PROCEEDINGS OF
INTERNATIONAL CONFERENCE
FISA-2018

INTERNATIONAL CONFERENCE ON
FUTURE INTERNET SYSTEMS AND APPLICATIONS

10th December, 2018

Organized by

MELANGE PUBLICATIONS
PUDUCHERRY
INDIA

In Collaboration with

UUM INTERNETWORKS RESEARCH LABORATORY
IIUM IOT & WIRELESS COMMUNICATION PROTOCOLS LAB
& INTERNET SOCIETY MALAYSIA CHAPTER

Venue: EDC Hotel, Kuala Lumpur, Malaysia

MESSAGE FROM KEYNOTE SPEAKER

I am indeed honored to be invited as Chief Guest and Keynote Speaker for the International Conference on Future Internet Systems and Applications (ICFISA 2018) which is organized by Melange Publications, Puducherry- India in collaboration with UUM Internetworks Research Laboratory, IIUM IOT & Wireless Communication Protocols Lab & Internet Society Malaysia Chapter to be held at EDC Hotel, Kuala Lumpur, Malaysia. The ICFISA 2018 addresses technological advancement and rapid strides recently witnessed in the field of Internet of Things which embeds with sensors, software, electronics etc.

I am also pleased to witness that this conference brings together academicians, research scholars, and students from different parts of country and gives them a great opportunity to share their experiences, exchange new ideas, and establish scholarly relations. Last but not least, I would like to congratulate the ICFISA 2018 organizing committees for their passion and valuable works in organizing this conference.

I wish the conference a great success!

Dr.Suhaidi Hassan
Professor
Founding chair -InterNetWorks Research Laboratory
Universiti Utara Malaysia – Malaysia

MESSAGE FROM CONFERENCE CHAIR

I would like to extend my warmest welcome to the participants of the International Conference on Future Internet Systems and Applications (ICFISA2018) organized by Melange Publications, Puducherry, India in collaboration with UUM Internetworks Research Laboratory, IIUM IOT & ireless Communication Protocols Laboratory and Internet Society Chapter to be held at EDC Hotel, Kuala Lumpur, Malaysia. ICFFISA2018 conference provides a good platform for fellow colleagues and students from across the globe to share, discuss, and collaborate on knowledge and findings while expanding networks.

I would like to express my sincere gratitude to the organizing committee and everybody who have worked very hard to make this conference a reality and successful. I would like to express my deepest gratitude to the distinguished keynote speakers, International Advisory Board members and sponsors. I am also grateful to all the reviewers, as without their effort the high quality standard for the conference could not have been possible.

Finally, I wish all of you a pleasant stay in this country and we hope that ICFISA2018 will be successful and enjoyable for all participants.

Dr. Mohamed Hadi Habaebi
Professor
Conference Chair
IEEE senior Member
Head-Department of Electrical and Computer Engineering
International Islamic University - Malaysia

MESSAGE FROM ORGANIZING COMMITTEE

We feel happy and honored to welcome all the distinguished guests and participants for the International Conference on Future Internet Systems and Applications, ICFISA - 2018 to be held on 10th December 2018. This conference is hosted by Mélange Publications, Puducherry - India.

The aim of this conference is to provide an opportunity to the researchers by bringing academicians and eminent resource persons to a common platform to expose and share their experiences in the field of Science and Technology.

Lastly, We thank all our submitting authors, who have toiled in the production of their work, and have chosen International Conference on Future Internet Systems and Applications in support with Melange Publications. The success and reputation of ICFISA - 2018 reflects the outstanding work by our reviewers and authors who are dedicated to publication of only the best quality papers.

Organizing Committee
ICFISA - 2018
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ORGANIZING COMMITTEE

KEYNOTE SPEAKER

Prof.Dr. SUHAIDI HASSAN
Founding Chair - UUM InterNetWorks Research Laboratory
Universiti Utara Malaysia – Malaysia

CONFERENCE CHAIR

Prof.Dr. MOHAMED HADI HABAEBI
IEEE senior Member
Head-Department of Electrical and Computer Engineering
International Islamic University - Malaysia

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CONTENT

International Conference on
Future Internet Systems and Applications - (ICFISA-2018)

Optimal Broadcast Strategy-based Producer Mobility Support Scheme for Named Data Networking

[1]Muktar Hussaini, [2]Shahrudin Awang Nor, [3]Amran Ahmad
[1,2,3]InterNetWorks Research Laboratory, School of Computing
UUM Malaysia, Sintok, Kedah - Malaysia
✉: [1]elhussenkaz@yahoo.com, [2]shah@uum.edu.my
[3]amran@uum.edu.my

