discusses the use of gamification approach in the development of an application for delivering numeracy content to slow learners in primary schools to motivate them to learn numeracy and improve their numeracy understanding in a fun and enjoyable manner. The NUMERATica application is designed using digital game-based learning instructional design (DGBL-ID) method. The development starts with requirements gathering from users and stakeholders, followed by interface and content design, development, and evaluation of the prototype. The application consists of three modules; learning, play and exercise module. Gamification is applied in each module to increase user motivation and engagement. This application can help motivate learning and promote understanding of numeracy for slow learners and gamification approach may help decrease the number of students in remedial classes.

Keyword: Gamification, Games, Numeracy, Primary school, Remedial students, Slow learner

References:

### Abstract:

Meetings are used as a medium to discuss, negotiate and make a decision on a problem based, except that the function of the meeting is often not going well in the university's faculty of informatics engineering. This happened because the results of the meeting were still scattered in several people and fields, so it was difficult to evaluate the results of the meeting, which eventually resulted in ambiguous meetings with no standardized decrees, rules, procedures that would overshadow every activity within the faculty. As well as the determination of the distribution of assignments specified in the meeting and the incentive burden. In designing this modern application, the approach that is often used is Domain-Driven Design (DDD). Applying and expanding the concepts and tasks of DDD is very challenging because it does not have a description of the software development process and classification in the software development process approach. For this reason, we provide a brief overview of the resource-oriented DDD-based software development process that takes into account the desired application requirements.

### Keyword:

Domain-Driven Design; software development process;

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**Authors:** Anggoro Ari Nurcahyo, Ade Sukendar

**Paper Title:** Domain-Design Driven Approach to E-Meeting Application Development

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10, no. 1, pp. 4–33, 2017.


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**Abstract:** Meetings are used as a medium to discuss, negotiate and make a decision on a problem based, except that the function of the meeting is often not going well in the university's faculty of informatics engineering. This happened because the results of the meeting were still scattered in several people and fields, so it was difficult to evaluate the results of the meeting, which eventually resulted in ambiguous meetings with no standardized decrees, rules, procedures that would overshadow every activity within the faculty. As well as the determination of the distribution of assignments specified in the meeting and the incentive burden. In designing this modern application, the approach that is often used is Domain-Driven Design (DDD). Applying and expanding the concepts and tasks of DDD is very challenging because it does not have a description of the software development process and classification in the software development process approach. For this reason, we provide a brief overview of the resource-oriented DDD-based software development process that takes into account the desired application requirements.
**Abstract:** Learning and playing games has a similar process. The learning process allows learners to perfect their choices. Similar to games, game players must face several choices so they have maximum results. Thus, the game can be used in learning because it sees results from its similar nature. A type of learning game in which support learning called Serious Game. To give value to the learning process. Serious Games is used to combine principles from learning theories available to its elements. Therefore, the game must have the ability to adapt to each element level. Ability to adapt not only from within the game, but also from outside. Therefore, the teacher can control the adaptation of the game based on the learner's ability. This is what causes the ability of students to reach the learning phase will diverse, based on different experiences, heredity, background, interests, and talents of learners. This paper aims to present the literature review for challenges and opportunities in serious game for learning authoring tool. Literature review was conducted with papers obtained from international journal databases, using related keywords. The review shows that authoring tool specialized to build serious game for learning is not yet present. The opportunity to make serious game for learning more efficient is open through research focusing on that matters.

**Keyword:** Serious game, learning, authoring tool, adaptive

**References:**

Automated technologies need to be applied in terms of manual work performed by humans including monitoring on pets, one of that is fish. The problem happening is monitoring the fish manually will not be maximal if the keepers are traveling. Beyond the feed quality, feed on the pH level of the timely water will affect the health of the fish. Automated fish feed and water pH monitoring are very important because it benefits fish keepers and health. This research provides a solution to monitor water pH and fish feeding schedule and when the water pH level does not match or feed the fish is low, the alarm will ring and the device will send a message to the fish watchers.

**Abstract:** Automated technologies need to be applied in terms of manual work performed by humans including monitoring on pets, one of that is fish. The problem happening is monitoring the fish manually will not be maximal if the keepers are traveling. Beyond the feed quality, feed on the pH level of the timely water will affect the health of the fish. Automated fish feed and water pH monitoring are very important because it benefits fish keepers and health. This research provides a solution to monitor water pH and Fish Feed automatically using ATMEGA 2560 and SMS Gateway. The fish watcher will automatically feed you when it fits the fish feeding schedule and when the water pH level does not match or feed the fish is low, the alarm will ring and the device will send a message to the fish keepers.

**Keyword:** Fish, Feed Monitoring, measurement of water pH, SMS Gateway, ATMEGA 2560

**References:**

4. S. Emaminejad, W. Gao, E. Wu, Z. A. Davies, H. Yin, Y. Nyein, S. Challa, Autonomous sweat extraction and analysis applied to cystic...
One of the hemopoietic disorders in humans is acute leukemia. Cell growth in acute leukemia disease occurs rapidly and uncontrollably. Therefore, in order to maximize the efficacy of treatment, there is a need to detect the disease early. Recently, Computer-Aided Detection and Diagnosis (CAD) approaches have been developed to assist medical staff in interpreting medical images. A crucial CAD technique for the diagnosis and verification of diseases such as acute leukemia is image-segmentation. However, it is still challenging to segment acute leukemia cells from the background due to the inconsistency of intensity image for acute leukemia blood samples. The original acute leukemia image firstly utilizes the formula of saturation with reference to the colour spaces of the HSI. The proposed methods are performed on 10 and 24 images of Acute Lymphocytic Leukemia (ALL) as well as Acute Myelogeneous Leukemia (AML) respectively, which have been captured using an Infinity2 camera mounted on Leica microscope. The k-means algorithm is proposed as the initial centroid for PSO, called hybrid k-means-PSO. The proposed methods are performed on 10 and 24 images of Acute Lymphocytic Leukemia (ALL) as well as Acute Myelogeneous Leukemia (AML) respectively, which have been captured using an Infinity2 camera mounted on Leica microscope. The k-means clustering are used as the reference standard for the performance evaluation. Simulation results indicate that both PSO and hybrid k-means-PSO methods have better accuracy compared to k-means with the highest accuracy obtained scoring up to 97.24% and 97.02% respectively. As a result, the proposed method can automatically segment acute leukemia cells from the background and is helpful for the classification stage.

**Keyword:** Acute Leukemia Blood Cell ImagesPSOMedical Image SegmentationS-Component ImageSegmentationHybrid K-means-PSO Image Segmentation

**References:**
Abstract: In the scope of a public university, the use of a website is becoming vital in supporting the daily function of the university. Public university websites are now becoming more like a hub that offers various services for various categories of users. With the different type of users, it posed a new challenge for web designers, especially in term of integrating the web usability and aesthetics to ensure it is suitable for all users. Both usability and aesthetics have their own importance in the overall web performance thus requires a proper integration mechanism. This research described the identification of a new set of attributes to assist web designers in designing a public university website that integrates web usability and web aesthetics. Using several usability evaluation models, usability attributes that are directly concerned with or influenced by aesthetic elements are extracted to form a new set of attributes that will integrate web usability and web aesthetics. The attributes identified were learnability, readability, use of multimedia, navigation and loading speed. The attributes identified will be useful for public universities web designers in designing a better website that not only provide optimum usability but also pleasing aesthetics.
Stacking of multiple resistance genes in crop cultivars, pyramiding, is an effective way to control plant diseases. However, due to the evolution of the pathogen, resistance cultivar can be overcome. Breeders develop pyramids with more resistance genes to improve the durability of resistance. Since it is difficult to do field experiments on the evolution of the pathogen, mathematical models become an important tool to study the behavior of evolution of plant pathogen through stability analysis. A model for the evolution of pathogen is developed towards virulence against cultivar resistance genes. The aims of this research are to analyze the stability of the steady states of the model. The results from the analysis show that only the equilibrium point (0,0,0,1) was stable while the others were unstable. This stable equilibrium point is characterized by the strain virulent to both resistance genes.

In the future, the model can be used to determine the breeding strategy for plants which can delay the evolution of pathogen and prolong the durability of pyramided plant variability.
Development of Equation to Estimate Basic Reproduction Number of Plant Disease in Case of Different Host Distribution

**Abstract:** Distribution of susceptible host between agricultural fields is a factor that effect to plant epidemic. The plant epidemic can be described by the basic reproduction number. From its definition, the high value of basic reproduction number can represent high epidemic. The equation is developed to estimate the basic reproduction number to represent the epidemic. To develop the equation, four factors such as the number of spore that the infected host can produce in the infected period, the probability that healthy host become infected host when it receive spore, the probability that the spore land in the distance and the distribution of susceptible host are considered. Then, checking the developed equation by using stochastic process. Because the difficulty of real data. The Gillespie’s Algorithm is used to select the event that will happen in stochastic process and consider 180 cases of parameter. The results show that all the correlation coefficient of the basic reproduction number from two method has more than 0.85, that is the basic reproduction number from the developed equation has a very strong relationship with the basic reproduction number from the stochastic process.

**Keyword:** The Gillespie’s Algorithm is used to select the event that will happen in stochastic process and consider 180 cases of parameter

**References:**


Leakage Resilient of Timing Side Channel Attack for Key Exchange Security Model

**Abstract:** In leakage resilient cryptography, leakage resilient key exchange (KE) protocols are constructed to resist side channel leakage attack. Side channels attacks take place during the execution of the cryptographic schemes or protocols. For a KE protocols to stay secure, counter measures must be employed on the cryptographic primitives instantiated during the protocol building to counter side channel leakage attacks. This work propose a leakage resilient key derivation function (KDF) primitive to be instantiated on KE protocol. Then, this work proceed to define a security model to show the leakage resilient (KDF) is provably secure using indistinguishability game-hopping technique. Lastly, this work revisit the KE protocol proposed by Alawatugoda and construct an improved leakage resilient KE protocol by instantiating our proposed leakage resilient KDF.

References:

Authors: Muhammad Shukri Che Lah, Mohammad Haris Haikal Othman, Nureize Arbaiy

Paper Title: First Order of Autoregressive Air Pollution Forecasting with Symmetry Triangular Fuzzy Number based on Percentage Error

Abstract: Autoregressive (AR) models is known best to predict multiple sets of stationary data. Previous AR model uses single point data, though uncertainties does exist in data due to various factor. When the data contain uncertainty, traditional procedure which is developed to handle the single point (crisp) data is insufficient to deal with the uncertain data. Moreover, unresolved uncertainty in data may increase error in prediction model. That is, data collected that contains uncertainty should be adequately treated before being used for analysis. Hence, this study proposes an first order of autoregressive (AR(1)) model building based on symmetry triangular fuzzy number. The triangles are established from percentage error method during data preparation of AR(1) modelling to address the uncertainty issue. In this study, AR(1) model with fuzzy data is built to forecast air pollution. The result of this study demonstrates that the proposed method of building fuzzy triangles for AR(1) model obtain smaller error in prediction. The improvement on the existing data preparation process sought from this study is expected to give benefit in achieving better forecasting accuracy and dealing with uncertainty in the analysis.

Keyword: left-right spread, symmetry triangular fuzzy number, AR(1), percentage error, air pollutions.

References:


Authors: Mas Rina Mustaffa, Nurul Amelia Nasharuddin, Masnida Hussin, Nur Izzaulth Nabila Mohd Nazri, Alya Hidayah Zakaria, Nik Nur Ellya Arisha Nik Ahmad Zamri

Paper Title: Automated Recyclable Waste Classification using Multiple Shape-based Properties and Quadratic Discriminant

Abstract: Nowadays, a crucial issue in major cities throughout the world is waste management where tons of waste being generated every single day. Fortunately, people can count on other methods to protect the environment through waste recycling. In most countries, waste that can be recycled are being categorised or handled manually by using human labour. The objective of this project is to develop an automated recyclable waste classification method which can replace the traditional ways of dealing with three types of waste, namely plastic bottles, papers, and soda cans. Firstly, we computed a global threshold value based on the Otsu method to obtain a binary image representation. Few morphological operators are then executed to obtain the regions of interest (waste’s object). For feature representation, we calculated multiple shape properties of the waste’s object such as perimeter, area, eccentricity, and major axis length. We experimented the extracted feature vectors with few classifiers. Our findings have shown that the waste classification prototype is able to effectively categorise waste up to 94.4% accuracy based on the proposed shape representation and Quadratic Discriminant classifier.
Abstract: In this paper a conceptual framework is proposed, where knowledge sharing (KS) works as mediator to enhance employee creativity (EC). Rigors review of literature states the significance of organizational culture(OC), internal marketing (IM) to EC in Islamic banking while KS is working as a mediator. The literature of this study contains six hypothesis. EC considered as dependent variable and there are two independent variables OC is first independent variable and internal marketing (IM) is considered second one the mediating variable for this study is knowledge sharing. The determinants in this study for OC were assimilated are “Power Distance, Uncertainty Avoidance, Future Orientation, performance orientation, masculinity versus femininity and Individualism versus collectivism”. Given framework is well suited for Islamic Banking. Later empirical research will conduct to observe the effect of given framework and hypothesis. The comprehensive propose framework in this paper contributes in empirical findings for academicians, Islamic banking industry is act as a platform, and will be helpful to the policymakers to formulate laws, rules and regulations.