Paper ID: CS-01

Named Data Networking is a consumer-driven network that supports content consumer mobility due to the nature of in-network catching. The catching suppressed unnecessary Interest packets losses by providing an immediate copy of the data and consumer-driven nature influenced the mobile consumer to resend unsatisfied Interest packet immediately after the handoff. Once the producer moves to a new location, the name prefix changed automatically after handoff to the new router or point of attachment. The entire network lacks the knowledge of producer movement unless if the producer announces its new prefix to update the FIBs of intermediate routers. Lack of producer's movement knowledge causes an increase of handoff latency, signaling overhead cost, Interests packets losses, poor utilization of bandwidth and packets delivery. Therefore, there is needs to provide substantial producer mobility support to minimize the handoff latency, handoff signaling overhead cost, reduce the unnecessary Interest packets loss to improve data packets delivery once a content producer relocated. In this paper, broadcasting strategy is introduced to facilitate the handoff procedures and update the intermediate routers about the producer movement. Hence, analytical investigation result of this paper addresses the deficiency of Kite scheme by minimizing handoff signaling cost and provides data path optimization after the handoff.

International Conference on
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Virtualization-based Security Techniques on Mobile Cloud Computing: Research Gaps and Challenges

[1]Boubakeur Annane, [2]Osman Ghazali
[1,2]InterNetWorks Research Laboratory
Universiti Utara Malaysia, Sintok, Kedah - Malaysia
✉: [1]annane_boubakeur@ahsgs.uum.edu.my
[2]osman@uum.edu.my

Paper ID: CS-03

The principle constraints of mobile devices are their limited resources such as processing capability, storage space and battery life. While cloud computing offers a vast computing resources services. A new idea emerged by including the cloud computing into mobile devices to augment the capacities of the mobile devices resources such as smartphones, tablet, and other personal digital assistant (PDA) which provides a robust technology called Mobile Cloud Computing (MCC). Although MCC have brought many advantages for the mobile users, it also stills suffer from security and privacy side of data while hosted on virtual machines (VM) on remote cloud's servers. Currently, the eyes of the security expert's community turned towards the virtualization-based security technique either on the Cloud or on the mobile devices. The new challenge is to develop secure methods in order to authenticate high sensitive digital content. This paper investigates the main challenges regarding the security and privacy issues in mobile cloud exactly focusing on the virtualization issue layer and give clear strengths and weaknesses of recent relevant virtualization security techniques existing in the literature. Hence, the paper provides perspectives for researchers in order to achieve as a future work.

International Conference on
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Brain Computer Interface for Evaluation of Mild Cognitive Impairment using Eye Blink

[1]K.Yasoda, [2]Annapurani.K, [3]K.Gayathri Devi, [4]P.Kumari
[1]Department of Biomedical Engineering
SNS College of Technology, Coimbatore, Tamilnadu - India
[2]Department of Computer Science and Engineering, SRM IST, KTR
[3]Department of Electronics and Communication Engineering
Dr.NGP Institute of Technology, Coimbatore
[4]Department of Computer Science and Engineering
Excel Engineering College, Komarapalayam
✉: [1]yasodakyp@gmail.com, [2]annapoorani.k@ktr.srmuniv.ac.in
[3]gayathridevi@drngpit.ac.in, [4]pkumari_s@yahoo.com

Paper ID: CS-05

The attentional capability of an individual is an evaluating factor in the assessment of mild cognitive impairment for concentration. The non-invasive recording and analysis of Electro Encephalo Gram (EEG) is a current technique in evaluation of brain cognitive activity. This paper is to bring out the prime importance of Eye Blink Rate (EBR) obtained from Electroculogram (EOG) while recording EEG for the evaluation of attentional disorder leading to cognitive impairment. Prefrontal electrodes are used to pick the EOG signal which is pre-processed for identification of eyeblinks. With the calculation of Eye Blink Rate (EBR) the cognitive impairment is classified using Support Vector Machines (SVM). Results of the experiments indicate that the classification using SVM is consistently better for the decision making of a mild cognitive impairment.

International Conference on
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A Reliable NextGen Cyber Security Architecture for Industrial Internet of Things (IIoT) Landscape

[1]C.Vijayakumaran, [2]B.Muthu Senthil, [3]B.Manickavasagam
[1,2]Associate Professor/CSE
[1]SRM IST, KTR - Chennai
[2]Valliammai Engineering College, KTR - Chennai
[3]Research Scholar, SDC Testbed, SRM IST, KTR
✉:[1]vijayakumaran.c@ktr.srmuniv.ac.in, [2]bmssen@gmail.com
[3]bmanickvasagam90@gmail.com

Paper ID: CS-08

Architectural changes are happening in the modern industries due to the adaption and the deployment of 'Internet of Things (IoT)' for monitoring and controlling various devices remotely from the external world. The most predominant place where the IoT technology makes the most sense is the industrial automation processes in smart industries (Industry 4.0). In this paper, a reliable 'NextGen Cyber Security Architecture (NCSA)' is presented for Industrial IoT (IIoT) landscape that detects and thwarts cyber security threats and vulnerabilities. It helps to automate the processes of exchanging real-time critical information between devices without any human intervention. It proposes an analytical framework that can be used to protect entities and network traffics involved in the IIoT wireless communication. It incorporates an automated cyber-defense authentication mechanism that detects and prevents security attacks when a network session has been established. The defense mechanism accomplishes the required level of security protection in the network by generating an identity token which is cryptographically encrypted and verified by a virtual gateway system. The proposed NCSA improves security in the IIoT environment and reduces operational management cost.

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Prediction of Electricity Consumption in India

[1]Satyam Verma, [2]Siddhant Sharma, [3]Poovammal E
[1]Altair Engineering, India - Bangalore
[2]Symantec Chennai - Tamil Nadu
[3]Department of Computer Science and Engineering
SRM IST, Chennai - Tamilnadu
✉: [1]satyamverma95@gmail.com, [2]siddhants29@gmail.com
[3]poovammal.e@ktr.srmuniv.ac.in

Paper ID: CS-15

Electricity consumption forecast plays a vital role in policy making of developing countries. In this paper, the electricity consumption rate is predicted using different machine learning techniques like Support Vector Machine (SVM), Artificial Neural Network (ANN), and Linear Regression with the help of Time Series Model. The work is done for Republic of India. The data set are collected from the government of India website (data.gov.in), World Bank Treasures and others. The research objective is analyzing the electricity consumption rate in past years to predict future consumption. The result will help citizens of India to understand the current scenario of power production and consumption in India. It can also help government/private officials to take decision on future plans for power plant projects.

International Conference on
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Optimal Packet Routing in WBAN using SDN to Handle Medical Emergency

[1]B.Manickavasagam, [2]B.Amutha, [3]C.Vijayakumaran, [4]S.Priyanka
[1,4]Research Scholar, [2]Professor, [3]Associate Professor
[1,2]SDC Testbed/Research Lab, Department of CSE, SRM IST - KTR
[3,4]Department of CSE, SRM IST - KTR
✉: [1]bmanickavasagam90@gmail.com, [2]bamuth62@gmail.com
[3]vijayakumaran.c@ktr.srmuniv.ac.in, [4]priyanka.k@ktr.srmuniv.ac.in

Paper ID: CS-16

The packet forwarding node selection is one of the main constraints in Software Defined Network (SDN). To improve the network performance, the SDN controller has to choose the shortest and optimized path between source and destination in normal and critical packet transmission. In e-health service, information of the emergency patient has to be transferred immediately to remote hospitals or doctors by using efficient packet routing approach in wireless Body Area Network (WBAN). To improve the efficient packet transmission in WBAN, a design for the optimal packet routing has been proposed with the support of greedy algorithm. The SDN Controller will select the forwarding node based on node delay, and available bandwidth between two forwarding nodes.

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IoT Light Weight (LWT) Crypto Functions

[1]Nubila Nabeel, [2]Mohamed Hadi Habaebi
[3]Nurul Arfah Che Mustapha, [4]Md Rafiqul Islam
[1,2,3,4]Department of Electrical and Computer Engineering
Kulliyyah of Engineering, International Islamic University - Malaysia
✉: [1]nubilajaleel@gmail.com, [2]habaebi@iium.edu.my
[3]nurularfah@iium.edu.my, [4]rafiq@iium.edu.my

Paper ID: CS-18

We are in the era of IoT and 5G technologies. IoT has wide range of applications in Smart Home, Smart cities, Agriculture, Health etc. Due to that, the number of connected sensor devices become increased. Along with that security of these devices become a challenging issue. By the next year there would be a great increase in the number of connected sensor devices. For the power constrained devices like sensors and actuators, they requires lightweight security mechanism. There are several Lightweight (LW) energy efficient Hashing techniques are available. They are photon, quark, spongent, Lesamnta-LW etc. These all are fixed length block sized and key sized LW hashing techniques. All transformation methods used today in LW hash function only support fixed block size and key size and requires high hardware requirements too. In this paper, we compare different types of LW hash families in terms of their design and introduce the possibility of variable length hash function using Mersenne number based transform.