Keyword: organizational culture(OC), internal marketing (IM) to EC in Islamic banking while KS is working as a mediator

References:
leadership. Journal of Business Research.


perspective requires an understanding of the relationships among new product development (NPD) characteristics, collaboration, and product innovation market performance and survival within the context of technology transfer. In this paper, we employed transactional cost economic (TCE) theory to explain the relationships between NPD characteristics (innovation uncertainty and asset specificity) and collaboration, and the mediation effect of collaboration on the relationships between NPD and performance. Based on the response of 104 product innovation recipient firms, our findings suggest a positive relationship between NPD characteristics and collaboration and market performance and innovation survival. This study revealed that, consistent with TCE theory, NPD characteristics influence the pattern of collaboration between the innovation recipient firms and the innovator, acted as an effort to reduce transactional risks. Our findings also concluded that collaboration mediates the relationship between NPD characteristics and market performance and innovation survival.

**Keyword:** New Product Development, Market Performance, Innovation Survival, Collaboration

**References:**

Paper Title: Preliminary Validity of Computerized Neurobehavioral Assessment among University Students

Abstract: Neurobehavioral disorders is a disease of neurological damage. It affects human due to exposure of chemicals from the environment that damage the nervous system. In the early 90's, the World Health Organization (WHO) had introduced a Neurobehavioral Core Test Battery (NCTB) to detect human nervous system damage by using pen and paper method. A group of researchers at UTHM have taken the initiatives to convert the conventional WHO-NCTB pen and paper method into a new computerized neurobehavioral assessment tool called Neurobehavioral Risk Assessment and Evaluation System (NeuRAES 1.0). The purpose of this study is to test the preliminary validity of this newly developed assessment tool. This study was conducted among 40 respondents from a group of university students and 15 respondents from industry. There were three types of tests carried out on this assessment, such as Benton Visual Retention Test (BVRT), Trail Making Test (TMT) and Pursuit Aiming Test (PAT). All these tests were carried out by using both methods which are the conventional WHO-NCTB pen and paper method, and the computerized NeuRAES 1.0 method. Both of these test methods were conducted among the respondents and their results were recorded and analysed statistically. Results of the study shows that TMT section A produced strongest correlation between both conventional WHO-NCTB pen and paper method, and computerized NeuRAES 1.0 method for both students and industrial workers. However, PAT produced strongest correlation among industrial workers respondents only. Several factors had been identified for improvement of this study such as increase the sample size among students and industrial workers, usage of touch screen laptop for PAT and the need to decrease the scoring bias factor.

Keyword: Neurobehavioral, validity, WHO-NCTB, computerized neurobehavioral system.

References:
8. “Methods Pooled Pursuit Aiming II and VISTECH 6000.”

Authors: Muhamad Ridwan Jamaludin, Hasif Raffidee Hasbollah, Nurul Hafizah Mohd Yasin, Mohd Firdaus Mohd Nasir, Mohd Hafizal Abdul Halim, Nik Muhammad Faris Nik Nordin, Mohd Asyraf Mohd Noor

Paper Title: Factors of Influencing Turnover Intention among Nursing Home Staff in Malaysia

Abstract: There are so many issues regarding turnover of nursing home staff that could affect the process of delivering quality of care and the organisation itself. But there is limited research focusing on nursing home staff turnover in Malaysia. A comprehensive literature review was pushed forward to examine the nursing home industry, turnover definition, and factors that can influence the nursing home staff turnover which eventually could lead harm to the nursing home organisation. Thus, the objective of this study is to determine the factors that can influence nursing home staff turnover in Malaysia. Two objectives will be achieved: (1) to determine the factors influencing nursing home staff turnover in nursing homes and (2) to identify the relationship between workload, time pressure, role conflict, social support, reward, and compensation towards turnover intention. In this literature review, 90
documents were reviewed, where 50 documents were obtained using Google search engine, Google Scholar, and wide search of Internet of professional organisation and government www-sites that produce media releases, action reports, discussion papers, and unpublished research studies that relates to nursing home staff issues. Further research could develop a theoretical framework on ways to retain nursing home staff.

Keyword: Turnover intention, nursing home staff, workload, time pressure.

References:
Performance Analysis of Roundabouts at Bandar Maharani Bandar Di Raja, Johor, Malaysia

Roundabout is one of road facilities that has been used to intentionally reduce the speed as well as conflicting points among vehicles. Therefore, roundabout is a safer option for an intersection and may also increase capacity and smoothness of traffic flow. The aim of this study was to determine the level of service of three main roundabouts in Bandar Maharani Bandar Di Raja, Muar namely roundabout of Jalan Bakri, roundabout of Jalan Sulaiman and roundabout of Jalan Abdul Rahman. Hence, the traffic pattern was identified by analyzing the commuter data at Jalan Khalidi. In this study, 12-hour of manual counting was carried out manually and then, the turning movements at roundabouts was determined by using videotaping method via drone. The flying and recording durations were 20 and 15 minutes, respectively. Data were extracted from the video to obtain flow rate using the derivation of peak hour factor formula. The traffic pattern analysis showed that the morning peak 15-minute were at 7.00 to 7.15 a.m. These 15-minute times were used to obtain flow rates of movements at roundabout through a simple peak hour factor analysis for determination of level of service. In the performance analysis, the overall level of service of Jalan Bakri /Jalan Sulaiman/Jalan Abdul Rahman roundabouts during morning and
evening peak hour were D/F/E and B/F/F, respectively. In the contrary, as expected, the level of service of these three roundabouts during off-peak hour were A, D and A. These outcomes are expected to be benefited by the Majlis Perbandaran Muar for better traffic management of Bandar Maharani.

**Keyword:** Delay, Level of Service, Roundabout, SIDRA Intersection 8.0

**References:**

**Authors:** Puteri Nor Ilya Nadia Zulkifli, Emelia Akashah P. Akhir, NorShakirah Aziz, Karl Cox

**Paper Title:** The Development of Data Quality Metrics using Thematic Analysis

**Abstract:** Data quality management remains a challenge in every organization in which high quality data needed to help in decision making. Poor data quality management has a negative impact that can result in financial loss, loss of privacy, business process failure and inefficiencies, creates legal and security risks and loss of reputation. Much research has been conducted on data quality metrics and related information such as selecting data quality dimensions but most of the studies on data quality metrics are less than fit to help in decision making[1]–[8]. There is also lack of standardization regarding usage of each dimension. These reasons provide the rationale for the objectives of this study which are (1) To investigate the appropriateness of dimensions used in existing data quality metrics that used in assessing data quality and (2) To propose a data quality metrics to assess quality of data. The study conducted an extensive literature review to address the objectives. We used thematic analysis to determine the theme studied by each paper. Then, a data quality metrics is suggested with dimensions that are discussed. The study found that key to importance is accuracy, completeness, timeliness and scope of data.

**Keyword:** data quality, data quality dimension, accuracy, completeness, timeliness

**References:**


Authors: Nooraini Hamidon, Sharizal Fadlie, Abadi Azhar

Paper Title: Console Application to Predict Satellite Position for Novice Learner

Abstract: A satellite is an object that orbits around a larger object in space, such as the earth that orbits the sun and the moon that orbits the earth. We can see the location of the satellite using the satellite tracking software such as Satview and Orbitron. The main issues are most of the student only knows the position of the satellite by using a commercial satellite tracking system without learning how it is worked. The purpose of this research is to identify how to simulate the position of the satellite in its own orbits from our location at the specified time. In order to properly determine the position of any earth orbiting object, it is necessary to determine the osculating orbital elements of the selected satellite by using two line element (TLE) set provided by North American Aerospace Defense Command (NORAD). Here, the model Simplified General Perturbations (SGP) must be used to predict the most accurate the position and velocity of the satellite derived from the calculation of orbit state vectors of satellite and space debris relative to the Earth-Centered Inertial Coordinate System. This model is able to determine the most accurate satellite’s position before, after and during an epoch. To perform this methodology, an application is developed with an easy implementation using programming language C++ that able to provide the position of the satellite at high accuracy. This program will present the NORAD TLE as the input data, while the output provides the latitude, longitude and altitude also a summary of the application. Hence, this development tool will provide a better understanding and help in learning how to calculate orbit state vectors of the satellite in order to determine the position and speed of the satellite.

Keyword: Simplified General Perturbations (SGP) Algorithm, Two Line Element (TLE), Earth-Centered Inertial Coordinate System.

References:
4. Dusan Vuckovic, PetarRajkovic, DraganJankovic and Olivera Pavic (2010); Guidelines for Satellite Tracking. Faculty of Electronic Engineering, University of Nis, Serbia

Authors: Mardiha Mokhtar, Ahmad Hakimi Mat Nor, Masiri Kaamin, Nor Baizura Hamid, Mohd. Erwan Sanik, Muhammad Syafiq Nor Azlan, Muhammad Isma Haziq Mohd Zukifi, Muhammad Ishraf Mohd ‘Ashri

Paper Title: Inspection Analysis of Historic Buildings with Aid of “Unmanned Aerial Vehicle” (UAV)

Abstract: A precise evaluation of buildings is a challenging task. Safety assessment based on qualitative and quantitative data is needed before any data can be interpreted. Quantitative data requires complex methods which enable professionals will make it time and money consuming. Therefore, it is very important to use simpler methods in order to evaluate the potential risk of buildings as a first step towards preservation. Building maintenance is very important in ensuring the condition of historical building is still in a good condition. The purpose of the maintenance
is implemented at the Governor’s Museum and Melaka Literature Museum which located in downtown Melaka. As such, the CSP1 Matrix or “Condition Survey Protocol 1” method is used to assess the external structure of the building. The structure of a building cannot be effectively identified if proper maintenance is not performed. This is also likely to result in future structural failure of the building which contributes to undesirable accident. Therefore, the use of UAV in building observation and CSP1 Matrix methods was successfully applied in classifying each available inspection analysis of historical building.

Keyword: Unmanned Aerial Vehicle (UAV), CSP1 Matrix, Historical Assessment Building Survey (HABS), Building Defect

References:

Authors: Tengku Nur Azila binti Raja Mamat, AinulAkmal bin Jaafar, Mohamad Khamil Amin bin Mohamed Taib

Paper Title: Design for Disassembly in Extension Cable Manufacturing

Abstract: This research is conducted to propose an extension cable design that meets disassembly concept. At the end of a useful life cycle of extension cables, most of damaged or broken extension cables are thrown away without any consideration to dismantle the product for repair, reuse or any other proper treatment. This is due to the difficulties faced by the users to dismantle the housing of extension cables. With the disassembly concept embedded in the proposed design, repair of damaged or broken extension cable will be easier, and components of extension cables that are still in good condition can be reused. To meet the mechanical and functional properties of the extension cables, analyses on the properties of the mechanism extension cable is applied to the proposed design. Using the simulation function in SolidWorks software, two different simulations are conducted, namely finite element analysis (FEA) and thermal analysis. After the SolidWorks simulation is successfully analyzed, design for manufacturing and assembly (DFMA) analysis is carried out to compare the existing design and the proposed design of the extension cables in terms of costing and assembly efficiency. The results of this research is eventually will lead to a better design of extension cable in meeting the assembly and disassembly purpose. Based on the results obtained, the snap fit mechanism that has been applied on Design B is the best design in this research in terms of DFA index and total manufacturing cost which the value is 30.3 and $1.34, respectively.
**Keyword:** Sustainability, green design, disassembly, DFMA.

**References:**


**Authors:** Afiqah Zahirah Zakaria, Sofia Najwa Ramli, Chuah Chai Wen, Cik Feresa Mohd Foozy, P. Siva Shamala Palaniappan, Nur Fadzillah Othman

**Paper Title:** Enhancing the Randomness of Symmetric Key using Genetic Algorithm

**Abstract:** The focus of network security is to provide the secure, effective and private communication between the sender and the receiver. To achieve the aim of high security of sending information, the improvement in cryptography is needed to make sure the protection of the information against unauthorized users. Symmetric-key cryptography satisfies the constraint of resources in computational complexity performances, but it offers weak security since it is not resilient against physical compromise. One of the way to overcome the issue is by providing a cryptographic key that is strong, hard to break and almost unpredictable by the intruder. As the advancement of technology in Artificial Intelligence (AI), Genetic Algorithm (GA) is implemented to generate the best-fit key in symmetric-key cryptography. Due to natural selection of GA process, the generated key is found to be the most random and non-repeating as possible. Moreover, the fitness test shows the average fitness value of a generated key increases when the key length increases.

**Keyword:** Best-fit Key, Genetic Algorithm, Randomness, Symmetric-key

**References:**

7. Tipevic, Mario & Kaya, Koc, Cetin. “True Random Number Generators,” in Open Problems in Mathematics and Computational Science,
56. **References**

Factors Influencing Recycling Intention among University Students

Abstract: In Malaysia, the awareness of recycling to reduce household waste among Malaysians are quite low. Research has shown that the Malaysians’ recycling rate was as low as five percent only. Hence, the purpose of this research is to determine the factors influencing the recycling intention among university students. Seven hypotheses were conducted with seven factors which were attitude, subjective norm, perceived behavioral control, past behavior, perceived moral obligation, knowledge and inconvenience, which were believed to influence the recycling intention among UTHM students. In this research, 375 Universiti Tun Hussein Onn Malaysia (UTHM) students were selected randomly from the total of 11888 students to complete the questionnaire. The data collected were analyzed quantitatively by using descriptive analysis, correlation analysis, and regression analysis. The results showed that all the factors were positively correlated with recycling intention. However, the regression analysis indicated that past behavior and subjective norm had more impact on recycling intention if compared to other factors. The findings of this study could improve the awareness of recycling and encouraging the recycling intention among Malaysians.

Keyword: UTHM students. In this research, 375 Universiti Tun Hussein Onn Malaysia (UTHM) students were selected randomly from the total of 11888

References:
perceived importance, or individual characteristics? Information and Management, 42, pp. 143–158.

**Authors:** Nurul Afiqah Abdul Aziz, Sa’adah Hassan, Novia Admodisastro

**Paper Title:** Prioritizing based on Crowd Preferences to Requirements Elicited from Crowd’s Sentiments

**Abstract:** The current trend in software engineering is using crowd as source of ideas for developing software product. Crowd is described as a large and heterogeneous group of stakeholders. Crowd is also used as a source of requirements, for example, the requirements can be elicited from their reviews, reports, or feedback. However, the challenge is to prioritize the requirements knowing that the data is also large and heterogeneous. Requirements prioritization is an approach to identify requirements that need to be selected and implemented first in software development. This paper presents an approach to prioritize requirements elicited from crowd and the prioritization is based on the crowd preferences in order to ensure the customer satisfaction. A prototype tool is developed as a proof-of-concept and evaluation purposes. It is expected that the proposed approach able to helps developer to prioritized requirements based on customers’ preferences as it would consider their satisfaction of the software product.

**Keyword:** crowd, elicitation, requirements prioritization

**References:**
Abstract:
Concrete is widely used as one of the important construction materials. Recently, the problems faced by the construction industry is a significant shortage of raw materials. Thus, various methods are being adopted to reduce the use of concrete. In case of simply supported RC beams, the transition from compression to tension zone at the middle area of neutral axis in stress distribution of a beam was identified as the ineffective region. So, the use of concrete in this ineffective region was replaced by the voided system to the beam by incorporating PVC pipe in order to reduce the weight of the structure. Therefore, the research objectives in this study are to investigate the flexural strength of voided reinforced concrete (RC) beam with various diameters, to determine the total reduction of concrete usage, self-weight, and strength increment of voided RC beam, and to compare the structural strength performance between voided and ordinary of RC beam. The experimental work consists of

Authors:
Hamidun Mohd Noh, Norlailatul Izzatil Azzani Mohamad, Nur’ain Idris, Nurazuwa Md Noor, Narimah Kasim, Norliana Sarpin, Rozlin Zainal

Paper Title:
The Use of Voided Reinforced Concrete in Structural Member

59.

347-350
casting and testing the 1200 x 160 x 160 mm beams with (Ø40mm, Ø50mm, and Ø100mm) and without void at the neutral axis. In order to investigate the flexural strength of the beams, the 3-point loading test has been carried out and the flexural strength between voided and ordinary RC beams were compared. The test results indicated that the strength performance of all RC beams with voided section is stronger than the ordinary RC beam where the V50 RC beam is able to withstand loads up to 38.25kN and has a strength increment of 49.2% compared to the ordinary RC beam. By this material optimization, the reduction of concrete usage and self-weight of the V100 RC beam recorded a reduction of up to 35.14% but in terms of its strength is relatively low compared to the V40 RC beam and V50 RC beam. This study has shown that the replacement of concrete in RC beam with PVC pipe shows a positive result in reducing the dead load without affecting the strength of the structure.

Besides aiming to the reduction of concrete usage and structure’s self-weight, the idea of this research could be used and implemented in producing a lightweight structure with easy handling and installing, and at the same time focusing to meet the IBS system.

**Keyword:** reduction of concrete usage, self-weight, and strength increment of voided RC beam,

**References:**


**Authors:** Fadratul Hafinaz Hassan, Nur Syifa Abdul Razak, Najihah Ibrahim, Wong Li Pei, Mohamed Najib Salleh

**Paper Title:** Pedestrian Evacuation Route Plan using Existing Optimal Exit Selection Algorithms

**Abstract:** The optimal exit selection by the pedestrians is important especially for the evacuation process during panic situation to reduce casualties. Nowadays, the efficiency of the evacuation process had become one of the issues during emergency incidents due to the difficulties faced by the pedestrians to access the exit points and the formation of clogging region near to the exit points and narrow pathways. Hence, the simulation of the pedestrian evacuation had been introduced as the potential solution exploration by imitating the emergency situations for predicting the survival rate and the casualties of the pedestrians involved. The pedestrian movement in the simulation will construct the movement patterns that are able to assist the development of the emergency route plan for guiding the pedestrians to find the nearest exit to escape. However, the route plan designed based on the ordinary pedestrian movement simulation will highlight the nearest exit instead of the optimal safest exit for the pedestrian to evacuate safely. Hence, to design a low-risk exit selection, this research had made a survey on three existing algorithms to optimize the exit selection process; multi-agent based algorithm, least effort algorithm and game theory algorithm. The experiments were conducted with three different structural layouts (number of doors) with variety number of dataset (number of pedestrians). The result of this research had shown that the game theory
algorithm was able to assist the pedestrian movement towards the optimal nearest and safest exit for evacuation process and capable to enhance the simulation for designing a feasible emergency route plan to reduce casualties.

**Keyword:** Pedestrian Movement, Evacuation Route Plan, Optimization, Exit Selection.

**References:**

3. B. N. Jay, "Tahfiz did not have fire exit; bodies found piled on top of each other," in New Straits Times, ed. Malaysia: New Straits Times Press (M) Berhad, 2017.
Abstract: This paper aims to lay down the existing evidence concerning agile software estimation, it summarizes the empirical evidence of the existing agile estimation methods, identify gaps in the current research in order to suggest areas of further investigation and improvement, and to provide a basis for the improvement of agile software estimation research through a systematic review of previous work. The contribution of this paper is twofold, first is providing a basis for the improvement of agile software estimation through a systematic literature review of previous work. Secondly, it presents a recommendation for further research based on the results presented in this paper and the recommendations by well-known researchers in the field of software engineering in general and in software estimation in particular.

Keyword: evidence of the existing agile estimation methods,

References:

6. M. Fowler and J. Highsmith, “Facilitating change is more effective than attempting to prevent it. Learn to trust in your ability to respond to unpredictable events; it’s more important than trusting in your ability to plan for disaster.,” p. 7, 2001.
Abstract: Mobile Augmented Reality (MAR) has matured significantly over the past decades and has evolved from the conceptual idea of augmented reality experience to its actual practical applications used on smartphones. Researchers have resolved to employ the concept of engagement in designing the MAR applications to attract museum visitors’ interest and ensure a more effective learning environment. However, most of these MAR applications are largely tailored to normal hearing visitors while the hearing-impaired (HI) visitors are less supported. The HI visitors have to go through unpalatable experiences and eventually become dissatisfied with their museum visit. This paper elaborates on the process of designing and developing a Mobile Augmented Reality for the HI museum visitors’ engagement (MARHIME) app. The purpose of this app is to engage the HI museum visitors by supporting the conceptual idea of augmented reality experience to its actual practical applications used on smartphones.

Keywords: Mobile Augmented Reality, Engagement, Museum, Hearing Impaired, MARHIME

References:
63. Adsorption in Kangkar Senangar’s River

**Authors:** Nuramidah Hamidon, Nabilah Nazri, Mariah Awang, Norshuaila Mohd Sunar, Mimi Suliza Muhamad, Nur Aini Mohd Arish, Hasnida Harun, Hazren A. Hamid, R. Ali, Mohammad Ashraf Abdul Rahman

**Paper Title:** Surface Water Treatment using Pomelo’s Peel (Citrus Grandis) and Biosand Filter as Iron (Fe) Adsorption in Kangkar Senangar’s River

**Abstract:**
Water is our most precious natural resource. Based on this study which was conducted in Kangkar Senangar, Johor, the majority of rural communities still drink superficial water that does not meet the required standard of quality, which can cause serious health problems. From the interview with the Village Head, it is also noted that they also do not have enough source of water supply. They only use groundwater as their water source to complete daily life tasks. The ability of Pomelo Peel is tested as natural adsorbent, to remove Iron (Fe) from aqueous solution by adsorption was investigated. Characterization of adsorbent was done by SEM and FTIR analyses to observe the surface morphology and functional groups available on the adsorbent. Adsorption was most efficient when 0.20g of adsorbent was used with 50ml of water sample that was taken from Kangkar Senagar’s river. 0.20g was the optimum weight of pomelo peel powder with contact time of 20 minutes to change the quality of water sample. Based on the results, the higher the adsorbent dosages, the higher the adsorption removal of Fe. The highest adsorption removal of Fe was 80.84%. After the adsorption, the water sample was treated using Biosand Filtration (BSF). The function of BSF was to reduce the turbidity, change the colour of water sample, increase the pH and dissolve oxygen. The BSF filtered all the suspended matters in the water samples after the adsorption and produced clearer water.

**Keyword:** Pomelo peel, Adsorption, Iron (Fe), Biosand Filter, Water quality

**References:**

2. A. Aliamat, “Study On Comter and Biosand Filter For In Rural Area,” University Malaysia Pahang, 2012.
Keywords: This study aim to present a set of data mining algorithms to find the most important factor of employability among the fresh graduate students.

References:
This paper explores emojis as graphical password alternative for user authentication. The assumption of emojis is easier to remember and more secure has motivated the researchers to enhance existing graphical password authentication scheme. Most of the graphical authentication schemes provides longer authentication times and therefore emojis were chosen to be the alternative to reduce login times and exhibit picture superiority effect. The usability and security evaluation have been conducted to explore the differences among efficiency, effectiveness, memorability, user satisfaction, and password space and entropy of the prototype. The findings showed an acceptable level of efficiency, effectiveness and user satisfaction of the proposed system while the superiority effect. The usability and security evaluation have been conducted to explore the differences among the prototype. Based on findings, this study provides recommendations for designing more usable and secure authentication schemes.