International Conference on
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An Energy Efficient Event Coverage in Wireless Sensor Network

[1]Mohammad Ibrahim Adawy, [2]Shahrudin Awang Nor
[3]Massudi Mahmuddin
[1,2,3]InterNetWorks Research Laboratory
School of Computing, University Utara Malaysia, UUM Sintok
✉: [1]mohammad_ibrahim1@ahsgs.uum.edu.my, [2]shah@uum.edu.my
[3]ady@uum.edu.my

Paper ID: CS-19

Wireless Sensor Network (WSN), is a finite set of sensor nodes spatially deployed in the field area. Sensor nodes that sense same event will generate redundant data. Consequently, data redundancy exhausts network resources and increases network overhead. An Energy Efficient Event Coverage scheme (EEEC) is proposed based on integration of Boolean sensing model and Event radius model to determine minimum number of active nodes that need to cover event region. The aim of the current study is to reduce the energy nodes consumption and extend network lifetime. The researcher has proposed mathematical model to analyse event coverage, in addition, experimental study has been performed by using OMNet ++ simulation tool to obtain outcomes. Compared with LEACH scheme, the simulation result shows that, the proposed scheme reduced energy consumption of sensor nodes. The current study recommends that the proposed scheme is perfect scheme in which cluster data aggregation extends network lifetime.

International Conference on
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Accelerometer based Structural Health Monitoring System on the go: Developing Monitoring Systems with NI LabVIEW

[1]Salami Ifedapo Abdullahi, [2]Nurul Arfah Che Mustapha
[3]Mohamed Hadi Habaebi, [4]Md. Rafiqul Islam
[1,2,3,4]Department of Electrical and Computer Engineering
International Islamic University Malaysia (IIUM), Kuala Lumpur - Malaysia
✉: [1]abdusalife@gmail.com, [3]habaebi@iium.edu.my

Paper ID: CS-20

Structural Health Monitoring (SHM) is a very crucial part of maintenance and management of buildings and structures. The use of SHM in recent years has been increasing due to the advancement in technology and the availability of nanodevices and nanosensors which can detect damaged part or crack in a structure. In this paper, PSpice simulation was carried out to show the response of the integrated electronic piezoelectric (IEPE) with a VPWL-source. Then, practical experiment was done using Arduino Mega with the ADXL335 accelerometer in a laboratory setup. LabVIEW software was used along with Arduino IDE software to make graphical visualization of accelerometer reading to be captured. Furthermore, a web service was deployed which enabled LabVIEW data transmission to a smartphone running Data Dashboard application for real-time monitoring anywhere. Therefore, making the system an ecosystem of Internet of Things enabling the user to access monitoring system while on the move. The result of the vibration test on the accelerometer showed that the accelerometer response to small changes in the x, y and z axis of the accelerometer which can be used to detect micro-movements in a structure.

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Cyber Attacks Analysis and Mitigation with Machine Learning Techniques in ICS SCADA Systems

[1]Sinil Mubarak, [2]Mohamed Hadi Habaebi, [3]Farah Abdul Rahman
[4]Sheroz Khan, [5]Md. Rafiqul Islam
[1,2,3,4,5]Department of Electrical and Computer Engineering
International Islamic University - Malaysia
✉: [1]sinilmubarak@gmail.com, [2]habaebi@iium.edu.my

Paper ID: CS-21

Supervisory control and data acquisition (SCADA) is an industrial automation control system at the core of many industries, which monitors and controls the process equipments and systems from multiple locations, implemented to perform monitoring, data logging, alarming and diagnostic functions and thus enhances the operational efficiency. The advancement in technology for connectivity and the openness in communication protocols resulted in more vulnerability of cyber-attacks. The classifications of various attacks along with the intrusions detection methods have been highlighted. Mitigation techniques such as honey pot simulation which helps in vulnerability assessment, along with more intelligent machine learning algorithms, suitable for intrusion detection and prevention of cyber-attacks in SCADA systems has been detailed.