**References**

Applicability of Website Fingerprinting Attack on Tor Encrypted Traffic

**Abstract:** Tor is a famous anonymity tool that provides Internet users with the capability of being anonymous in the Internet. By using the Tor network, a user can browse without anyone knowing the truth of the communication. Numerous studies have been performed worldwide on deanonymizing the Tor user. One of the popular studies is the Website Fingerprinting (WF) attack, a subset of passive traffic analysis attack. WF consists of complex traffic analysis processes with several limitations and assumptions on the Tor network. In this paper, we will discuss the fundamental principal of WF on Tor network, its assumptions, and discussion on whether WF is considered as traffic analytical processes with several limitations and assumptions on the Tor network. This study has found that with the advancement of WF attack, it is applicable to be utilized on Tor encrypted traffic and might become a serious threat to Tor's user anonymity if no proper defense is proposed to prevent the improved WF attack.

**Keyword:** website fingerprinting; Tor; machine learning; security; survey;

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Cryptography is an area of computer science that provides security for data transmission to make the data more secure and shows the most compatible algorithm for the web browsers. At the end of this study, AES is found to be currently the most secure algorithm. The web browser threats need to be prevented with their solutions. Different encryption algorithm (symmetric, asymmetric) has been used to achieve accurate, accountability, authentication, and confidentiality. Encryption algorithm plays an important role in securing the information or data. Different encryption algorithm (symmetric, asymmetric) has been used to achieve security of data. Yet, those algorithms consume many computing resources such as computation time, battery power and memory. This paper presents the web browser threats and solution for it to make the web browser more secure and shows the most compatible algorithm for the web browsers. At the end of this study, AES is found to be the best algorithm for web browser security as it offers highest encryption rate, smallest memory usage, and currently the most secure algorithm.

**Authors:** Liew Sue Hui, Ang Ching Wen, Ong Chia Teng, ZarulFitri Zaaba, Azham Hussain

**Paper Title:** Investigations and Assessments on Web Browser Security

**Abstract:** Web browsers are growing very fast and widely used by many people, so the need to protect it and secure the data transmission is increased. The web browser threats need to be prevented with their solutions. Cryptography is an area of computer science that provides security for data transmission to make the data more accurate, accountability, authentication, and confidentiality. Encryption algorithm plays an important role in securing the information or data. Different encryption algorithm (symmetric, asymmetric) has been used to achieve the security of data. Yet, those algorithms consume many computing resources such as computation time, battery power and memory. This paper presents the web browser threats and solution for it to make the web browser more secure and shows the most compatible algorithm for the web browsers. At the end of this study, AES is found to be the best algorithm for web browser security as it offers highest encryption rate, smallest memory usage, and currently the most secure algorithm.

**Keyword:** Security, Cryptography, Algorithms, Web Browser Security

**References:**

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<th>Authors:</th>
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<td>Paper Title:</td>
<td>Exploring Issues and Problems Perceived by Occupants of Malaysian Affordable Housing</td>
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<td>Abstract:</td>
<td>The Malaysian government is giving greater emphasis on efforts to develop more affordable housing in order to solve the housing problem for low-income families. However, due to several factors, the supplies of affordable housing meet many problems. According to that, this paper aims to emphasize the significant problems related to affordable housing and set out various options that should be a priority in providing comprehensive...</td>
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solutions. Through the literature review, a total of 27 problems of five major categories have been identified. Data gathered from 189 respondents which comprise of owners and tenants of affordable housing using a questionnaire survey. The level of importance of the categories was measured and the relative importance of weights was ranked. The findings indicated that the most significant problems perceived by residents of affordable housing is related to financial while site and neighborhood problems category less significant. Hence, it is highly advisable to address these problems to ensure the sup-plty of affordable housing in the future will be more efficient and meet its goals.

**Keyword:** Housing quality, Issues and problems, Malaysia, Occupants, Perception

**References:**

**Authors:** Adila Firdaus Binti Arbain, Dayang Norhayati Abang Jawawi, Wan Mohd Nasir Bin Wan Kadir, Imran Ghan

**Paper Title:** Requirement Traceability Model for Agile Development: Results from Empirical Studies

**Abstract:** Currently, it is crucial to develop software within the time frame given. Agile software development methodologies offer methods to develop a system in term of time and cost saving but has been criticized for not offering software quality management (a.k.a Non-Functional Requirement, NFR) properly. An empirical case study has been conducted used to find out the need of a traceability approach for NFR change impact in most of Agile software methodology (TANC). TANC is improved and further evaluated by using expert survey analysis method.
Based on the results of the expert survey analysis TANC has been proven to fulfill the characteristics of the criteria that needed to be a traceability approach in Agile Software Development for tracing NFR change impact. Thus, this proves that TANC offered better way to trace change impact during the agile development process.

**Keyword:**  Requirement, Traceability, Empirical Study, Agile Software Development.

**References:**

1994., Proceedings of the First International Conference on (pp. 94-101). IEEE


**Authors:** Faridahanim Ahmad, Shamila Azman, Mohd Ismid Mohd Said, Nor Hazren Abdul Hamid, Hasnida Harun, Mariah Awang, Mohamad Ashraf Abdul Rahman

**Paper Title:** Interaction Fugacity Model for Water, Sediment and Seagrass

**Abstract:** Fugacity concept is convenient in environmental chemical equilibrium. Mathematical model for simulation of chemical movement in the estuary consists of 3 compartments which are water, sediment, and seagrass. The influence factors at site location such as area, depth, volume, mass of water, mass of sediment, mass of seagrass, and current water flow were identified. The current water flow at Pulai River Estuary was measured in order to identify the allowable distance from mouth of Pulai River to Pulaiseagrass bed. The average wind speed can be found from World Weather and Climate information, 2015. The estimation method is practically used for getting the approximate estimation of concentration in each medium. The ratio of the concentration in each medium is called ‘concentration factor’. The ratio between seawater and sediment is 1: 1.439 x 10-3; ratio between sediment and seagrass is 1: 4.25 x 10-9; and the ratio between seawater and seagrass is 1: 6.11x 10-12 C3. Thus, quantitative water, sediment and seagrass fugacity/ equivalence mass balance model was developed for Pulai River Estuary is relevant.

**Keyword:** Estuary, Fugacity, Modeling, Seagrass.

**References:**


**Authors:** Noralfishah Sulaiman, Teo Wei She, Terrence Fernando, Shiau WeiChan, Ahmad Farhan Roslan, Siti Kursiah Kamalia Abdul Latib

**Paper Title:** Multi-Agency Collaboration in Flood Disaster Management in Sarawak, Malaysia
Abstract: In reducing the impact of current and future disasters so as to form a resilient future, disaster management deserves highest priority and plays a vital role in managing the risk of disaster. However, it cannot be addressed or undertaken by the government alone. It requires a strong supporting multi-agency collaboration to undertake various types of tasks at various stages of the disaster management cycle which has been mentioned as a key point of professionalism in disaster management activities. To accomplish a successful multi-agency coordination in Sarawak flood disaster management, collaboration among the relevant agencies plays a vital role for aim to reduce or avoid the potential losses from hazards, assure speedy and appropriate assistance to the victims of disaster as well as achieve rapid and effective recovery. Therefore, this paper reviews the concept of collaboration and collaboration of relevant agencies in disaster management through a case study in Sarawak, Malaysia. This paper is prepared by conducting a series of literature review in order to establish a foundation for a new insight of contribution to knowledge. Content analysis, a pure qualitative method is used to identify related agencies with disaster management in the state of Sarawak, Malaysia. The content analysis was conducted by reviewing content of 39 related agencies from Sarawak. It is envisaged that the findings of this study could be clinically useful for building a successful multi-agency coordination in Sarawak, Malaysia disaster management.

Keyword: Therefore, this paper reviews the concept of collaboration and collaboration of relevant agencies in disaster management through a case study in Sarawak, Malaysia

References:


Authors: Siti Nor Asyiqin Ramli, Khaireunnisa Kadaruddin, Mohamad Faiz Zainuddin, Zulkifly Abbas

Paper Title: The Development of Low Cost Turbidimeter using Smartphone Camera and Image Processing

Abstract: In this paper, the design fabrication and development of a low-cost turbidimeter with a smartphone camera and image processing are demonstrated. The turbidimeter serves as a simple and low cost alternative to professional standard turbidimeters as well as other proposed turbidimeters presented in other studies. This turbidimeter is made from affordable and widely available materials and electronic components. The proposed turbidimeter was tested and able to determine the turbidity of Formazine samples between 0 and 100 NTU with the coefficient of determination $R^2=0.982$. The overall cost of this turbidimeter is only USD4.35, which is well below the cost of other proposed turbidimeters.
Keyword: turbidity, water quality, smartphone, greyscale, image processing.

References:
31. MATLAB, “rgb2gray (Online article)”, MathWorks Inc., USA.
33. M. Brecht, Institute of Physical and Theoretical Chemistry, Germany, email communication, June 2018.
34. N. Mansurov, “Introduction to ISO in photography (Online article)”; unpublished.
The Effectiveness and Efficiency of a GPS Route and Voice Navigation App

Abstract: The study carried out the usability testing of a GPS route and navigation application (Street View HD app) in Universiti Utara Malaysia (UUM) environments with a total of 10 test users. The usability of the application was captured by observation. The results showed that the application was effective and efficient. However, a close look at the error frequency indicates that there are still issues to be addressed in the application’s interface as some users made some errors while accomplishing their tasks on the interface.

Keyword: Effectiveness, efficiency, mobile application, voice navigation

References:
impressive and comfortable in use. The summary of these findings was that the Flipboard mobile app was perceived usable and comfortable to use by majority of the study participants.

**Keyword:** Mobile app, comfort in use, perceived usability evaluation

**References:**


**Authors:** Mohammed Kamel Madi, Khuzairi Mohd Zaini, Amran Ahmad, Suzi Iryanti

**Paper Title:** Layered Based Classification Framework For Network Fault Management using Machine Learning

**Abstract:** The ever-increasing amount of networking data as well as the complexity of telecommunication networks is also increasing, consequently the task of network management and troubleshooting is getting more complicated and difficult. Network troubleshooting is an important process, which has a wide research field. The first step in troubleshooting procedures is to collect information in order to diagnose the problems. Syslog messages, which are sent by almost all network devices, contain a massive amount of data related to the network problems. Detecting network problems could be more efficient if the detected problems have been classified in terms of network layers. In this paper, we focus on the usage of classification technique in the field of network management, more specifically in fault management. This paper proposes a layered based classification framework to classify syslog messages that indicates the network problem in terms of network layers. The method used data mining tool to classify the syslog messages, while the description part of the syslog message was used for classification process. Related syslog messages were identified; features were then selected to train the classifiers.

**Keyword:** About four key words or phrases in alphabetical order, separated by commas.

**References:**

5. J. Manyika, M. Chui, B. Brown, J. Bughin, and R. Dobbs, Big data: The next frontier for innovation, competition, and productivity, 1st
Categorization Refactoring Techniques based on their Effect on Software Quality Attributes

Abstract: refactoring techniques don't always improve all aspects of software quality attributes. Different types of refactoring techniques have different types of effect on different software quality attributes. Consequently, software practitioners encounter challenges in selecting appropriate refactoring techniques to enhance the quality of software design in support of particular design goals. Therefore, categorization refactoring techniques depending on their influence on quality attributes is significant to enable software practitioners in improving software quality by selecting suitable refactoring techniques. A systematic review has been accomplished to determine and analyze studies which tightly related to categorize the refactoring techniques depending on their influence on quality attributes. 14 primary studies have been found and selected for analysis. The obtained results showed that there is a lack of studies regarding the categorization of the refactoring techniques and the current works are insufficient to solve the challenges facing software practitioners. Several recommendations have been suggested to address these gaps.

Keyword: categorization refactoring techniques, refactoring techniques, software quality attributes.

References:


Authors: Abdullah Almogahed, Mazni Omar, Nur Haryani Zakaria

Paper Title: Categorization Refactoring Techniques based on their Effect on Software Quality Attributes
commitment from the university’s management is called for to ensure that its campus community can enjoy working in an environment that is mutually trusting, happy, productive, and safe. This study investigates the management commitment of several local universities through the eyes of its students and staff totalling 221 respondents. Assessment of the three regression models found Management Commitment significantly mediating the Behavioral and Personal Compliance relationship. This increased Management Commitment level subsequently pushes the average agreement level that the students and staff have for Personal Compliance. That management commitment has a mediating role to play in the interaction of these variables in the university environment confirms the Social Exchange Theory, where the students and staff would give back to the university what they have taken as a token of appreciation for top management’s effort at looking after their well-being. This study implicates management commitment as a critical component for achieving safety, health, and well-being of every employee under its charge. Upholding OSH reflects an acceptance of all the priorities set out in the master plan that will nurture a working environment that cares about safety and health.

**Keyword:** Compliance, Management Commitment, Occupational Safety and Health, Safety Behaviour.

**References:**

Agile software development methodology (ASDM) has become a more popular development method for software development through simple work processes. Agile adoption is nonetheless a complex task, and not all agile processes and practices are suitable for small-scale startups. There are some agile practices that have negative impact on startups. The failure of some startups is mainly caused by the failure to develop products due to the lack of adopting of proper development methodology. However, there is a lack of studies on factors that affect the selection or adoption of agile methodologies. This study therefore attempts to showcase the motivation rationale for agile adoption among software startups in Saudi Arabia. An online survey was conducted for software startups in the Kingdom of Saudi Arabia to elicit their responses on their motivations for adopting agile methodologies. The outcome reveals that the top five motivations for agile adoption are the need for accelerated product delivery, enhanced ability to manage changing priorities, increased software maintainability, simplified development process, and need for enhanced delivery predictability. This outcome will support startup companies, projects managers and development teams, etc.

**References:**


Authors: Emmanuel O.C. Mkpojiogu, Nor LailyHashim, Azham Hussain, KianLam Tan
Abstract: One of the most trending and current technological innovations in mobile commerce today is mobile banking or m-banking for short. Notably, the ever growing market for mobile phone have led to a consequent parallel mounting opportunities for the growth and saturation of m-banking enterprises with lots of accruing business dividends following. This notwithstanding, the m-banking apps’ usage context presents pronounced challenges particularly with regard to usability in mobile context and to the apps acceptability and comfort in use. The uniqueness features of mobile phones such as non-traditional input method, limited memory space and battery life, smallness of screen size among others, make usability very complex, hard and difficult and thus, negatively impacting users’ perceived satisfaction, enjoyment, comfort of use and usability of the m-banking apps’ interfaces. In the design, service and evaluation of mobile phones, usability is counted as a central issue. This is because users access and use a range of functions and features in an app through the obviously limited user interface regularly whilst they are on the move (or busy doing other activities). These usability challenges by implication have effect on the users’ perceived satisfaction and the comfort of use of these apps. This paper reports on a study of comfort-of-use and perceived satisfaction for three banks in Nigeria by users of m-banking apps. In the study, the effect or influence of user demographics such as age, experience, education and gender, on the users’ comfort of use and on their perception of satisfaction about the usability of m-banking apps were assessed and evaluated. The study was triggered because of the scarcity of studies related to this very important domain. This study’s data was captured online via an online-based survey. The study’s outcome reveals that these demographics have significant impact on the comfort of use and the perceived satisfaction and usability of m-banking apps. These results will ultimately assist banks in improving on their m-banking apps so as to capture, sustain, and enhance their customers’ loyalty and patronage and improve their revenue standing, return on investment and overall competitive advantage.

Keyword: Application Usability, Mobile Banking, User Satisfaction.

References:


Authors: Emmanuel O.C. Mkpojiogu, Nor Laily Hashim, Azham Hussain

Paper Title: Enhancing the Quality of Software Requirements Artifacts with Scoring Rubrics-Assisted Reading Technique

Abstract: The quality level of software requirements artifacts depends on how adequate such artifacts are read. Several reading techniques exist and the most frequently used is the checklist reading technique. Though checklist is an improvement over the ad hoc approach, it is however, laden with some setbacks that impacts on its usability and efficacy. It presents before readers questions that lack detailed guides as to how to carry out the requirements artifacts reading process. In this study, scoring rubrics-assisted reading (SRAR), which over the years has been used in Universiti Utara Malaysia’s School of Computing (Software Engineering sub-department) in the assessment of students’ requirements’ artifacts, was empirically evaluated. SRAR is a checklist-like reading approach that can be used for the evaluation of the quality of software requirements artifacts. The main objective of the study is to evaluate SRAR. Scoring rubrics were employed in the reading of requirements artifacts. The review was done by four independent experts in two iterations. The difference in the mean rubric scores between round sof reading was used as the performance metrics to measure the improvement in the quality of the artifacts. Initial results indicate that SRAR has efficacy as there was decrease in defects after refinement using SRAR. The paper will be useful to requirements engineers and the research community as the evaluated technique is conceptually a superior alternative to the checklist and ad hoc reading techniques.

Keyword: quality improvement, software evaluation, work products

References:
**Abstract:** This paper explains the verification process of a proposed model for evaluating the usability of chronic disease management (CDM) applications. This research aims to symbolize main practices in evaluating the usability of the CDM application. Twelve (12) usability experts from academia, medical and mobile application development from around the globe participated in examining the model components. The experts completed a verification form and questionnaire that measured the model in terms of consistency, understandable, ease of use, tailorable, verifiable and overall impression. Furthermore, the proposed model has been modified based on the comments and suggestions received from experts. Similarly, the experts’ questionnaire result indicates that the proposed model is original, complete and acceptable. Therefore, this study will provide additional knowledge in both theory and practice towards model verification process, especially for usability evaluation of disease management applications.

**Keyword:** Chronic disease management apps, Dimensions, Mobile health, Usability

**References:**

8. A. Hussain, "Metric based evaluation of mobile devices: mobile goal question metric (mGQM)," University of Salford, 2012.
### Authors:

Idyawati Hussein, Azham Hussain, Emmanuel O.C. Mkpojiogu, Sherina Soosay Nathan, Zarul Fitri Zaaba

### Paper Title:

The Knowledge of Human-Computer Interaction (HCI) and User Experience Design (UXD) in Malaysia: An Analysis of the Characteristics of an HCI-Focused Conference

### Abstract:

This study assesses the level of the knowledge of human-computer interaction (HCI) and user experience design (UXD) in a developing country like Malaysia. This assessment was done based on an analysis carried out from the characteristics of attendees of an HCI-focused conference held in Malaysia. The study observed among others that attendance by practitioners at the conference was comparatively low when compared to comparable conferences in western countries and was also characterized by a low level of knowledge among the HCI-focused conference attendees. The conference was more of a learner’s conference than a conference of experienced experts. The empirical results provided information regarding the low practice of HCI and UXD among practitioners and poor level of awareness of the importance of user involvement in the software development process.

### Keyword:

HCI and UXD knowledge, characteristics of HCI-focused conference.

### References:

Abstract: An exploratory research was carried to assess the state of user experience design (UXD) practice in Malaysia. The study was conducted among those who had attended human-computer interaction (HCI) or any design-related courses at university. Despite the fact that most studies target at HCI practitioners were conducted through surveys at annual conferences, this study did not find this to be the case as responses from respondents was better than the ones gotten in an HCI-focused conference in a Malaysian context. However, the participants were deficient in the practice of UXD. This notwithstanding, this study found that goal formulation in design follows a hierarchical order. However, the study also found that survey method was not the appropriate method to reach the correct study sample for a study to capture UXD practice.

Authors: Idyawati Hussein, Azham Hussain, Emmanuel O.C. Mkpojiogu, Shelena Soosay Nathan

Paper Title: The State of User Experience Design Practice in Malaysia
Keyword: Community of practice (CoP), exploratory study, UXD practice

References:


18. Idyawati, H., Hussain, A. & Mkpojiogu, E.O.C. (2019). The knowledge of human-computer interaction (HCI) and user experience design (uxd) in Malaysia: an analysis of the characteristics of an HCI-focused conference


Authors: Azham Hussain, Idyawati Hussein, Emmanuel O.C. Mkpojiogu, Aliza Sarlan

Paper Title: The State of User Experience Design (UXD) Practice in Malaysia: An In-Situ Interview Approach

Abstract: A field study was carried out to find out the state of user experience design (UXD) practice in Malaysia. The field approach employed was an in-situ interview approach. Two companies were involved in the study. Three participants were interviewed, with two from company A and one from company B. The results of the study reveal low user experience awareness in industry and poor perception of the practice of UXD in Malaysia industry setting.

Keyword: Field study, industry setting, in-situ interview, pilot study, UXD practice

References:


Abstract: In this study, the researchers’ participated in the user experience design (UXD) community’s events and programmes, and several constraints were identified. Participatory action research (PAR) allowed the researchers to contribute, either directly or indirectly, towards solving problems during the study. The participatory research itself

Authors: Fazillah Mohmad Kamal, Idyawati Hussein, Azham Hussain, Emmanuel O.C. Mkpojiogu, Hanif Baharin

Paper Title: User Experience Design (UXD) Community of Practice in Malaysia and their Practice Constraints: A Participatory Action Research

gauged fundamental issues which pointed to the importance of grounded theory as an analysis approach in HCI. In this research, PAR contributed to understanding the UXD community practice and to uncovering the sources of practitioners’ frustrations, and in to identifying problems areas of UXD practices. In sum, PAR is the most appropriate method to understand UXD practice because of its abilities to uncover silent practices through the netnography, observation and field studies. The answers to sources of frustration varied according to the method of data collection. In the netnography study, issues were more in-depth and related to clients’ attitude, behaviour and knowledge. In the participant observation study, the problems of practice mostly related to the lack of knowledge or awareness of user experience terminology in general. With survey methods, the problems related to the mindsets and knowledge of the people involved in development process. In the field study, lack of management support, skills and awareness among those involved in the development process and the clients and potential customers came to the fore.

**Keyword:** Grounded theory, participatory action research, user experience design practice and practice constraints

**References:**


29. Idyawati, H., Hussain, A. & Mkpojiogu, E.O.C. (2019a). The knowledge of human-computer interaction (HCI) and user experience design (uxd) in malaysia: an analysis of the characteristics of an hci-focused conference


Abstract: There are many Bicycle Sharing System usability models. Most of them are not tested to evaluate their accuracy, user-friendliness, and applicability in the real world. This study aims to evaluate oBike mobile application by usability techniques for cost and time effectiveness rather than heuristic testing technique. The oBike application is used in 24 countries globally including Malaysia to assist commuters seeking transport services. For usability testing of oBike application, 15 student participants were randomly approached from Universiti Utara Malaysia, UUM. The response gathered was conducted after task completion on 21 metrics questionnaires to measure oBike application for effectiveness, performance, efficiency, errors, learnability, and accuracy. The usability evaluation of oBike application was based on the participant feedback, task completion rates, satisfaction ratings, ease or difficulty ratings to complete the task, time spent on task, and recommendations for improvement. The results of the usability evaluation process of oBike mobile application observed some usability issues. The application is easy to use for experts and difficult for novice users. Thus, participant feedback suggested further improvement to satisfy user needs. This study provides vital incite recommendations that ensure oBike mobile application to continue as user-centered and usability enhancement.

Keyword: oBike mobile application; Bicycle Sharing System; Usability Evaluation; Usability Evaluation Metrics; Usability.

References:
Part A

of these business newbies tend to market their product using flyers and

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References

Furthermore, their number of followers and friends has also increased. Such findings indicate that

upon the completion of the knowledge transfer, majority of the trainees has secured larger sales in their business.

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newbies. Even though these business newbies do have social media accounts such as Facebook, they have yet to

online at most of their time. Hence, the limited number of customers affect

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technology to expand their business. Most o

Authors: Yuhani Yusof, Mazida Ahmad, Maslinda Mohd Nadzir, Noorizuana Abdul Hamid

Paper Title: Adaptation of Knowledge Transfer Model in Social Commerce

Abstract: The rapid advancement of internet provides various digital opportunities especially through social

media. However, without proper training and knowledge, online business newbies could not fully utilize internet
technology to expand their business. Most of these business newbies tend to market their product using flyers and

word-of-mouth only. Such a strategy may not attract customers of young age as these customers are found to be

online at most of their time. Hence, the limited number of customers affects income generation of the business

newbies. Even though these business newbies do have social media accounts such as Facebook, they have yet to

fully utilize social media to create digital business opportunities. Hence, this study adapts the knowledge

management model which is SECI (Socialization, Externalization, Combination, Internalization factors) in

transferring knowledge on social commerce from the expert to the business newbies. Methodology of the study

includes 4 phases: instrument design, 2 phase of training and data analysis. A group of 61 trainees were involved in

this study and they are of two business groups. The effectiveness of the knowledge transfer is measured via three (3)

performance indicators; amount of sales, number of followers and number of friends. The result has shown that,

upon the completion of the knowledge transfer, majority of the trainees has secured larger sales in their business.

Furthermore, their number of followers and friends has also increased. Such findings indicate the success of SECI

adaptation in transferring knowledge on utilizing social media in creating business opportunities.

Keyword: knowledge management, knowledge transfer, SECI model, social commerce, social media

References:

10. M. Ahmad, A. Zainol, N. M. Darus, Z. Marzuki, and F. Baharom, "A conceptual framework of tacit knowledge transfer for problem...


Authors: Azham Hussain, Emmanuel O.C. Mkpojiogu, Sumayyah Adetunmbi, Marwah Naeem Hassooni, Shuib Basri

Paper Title: An Evaluation of the Effectiveness in Use and Efficiency in use of a Mobile News Aggregator Magazine Application

Abstract: In this study, the researchers evaluated the effectiveness and efficiency of the Flipboard app, a news magazine application. The usability of Flipboard app was tested by observation. 11 participants (all students of Universiti Utara Malaysia (UUM)), were enrolled for the usability test. The result indicated that all participants completed task 1 (100%). In task 2, 91% of participants completed their tasks. The success rates for tasks 3, 4, and 5 were 82%, 100% and 82% respectively. These show high success rate. In addition, the error rates per task were relatively low. These results (success rates and error rates) show that the app has good effectiveness. Also, the task completion time revealed that the app on average is efficient in use. However, since some participants were not able to complete their tasks, some completed with some errors and some expended much time to complete their tasks, it is henceforth clear that the interface is nonetheless laden with some issues that demands attention.

Keyword: Mobile app, effectiveness in use, efficiency in use, usability testing

References:


Abstract: projects are the basic curriculum need for the undergraduate level students. This covers 250 marks as minor and major projects during final year semesters. More than marks, students are expected to acquire skills necessary for their employment and future career. The outcome should provide the problem solving, solutioning and testing skills among the prospective engineers. How much of these skills are ingrained during the project among the students, are the point to ponder? It has been observed that the final year student’s attention towards projects are casual because they are too much worried about their future career. Therefore, the execution of the minor and major projects should be shifted back to pre-final year semesters. The most important thing is that the project execution methodology should be based on pull method (based on student’s own idea), which will create passion among students to complete the project enthusiastically. This paper is aimed at designing the target project processes which will produce the desired outcome to the students. In addition to that students may acquire skills helpful in lifelong learning. They may register for higher studies in large numbers which may be a positive change.

Keyword: idea, commercial idea, sap-lap framework, idea base, research base, DELNET, google scholar.

References:

8. AJBOYE, Josiah O; TELLA, Adeyinka. TOJET : The Turkish Online Journal of Educational Technology; Adapazari Vol. 6, Iss. 1, (2007).
Abstract: Robotics and automation are leading humanity to a new era. Sustainability and growth are being met in the industrial sectors due to automation. The same automation can do miracles in agriculture to increase productivity. Machine vision is a primordial element in enabling the complete automation. This paper discusses about the design and development of an automated system that utilizes machine vision for chilli segregation. The image of the chilli is captured by a camera and the ripeness is found by analyzing it in a machine vision software following which it is sorted into being ripe and unripe. This process of automation in the agriculture will reduce manpower for segregation process during the harvest time. Implementing at a larger scale can be profitable. This method can also be tailored for sorting other vegetables like tomato, lemon, and other fruits and vegetables based on ripeness.

Keyword: Machine vision is a primordial element in enabling the complete automation

References:
5. O. Arjenaki, P. Moghaddam and A. Motlagh, "Online tomato sorting based on shape, maturity, size, and surface defects using...

Authors: K. Akila, B. Sabitha, K. Balamurugan, K. Balaji, T. Ashwin Gourav

Paper Title: Mechatronics System Design for Automated Chilli Segregation

Keyword: Renewable Energy, SEPIC Converter, KY Boost Converter (KYBC)
A compact UWB slot antenna for Bluetooth application is proposed. This slot antenna consists of a circular patch. A UWB slot antenna has designed for both Bluetooth and notch band. The spiral structures and split resonators are used to notch the WiMAX and WLAN at 3.5 GHz and 5.8 GHz respectively. L-shaped stub of quarter wavelength useful for Bluetooth band. The octagon shape of the slot antenna and reflection coefficient of less than -10 dB is obtained for the proposed antenna.
Keyword: UWB slot antenna, Bluetooth, WiMAX, L-shaped tub, return loss

References:


Paper Title: Image Enhancement Technique Using Mean Quantization Transforms and Equalization

Abstract: In this examination, the picture contains compacted compelling extent that can be improved for knowing data. Complexity improvement of a specific picture is a capacity in picture handling field. Thus, we upgrade the distinctive sorts of picture by utilizing the histogram equalization (HE), Successive Means Quantization Transform (SMQT) and V-Transform utilizing MATLAB. At that point, we apply the histogram evening out on V-change channel of info picture subsequent to changing over the shading space from RGB to HSV. Contrasted with different strategies Histogram evening out calculation is the least difficult looking at all different methods, it has a wide difference of dark dimensions and isn't appropriate for various sorts of shading pictures. V-change calculation is a best alternative for shading pictures. The calculation is in a consecutive way and requires low processing force. Where SMQT calculation is non-straight.


References:
6. Dewa Made Sri Arsal1, Grafiка Jati1, Agung Santosо2, Raffi Filiano2, Nurul Hanifa2, and Muhammad Febrian Rachmadi3,Comparison Of Image Enhancement Methods For Chromosome Karyotype Image Enhancement, Volume 10, Issue 1, June 2017


Paper Title: PIR and IR Sensor Based Smart Home Automation System Using IOT for Energy Saving Applications

Abstract: As we realize that programmed framework and computerization is the prerequisite of the present innovation. We are pushing toward computerization for quite a while. It is one of the tending subjects. So in this project we will provide automatic electronic appliance on/off using PIR sensor. In this project, a design is proposed using PIR sensor for automation of lights and fans using Arduino with Internet of Things for smart homes. Nowadays we’re having automation of every little electrical device in our homes. Internet of Things is the physical
thing embedded with sensors, softwares etc., without human interaction and computer interaction transaction of data over a network; however, it scales up to include smart cities with connected sensors. Utilizing PIR sensors, the lights will consequently turn on and off as indicated by the power of light.

**Keyword:** PIR Sensor, Arduino, Wi-Fimodule, IR sensor, Home automation system, IOT

**References:**


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**Authors:** P. Kingston Stanley, P. Vijay Daniel, J. Samson Isaac, A. Sanjeevi Gandhi

**Paper Title:** Enhancing Physical Activity based on BCI for Physically Disabled

**Abstract:** Elderly and disabled people need proper care at a right time in order to improve their quality of their life. It is appropriate for them to use a mechanical wheelchair but difficult to use by these people. To provide an easy movement, the designing of intelligent wheelchair is required. Using Brain Computer Interface (BCI), brain wave control wheel chair is controlled directly by the brain. The direct communication between brain and wheel chair is enabled by Brain Computer Interface (BCI). The mobility of these persons can be enhanced by using the Electroencephalogram (EEG) signal based movement of the wheel chair. Mindflex P2369 headset is used for capturing the EEG signal. EEG signal is transmitted by headset wirelessly via Bluetooth. Based on the EEG concentration, the direction of wheel chair can be determined using signal processing techniques. Atmega 328 microcontroller is programmed to act as BCI controller. Depending on the brain concentration values, the control commands will be transmitted and based on the human thoughts, the wheel chair will be moved

**Keyword:** Electroencephalogram (EEG), Brain computer interface (BCI), Bluetooth, Lab VIEW and Microcontroller

**References:**

2. Sairkrisna D, NeethalEphram, ShahasAhamed, Dr.MRajeswari, "Brain Controlled Car For Disabled Using Eeg", Volume 2, Issue 3, 2017

Abstract: In this project step by step implementation of facial recognition and body language recognition using open source algorithm has been explained. The use of body language as a natural interface serves as a motivating force for research in gesture taxonomies, its representations and recognition techniques, software platforms and frameworks which is discussed briefly in this paper. It focuses on the three main phases of body language and face expression i.e. detection, tracking and recognition. Different application which employs body language for efficient interaction has been discussed under core and advanced application domains. This paper also provides an analysis of existing literature related to gesture recognition systems for human computer interaction by categorizing it under different key parameters. Using this application the safety of drivers will be assured.

Keyword: Facial recognition, android application, driver safety

References:
1. Vision based hand gesture recognition for human computer interaction; a survey by Siddharth S. Rautaray · Anupam Agrawal
2. Facial Feature Point Detection: A Comprehensive Survey by Nannan Wang, Xinbo Gao
13. J Jayalekshmi; Tessy Mathew, Facial expression recognition and emotion classification system for sentiment analysis, 10.1109/NETACT.2017.8076732

**Authors:** S. Parthasarathy, T. Arun, S. Hariharan, D. Lakshmanan

**Paper Title:** Smart Irrigation System

**Abstract:** In the present scenario of H2O scarcity, it needs a smart irrigation system that can save about 80% of the water in agriculture area. Automation plays an important role in this 21st century day today life. Industries use automation to control machine, but the same technique is not suitable for use in agriculture area due to its high in cost. In this study, a price efficient elegant irrigation scheme which middle class farmer use it in farm field is discussed. The developed prototype monitor the soil’s moisture content during its dry and wet conditions with the aid of a moisture sensor circuit, calculate the corresponding relative humidity and automatically irrigate it based on its nature using a node micro controller unit (MCU), IOT(Internet Of Things) and an automatic water inlet setup. The same can be done from remote location using smart phones. A record of soil moisture and humidity value is also maintained in a database for backup. This backup is used for weather forecasting and directs the farmers regarding the type of crop to be cultivated in future. IOT gives the whole information to the operator about the irrigation. The details of the prototype are explained elaborately.

**Keyword:** IOT, Node MCU, sensors, smart irrigation, smart phone.

**References:**
5. Jeffrey D. Brewer and K. V. Raju,” Types Of Irrigation Management Transfer In India“, workshop in political theory and policy analysis, Indiana University, Indiana, May 1996.
Comparative Analysis of Dual Input DC-DC Converters for Hybrid Power System

Authors: S. Parthasarathy, K. Shanthini, R. Arivuselvi, P. Thenmozhi

Abstract: Power electronic converters have become an important component in the hybrid power system. Hence it is essential to identify all the opportunities to reduce the cost or improve the performance of the operation of the hybrid power system. One such possibility is to use dual input DC-DC converter instead of using two separate DC-DC converters for different power supply inputs. Using of such dual-input converters leads to reductions of the filter size, cost and losses. Taking this into consideration, this paper explores an analysis on the performance of different types of dual input DC-DC converters. Comparison is done in terms of better output voltage and less harmonic distortion and the optimal dual input DC-DC converter configuration is suggested for Hybrid power system.
**Keyword:** Dual input DC-DC converter, Photovoltaic module, DIZETA, Total Harmonic Distortion.

**References:**

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<td>Validity and Reliability of Multimedia Interactive Making Clothes (MIMP) Module for Home Science Subjects</td>
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<tr>
<td>Abstract:</td>
<td>The purpose of this study is to evaluate the validity and reliability of the Multimedia Interactive Making Clothing (MIMP) module. It is developed for the teachers to learn and facilitate (LFc) the teaching of topics on the subjects of Home Science (HS) in the Malaysian schools. The design of the study is quantitative and the survey method is used to collect data. The MIMP module has been certified by eight experts in the relevant fields of HS Education, ICT and Malay Language. A total of 37 HS students from Miri Sarawak Division were selected to test the reliability of the module activity by evaluating the effectiveness of LFc in each teaching session. The findings show that the module has a good validity of 82.5% and high reliability with an Alpha Cronbach value of .92. However, some aspects need to be improved so that the developed module can meet the objectives for which it has been designed. The findings of the study would be useful to other researchers who intend to develop other teaching modules based on the ASSURE Model. In conclusion, the researcher hopes that this module will help the students in learning and teachers in facilitating the teaching of the topic of making clothes.</td>
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<tr>
<td>Keyword:</td>
<td>Validity, Reliability, Multimedia Interactive Module, Making Clothes, Home Science</td>
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Authors: Fatima Zahra, Azham Hussain, Haslina bt Mohd

Paper Title: Usability Evaluation Model Development for Chronic Disease Management Mobile Applications

Abstract: The ease of use while interacting with chronic disease management (CDM) applications leads the mobile application designers to integrate usability in their design process so that the usage of such applications become versatile, unique, user-friendly and successful. This paper aims to develop a usability evaluation model for CDM mobile applications through requirement gathering from real users and a systematic literature review (SLR). The analysis of current models and previous study results in a set of selected usability guidelines for mobile applications that are expended further into measurement model consisting of metric for evaluation.

Keyword: Chronic disease management apps, Dimensions, Mobile health, Usability.

References:
This study was conducted in Chennai among the students of Purna Solutions and primary data was collected from 100 respondents using a Structured Questionnaire administered in person by the Researchers. The data collected was analysed and their competitors were studied. It mainly focuses comparative analysis, brand awareness and customer satisfaction level. This project has conduct geographical area of Chennai at various IT training institutes. This is mainly concerned on students (customers) perceptions and competitor analysis. It can be used to identify competition level, brand awareness and response of students about various IT certification products.

**Keyword:** Comparative analysis, brand awareness, customer satisfaction level, Strengths and weaknesses, business needs, competitor and needs, key to competitive advantage, values.

**References:**

1. Comparative study by Orlando Patterson
Absenseeeism; organization; reasons for absent

References:
10. Anbarasi M., Praveen Kumar S., Various online marketing and promotions strategies to improve the validation towards the organic products in the pharmaceutical sectors, 2019, Indian Journal of Public Health Research and Development, V-10, I-1, P-263-269
23. Kerinab Beenu G., Pavithra J., A study on the prospective consumer’s perception towards utility cars in Chennai
<table>
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<tr>
<th>Authors:</th>
<th>Magdalene Peter, S.Fabiyola Kavitha, Santhosh.S, Jayarajan.CK</th>
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<tr>
<td>Paper Title:</td>
<td>Dynamic Approach to Improve the Work Life Balance of IT Employees</td>
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<tr>
<td>Abstract:</td>
<td>Work-life balance is a broad concept including proper prioritizing between &quot;work&quot; (career and ambition) on one hand and &quot;life&quot; (Health, pleasure, leisure, family and spiritual development) on the other. This initiative was aimed at encouraging employers to adopt flexible working arrangements such as job sharing, flexitime, compressed hours and others, to help their employees to achieve a better balance between the demands of paid employment and those arising from their private life.</td>
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<td>Keyword:</td>
<td>Work life balance; working hours; stress; work efficiency</td>
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<th>Authors:</th>
<th>S.Sathyaa, M.Anand, M.Janaki Rani, J.Senthil Murugan</th>
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<tr>
<td>Paper Title:</td>
<td>RF MEMS Design and Fabrication Process for Communication</td>
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<tr>
<td>Abstract:</td>
<td>In recent days, RF MEMS switches are developed for communication with different bandwidth range. It mostly used in real time application like military. But includes some advantages like large size, cost and efficiency. In order to overcome these issue, the proposed design is developed for KA band. The main objective of this work is reduced size, cost and high frequency range (Ka band) applications. A design of RF MEMS switch is carried out following the initialization of parameters like size, height, width, length, and thickness. Then the selection of material like silicon and air is performed. The configuration must be checked in terms of the boundary, edge, domain, and the vertices of edge. Conversely, the process of displacement will be carried out in the relative permeability, relative permittivity, dynamic viscosity, ratio of the specific heats, heat capacity, electrical conductance, thermal conductivity and so on. After that, the RF switch is used in the filter circuit for the extraction of filtered results. Then the performance analysis is made thereby comparing the existing methodologies with the proposed method. From the result, it is evident that the proposed methodology performs well than the existing methodologies.</td>
</tr>
<tr>
<td>Keyword:</td>
<td>RF-MEMS, filtering application, KA band, Displacement</td>
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</table>

Authors: V. Malathy, S.M. Kamali

Paper Title: Brain Tumor Segmentation from Brain Magnetic Resonance Images using Clustering Algorithm

Abstract: The main purpose of this article is to ascertain the presence of the tumor as well as quantify it. This is achieved by using clustering-based methods of segmentation. Both clustering methods for K-means and FCM are used to segment the tumor. FCM clustering is better than K-means clustering due to its fuzzy assigning of the pixels to each cluster. This helped to isolate the tumor portion more effectively as pixels, previously not enlisted as tumor region, are detected to be tumor in FCM clustering. The paper’s aim is also to find out if the tumor has reached critical stage or not. This is done by taking the scale of the MRI and using the number of pixels isolated. The other important aim of the paper is to remove noise effectively to get the best possible segmented output. Though median and mean filters are highly effective noise removal filters they do not aide in the removal of multiplicative noise. These filters only remove the additive noise present in the image and are not suitable for removing the multiplicative noise present. Therefore, discrete wavelet transformation is used. This helps to get better detection of multiplicative noise from the image as it works in the frequency domain. This fact is ascertained by the comparisons made with detection of the tumor from the original image and filtered images. For this paper, noise was added for it to be more visual though unnecessary. This fact is driven by the results obtained. The results clearly indicate that the filtered image gives better results.

Keyword: Magnetic resonance Imaging, K-means clustering, Fuzzy C-means clustering, Brain tumor

References:
Abstract: In this paper optimized spectrum detection method with dynamic threshold adjustment is proposed, to improve the spectrum efficiency of cooperative sensing and to reduce the system overhead. Based on single sensing node minimum error detection probability an expression for dynamic threshold under different channel environment is derived. Optimal sensing node number is obtained according to the constant detection and constant false alarm rate, and the system detection error probability is obtained by combining the optimal number of sensing nodes with the adaptive threshold. Simulation result shows that the proposed method can improve the detection probability and reduce the detection error probability.


References:

Authors: Surekha R, R. Shobarani, G.Victo Sudha George

Paper Title: Seed Classification using Multi Feature Extraction

Abstract: Now a day’s research works on agriculture field have been widely incorporated and showing promising growth. The man free system for food processing unit like classification based on variety, quality and other aspect plays a crucial role in the agricultural research. This paper discuss about the seed classification based on multiple feature extraction and minimum distance classifier. Feature extraction is associated with spatial, color, shape, texture and statistical features of the seed. In this work rice, corn and wheat are used as test samples to demonstrate the effectiveness of the Connected Component Analysis and classification process.

Keyword: classification, rice, wheat, corn, feature extraction, minimum distance classifier.

References:
11. Olivier salvado, claudiahillenbrand, shaoxiangzhang, and david. "Wilson" Method To Correct Intensity Inhomogeneity In Mr Images For Atherosclerosis Characterization”, in IEEE transactions on medical imaging, vol. 25, no. 5, may 2006

### Authors: Joylin Zeffora.A, R. Shobarani

#### Paper Title: Statistical Analysis of Random Forest on Real Estate Prediction

#### Abstract:
Prediction models in real estate have a significant role to play in telling the future of the real estate industry. They have a role in forecasting that is essential to investors who use the information to come up with effective decisions. Random Forest model’s accuracy in estimating residential property prices are much better when compared to other models as the marginal error is comparatively less.

#### Keyword: Random Forest, Real Estate model, Statistics, Predictive analysis, Price prediction

#### References:

### Authors: M.Janani, K.S.Thiyva, S. Elakkiya, M.Anand

#### Paper Title: Enhanced Approach for Producing Zirconia Nanofiber

#### Abstract:
Electrospinning is a technique of producing nanofibers from polymer solution under the influence of an electric field. This technique has gained significant attention in various applications because of its unique properties, such as high porosity and controllable fiber diameter. In this paper, we present an enhanced approach for producing Zirconia Nanofibers, which could be used in various applications such as drug delivery systems, tissue engineering, and filtration applications. The enhanced approach involves modifying the existing electrospinning setup to improve the quality and yield of Zirconia Nanofibers. The results of this enhancement show a significant improvement in the morphology and mechanical properties of the produced nanofibers. This novel approach could open up new avenues for the industrial application of Zirconia Nanofibers.
of electrostatic forces. It provides a relatively inexpensive method of creating a variety of nanofibers. In this work, the formation of zirconia nanofibers by electrospinning technique was investigated. Nano fibers of zirconia were prepared in three forms under different weight percentage as well as under optimized condition too. As a end result three different zirconia nanofibers were produced and characterized by Fourier transform infrared (FTIR) spectrometry, UV and SEM.

**Keyword:** In this work, the formation of zirconia nanofibers by electrospinning technique was investigated

**References:**

7. Chen-ChiaChouaChunp-FengHuangat-Tsung-HerYelh, Characterization and catalytic activity of La0.6Sr0.4Co0.2Fe0.8O3–8–yttria stabilized zirconia electrospun nano-fiber as a cathode catalyst. Ceramics International, May 2013.
9. Suying Wei, Monira Lizi, Xi Zhang, Jayanthi Sampathi, Luyi Sun, Matthew F. Milner. Electrospun poly(vinyl alcohol)/α-zirconium phosphate nanocomposite fibers, February 1, 2013

**Authors:** Priya Stalin

**Paper Title:** Implementation of Twin Precision-Reduced Computation Modified Booth Multiplier in FPGA

**Abstract:** Multipliers can be implemented either in ASIC or FPGA. Comparing FPGAs to ASICs, FPGAs are very flexible. Adding to this, a significant advantage of FPGAs over ASICs is reconfigurability and hardware reusability. FPGA is said to be more advantageous than ASIC multipliers because of its internal optimization algorithms. This research is narrowed down to exploit the advantages of FPGA. Multiplication is a complex process and it is hard to be implemented in hardware environments like ASIC. The process of multiplication consumes more hardware resulting in delay and high power dissipation in ASIC, which is a non-reusable hardware. The complexity in multiplication in ASIC is the problem statement which causes increase in metrics like area, power and delay.

**Keyword:** The process of multiplication consumes more hardware resulting in delay and high power dissipation in ASIC, which is a non-reusable hardware

**References:**

10. Asirvatham, R. and Ramachandran, S., "An Optimised Twin Precision Multiplier for ASIC Environment", EURASIP Journal on Advances in
Abstract: The need of video applications such as, video telephony, video conferencing and live streaming video etc. increasing since years. The advancement in technology provide various devices included the capabilities of quality and resolution in broad range. These is one of the reason to motivating the researchers to improve the scalability in processing the video so that when various devices had network bandwidths may have different resolutions as well as quality. As it can be known Scalability in these three modes i.e., temporal, spatial and SNR. In this paper looking at SNR scalability with an Adaptive search algorithm to estimate the motion which can be reduced the computational time of video encoding.

Keyword: Motion estimation, Scalable Video Coding, SNR Scalability.

References:
10. Xiaodin Chen, Nishan Canagarajah, and Jose L. Nunez-Yanez "Backward Adaptive
### References:

5. Modeling Day-to-Day Variability of Glucose–Insulin Regulation Over 12-Week Home Use of Closed-Loop Insulin Delivery, “Yue Ruan, Malgorzata E. Wilinska, Hood Thabit, Roman Hovorka” IEEE Transactions on Biomedical Engineering, Volume: 64, Issue: 6, June 2017

### Authors:

**Ching Seng Yap, Rizal Ahmad, Cordelia Mason, N Murali Krishnan**

**Paper Title:** An Evaluation of E-Government Portals in Malaysia: The Evolutionary Perspective

**Abstract:** The study evaluates the functions of e-government portals in Malaysia based on the evolutionary perspective in terms of information display, provision of online services, tools for interaction, channels for participation, and opportunities for collaboration. Thirty-five e-government portals were selected, and content analyzed at two time points separated by 6 months. The study reveals that the e-government portals in Malaysia are information rich, interactive, and provide various types of online services. However, the channels for participation are limited and the opportunities for collaboration are totally absent. This study offers insights to government policy makers on ways to enhance public participation and collaboration while providing public services via e-government portals.


### References:


### Authors:

**Musa Sule Argungu, Suki Arif, Mohd Hasbullah Omar**

**Paper Title:** A Dynamic Replication Mechanism for Data Grid Federation Systems, Based on Replica Placement Cost

**Abstract:** Data replication plays a major role in making data more available in the distributed computing systems, such as data grid federation systems. Also, it is typical of a data replication mechanism to place file replicas in storage locations that offer lower transfer time for data items, without regards to the distance between host and the requesting client. Although file transfer time is a measure of file size and bandwidth usage, which drastically affect storage usage as well as jobs completion time, it requires additional parameters in order to make replica placement more cost effective. In this write-up, a replica placement mechanism is proposed that computes optimum replica placement cost from file value, transfer time and site distance for efficient data replication in a federated data grid environment. The proposed mechanism was evaluated in OptorSim simulator and has effectively improves jobs execution time, bandwidth usage and storage usage within a federated data grid environment, compared to the existing mechanisms.
**Keyword:** Data Grid, Data Grid Federation, Data Replication Mechanism, Replica Placement Cost

**References:**


**Authors:** Zulkhairi MD, Azman T, Ndanusa A

**Paper Title:** Multicriteria Index and Analytical Hierarchy Process on Flood Risk Assessment: Application in Niger State, Nigeria

**Abstract:** Assessment of flood risks, especially extreme floods, is required for any location that is faced with recurrent flooding events for proper implementation of proactive measures. Therefore, this study presents a multicriteria index-Analytic Hierarchy Process (AHP) approach to evaluate regional flood risks employing multiple flood causative factors by determining a Flood Risk Index (FRI) using a GIS-based spatial analysis. The developed framework utilized topographical, hydrological and vegetal factors to delineate the risks associated with various regions. The relative importance of each factor in determining flood vulnerability, as well as the severity of flood is associated with the weighting of such factors based on AHP. The framework has been applied to Niger State, situated within the north-central part Nigeria, which has been experiencing recurrent annual flooding events. The overall result revealed some vital details on the relative importance of each factors in inducing regional floods. Furthermore, the accuracy assessment conducted using regional flood inventory confirmed the reliability and validity of the developed Multicriteria Index and Analytical Hierarchy Process on Flood Risk Assessment (Mi-AFRA).

**Keyword:** Analytical Hierarchy Process, Flood Vulnerability, GIS, Sensitivity Analysis

**References:**


Authors: Wahyukaton, Anni Rochaeni

Paper Title: Shortest Route for Waste Transportation in Northern Bandung using Vehicle Routing Problem - Clarke and Wright - Saving Method

Abstract: Bandung is one of big cities in Indonesia, and like the big city around the world, waste is become the problem to keep the city’s clean, and particularly on waste problem is to transporting waste from transfer station (tempat pembuangan sampah – TPS) to intermediate facility (stasion peralihan antara – SPA) then to a landfill/dump site (tempat pemrosesan akhir – TPA). There are 29 TPS’s in Northern Bandung with a difference waste volume for each TPS. The waste will be loaded up and be transferred using stationary container system (SCS) to SPA daily. This paper is discussing waste transportation for 4 trucks of 6 m³ capacity for each from truck pool to many TPS’s and to a single SPA to obtain the shortest route. Using modified VRP – Saving method resulting 11 routes with total travel distance is 466,88 km and total service time is 25.51 hours. Method of Nearest Neighbor is also being used to find the alternate shortest route which are also resulting 11 routes and found alternate shortest route with total travel distance is 450, 25 km and total service time is 24.60 hours.

Keyword: VRP; Saving; Clarke and Wright; Nearest Neighbor; Waste Transportation; Routes

References:


Abstract: Web-based applications will generally change due to bugs, new requirements, fresh environmental migration, or structural changes as part of software evolution. Continuous changes to web applications cause the program to become bigger and more complicated, so it makes difficulties in identifying which parts of the app will be changed. This study proposes a technique of impact analysis in the candidate impact set stage in web application of Java-based. This technique can identify different source code file between web pages and typed of class. Source code of application will transform to intermediate format and then to object-oriented data dependency graphs format before doing identify. Identify source code take on program structure has transform based on request of change. The analysis of the impact of these changes produces the set of candidates affected by the change. The prototype is built to test candidate impact analysis results in Java web applications. Testing with case studies shows the technique can analyze the impact of program code changes on Java-based web applications.

Keyword: Software evolution; candidate impact set; change impact analysis; Java web applications; object-oriented

References:
Result from the study shows that decision forests perform better than other algorithms used for the predictive analysis. In addition, the result indicates that the predictive analytics can be used to enhance the allocation of network resources based on location and time constituted in the dataset.

Abstract: Generally, a reliable method of analysing the quality of experience is through the subjective method, which is time consuming, lacks usability, lacks repeatability in real-time and near real-time. Another method is the objective measurement that aims at predicting the subjective measurement based on the estimated mean opinion score. Therefore, this study adopted the objective measurement by implementing a quality of experience framework, which employed predictive analytics techniques to analyse the mobile internet user experience dataset gathered through the mobile network. The predictive analytics employed the use of multiple regression, neural network, decision trees, random forest, and decision forest to predict the mobile internet perceived quality of experience. Result from the study shows that decision forests perform better than other algorithms used for the predictive analytics. In addition, the result indicates that the predictive analytics can be used to enhance the allocation of network resources based on location and time constituted in the dataset.

Keyword: Internet Service, Subscribers, Prediction, Real-time, Machine Learning

References:
18. E. Ibarrola, F. Liberal and A. Ferro, "Quality of service management for ISPs: A model and implementation methodology based on the
Abstract: Unlike Dyslexia children who faced difficulties in reading, Dyscalculia children have difficulties to understand numbers and math. Commonly, Dyscalculia children have issues to comprehend fundamental math concepts such as numbers, math operations, math symbols and math facts. Based on the current literatures, Dyscalculia signs are shown as early as 4 years old and appropriate interventions should be introduced in order to address their difficulties in learning math. Hence, this paper aims to report the findings obtained from effectiveness test of a mobile app called Calculic Kids©. In brief, Calculic Kids© is a mobile app specially customised for Malaysian Dyscalculia children. Quasi-experimental with pre- and post-test was performed in order to assess the effectiveness of Calculic Kids©. Two special education teachers and seven Dyscalculia children had participated in this study. The outcomes of this paper are on the usability and effectiveness in terms of knowledge enhancement. Descriptive analysis and one-sample t-test were performed from to the collected data. Based on the outcomes, it was
noted that the Calculic Kids© is effective and has potential to be used in classrooms to improve the performance of Dyscalculia children in Malaysia.

**Keyword:** Children, Dyscalculia, Learning disability, Mobile Application, Calculic Kids©

**References:**

**Authors:** P.M. Arunkumar, T. Mohanraj, K. Ananthi, S.J. Abbhimanneu, R. Aravindh, T. Arul Praveen, S. Balaji, P.K. Dinesh, P. Leander Joseph

**Paper Title:** Optimization of Milling Parameters using Vegetable Oil by Measuring Vibration Signal

**Abstract:** This paper describes an on-line tool wear monitoring system for milling operation by optimizing the input parameters while machining 7075T6 aluminium composite material. The input parameters considered are Spindle speed, feed rate and depth of cut. Coolant is the major factor that affects the tool wear to greater extent. So the type of coolant (different types of vegetable oils) is also taken as an input parameter for optimization. The experiments are carried out with different spindle speed, feed rate, depth of cut and coolant and the vibration produced in X, Y & Z directions were measured. Taguchi mixed level design (L18) is taken for optimization process.
using S/N ratio and ANOVA (Analysis Of Variance) analysis. The results show that the coolant has the most significance while measuring the vibration.

Keyword: Tool condition monitoring, Parameter optimization, ANOVA

References:

Authors: J.Indirapriyadharshini, T.Sivarajani, R.Gokila

Paper Title: Performance Analysis of Internal Model Control and Modified Internal Model Control for Two Tank Interacting and Non-Interacting Liquid System

Abstract: In the developed process industries, currently numerous demanding control issues are present because of rapid dynamic changes in process parameters. These changes might be occur since the process characteristics are connected with linear behavior, limitation of process variable and manipulated variable values during operation. Liquid level control in tanks and between the tanks are essential needs. In many cases, the tanks are connected in parallel and series manner and reveal non-linear distinctiveness. This paper deals with the level control of two tank system which is connected in interacting and non-interacting mode. This paper demonstrates the optimized performance of Internal Model Control (IMC) and modified Internal Model Control (MIMC) for the system connected in interacting and non-interacting tanks in terms of transient response characteristics.

Keyword: Second order system, Interacting and non-interacting system, Internal model control, Modified internal model control

References:
6. A.Detcharat, V.Tipunwan, A.Numsomran and S.Suvikath, Member;IAENG.IMC based PID controllers design for two mass system, International Multiconference of Engineers and Computer Scientists, 2, 2012.
Abstract: The advancement of Mechanical engineering field is very essential to meet the growing demands of the industry. In particular the demand for alloy material having high hardness, toughness and impact resistance has grown multifold due to high level of design constraints. Electro Chemical Micro Machining (ECMM) process is well suited for marching any grade of hardness materials which are very difficult or else impossible for machining with conventional process. In addition, this machining process is specializing for machining complex shape jobs. And moreover, through this method of technique the tool need not be harder than work piece. Beryllium copper is taken as work piece because of its good electrical conductivity and copper is taken as tool for machining process. A mixture of water with Sodium Chloride is taken as electrolyte. The objective is to analyze three ECMM process parameter methods of voltage (V), of electrolyte concentration (gm/l) as well as rate of feed (μm/s) and to determine the MRR and surface finish of the material during the machining process. Then it’s optimized using grey relation analysis method.

Keyword: ECMM, Beryllium copper, copper tool, water with sodium chloride electrolyte, optimized using grey relation analysis method.

References:
improvement of the vertical turning lathe (VTL) machine tool through enhancing the cutting speed to improve production rate with fine surface finish. Design, feasibility of manufacturing, time with cost effective have also considered in this work. Furthermore, the precautions as well as sufficient measures have been regards simultaneously. The design software’s such as auto-CAD along with pro-e are used to draw the components design.

**Keyword:** vertical turning lathe; Design; production rate; surface finish; Auto-CAD; Pro-E

**References:**


**Authors:** J. Shanmugapriyan, S. Srikrishnakumar, K.R. Sugavanam

**Paper Title:** Flower Pollination Algorithm based Optimal Placement of Nano Coolant in Induction Motor

**Abstract:** This manuscript describes the best possible placement of nano coolant system by identifying the hotspots through FPA to diminish the harm and losses occurred owing to the high temperature in Induction motor. The important functions of cooling system are to absorb and dissipate the heat spontaneously. The hotspots of the induction motor are spotted with the FPA after thorough analysis of the temperature obtained from a thermal camera. The induction motor’s damage due to overheating is reduced with the help of this method. With abnormal temperature conditions, the efficiency of induction motor is reduced. The lifespan is also reduced. The proposed method provides a solution to such problems in induction motor. Experimental results also prove the results obtained from simulation.

**Keyword:** Flower pollination optimization (FPA), Particle Swarm Optimization (PSO), induction motor heating, Nano coolant.

**References:**

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<th>Authors:</th>
<th>Puttamade Gowda J, Prasanna Kumar S C</th>
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<tr>
<td>Abstract:</td>
<td>White blood cells (leucocytes) are main constituents of blood, plays a major role in immune system. They rescuing our body from foreign materials and infectious diseases. All five types of WBCs are origin from multipotent cell bone marrow also called hematopoietic stem cells. These five types are grouped into granulocytes and agranulocytes. Leukemia a blood cancer occur due to abnormal development of leukocytes(WBCs). In united states 62130 people receive leukemia diagnosis in 2017 and 24500 deaths occurs by this disease its effects are even more in undeveloped countries. Counting and identifying of white cells in images of microscope is so tedious, time taking and the results depends on experience of hematologist. The proposed algorithm is a combination of spectral-spatial method for segmenting cytoplasm and nucleus of WBCs from the microscopic, spectral and hyperspectral images. Here we use an Integrated method of improved spectral angle mapper(ISAM) with Gram-Schmidt orthogonalization process and k-means segmentation process. The resulting spatial spectral information of WBCs gives an accuracy of above 95% for both nuclei and cytoplasm.</td>
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<tr>
<td>Keyword:</td>
<td>white blood cell, improved spectral angle mapper, orthonormal set</td>
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Abstract: The visual capacity of an image and video are deteriorates seriously by the huge noise levels commencing obscurity and low powerful range. Recently in digital cameras there has essential work going on in video creating and enhancement. Still there is interest for performing video improvement, which focuses at enhancing videos visual aspects. Here we centre around two most regular imperfections: distortions by contrast and noise. For removing noise the trilateral filter were used. After removing the noise, the video is enhanced by the statistical data of frames using APMF. The results analysis exhibits that the proposed framework produce satisfying outcomes for mixed noise videos and low quality videos.

Keyword: Video enhancement, Trilateral filter, APMF, NCV.

References:
21. Qing Xul, Hailin Jiangl, Riccardo Scopigno, and MateuSbert4, —A New Approach For Very Dark Video Denoising And Enhancement!