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Throughput Analysis for the Mobility of a Consumer and an Anchorless Producer in NDN

[1]Muhammed Zaharadeen Ahmed, [2]Aisha Hassan Abdalla Hashim
[3]Othman O. Khalifa, [4]Abdulkadir H. Alkali, [5]Sarah Yasmin BtMohd
[6]Malik Arman Morshidi
[1,2,3,4,5,6]International Islamic University Malaysia, IIUM
Kuala Lumpur - Malaysia
✉: [1]zaharadeen22@yahoo.com, [2]aisha@gmail.com

Paper ID: CS-23

Named Data networking is a novel communication model that is designed mainly to ensure efficient data dissemination on the internet. In this paper, a practical structure of naming data content in NDN is presented using name based routing as well as mobility first. Simulations are conducted to determine to mobility of both the consumer and producer using NetSim Version 10.1. In the scenario, a mobile consumer is considered to request an audio content from a mobile producer on a single localized NDN network. Afterward, the producer changes its local network to another access network while offering same audio application content to its consumers in the previous localized network and to the new point of attachment. In the results, we compared the voice application throughput and the link throughput and realized that efficiency is achieved using the application throughput as compared to the link. SUMO simulator was used to create the suitable road path for the vehicles before interfacing with NetSim. In addition, the coding system is build using visual studio 2015 and made compatible with NetSim “binary” and “dll” folders.

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Evaluating Mobility Management Models for Content Forwarding in NDN Environments

[1]Muhammed Zaharadeen Ahmed, [2]Aisha Hassan Abdalla Hashim
[3]Othman. O. Khalifa, [4]Abdulkadir H. Alkali, [5]Nur Shahida Bt Midi
[6]Faridah Bt Abd. Rahman
[1,2,3,4,5,6]International Islamic University Malaysia, IIUM
Kuala Lumpur - Malaysia
✉: [1]zaharadeen22@yahoo.com, [2]aisha@gmail.com

Paper ID: CS-24

NDN performs its routing and forwarding decisions using name prefixes. This removes some of the issues affecting addresses in our traditional IP architecture such as limitation in address allocation and management, and even NAT translations etcetera. Another positivity of NDN is its ability to use the conventional routing like the link state and distance vector algorithm. In route announcement, NDN node broadcasts its name prefix which consists of the knowledge of the next communicating node. In this paper, we evaluate the performance of mobility management models used in forwarding NDN contents to a next hop. This makes it crucial to select an approach of mobility model that translates the nature of movement of the NDN mobile routers. A detailed analysis of the famous mobility model such as the Random Waypoint mobility and Constant Velocity were computed to determine the mobility rate of the NDN mobile router. Simulation analysis was carried out using ndnSIM 2.1 on Linux Version 16.1. We build and compile with modules and libraries in NS-3.29. The sample of movement of the mobile router is illustrated and our result present the viability of the Constant Velocity model as compared with the Random Way point.

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A 28 GHz MIMO Antenna Array Design for 5G Applications

[1]Mohamed Hadi Habaebi, [2]Nurul Arfah Che Mustaphaa
[3]Mohanned Janat, [4]Md Rafiul Islam
[1,2,3,4]Department of Electrical and Computer Engineering
International Islamic University - Malaysia
✉: [1]habaebi@iium.edu.my

Paper ID: CS-26

In this paper, an in-depth study on the designing of a compact 2x2 MIMO planar antenna array, that consists of 4 subarrays with each subarray having 4 rectangular patch elements with the main beam gain at bore sight of 13.4 dB and with impedance bandwidth of 500 MHz at frequency of 28 GHz, is presented. The antenna array resonates at centre frequency of 28 GHz supporting mm Wave frequency range expected to be utilized in the upcoming 5G. To combat challenges inherent to the mm Wave band, the antenna array sits on a meta material substrate to reduce inter spacing between antenna array elements, shrink the size and obtain high gain. The antenna array was designed and simulated by computer simulation technology (CST 2016). Parameters taken into consideration, for the antenna array performance analysis, are scattering coefficients, correlation coefficient, and the mean effective gain (e.g., diversity gain). Subarrays 1 and 4 form the first MIMO element, and subarrays 2 and 3 form the second MIMO element. The simulations results are promising to show that MIMO elements are quite independent (>40dB isolation). The design packs 16 antenna elements into a mere 32.65x38.08 mm^2 surface area only.

A Proposed Web Based Real Time Brain Computer Interface (BCI) System for Usability Testing

[1]C. A. Hewawasam Puwakpitiyage, [2]V. R. Paramesura Rao
[3]M. S. A. Muhammad Azizi, [4]W. J. Tee, [5]R. K. Murugesan
[6]M. D. Hamzah
[1,2,3,4,5]Taylor's University, Subang Jaya - Malaysia
[6]Hilti Asia IT Services Sdn. Bhd. Petaling Jaya - Malaysia
✉: [1]chamodeanjana@gmail.com, [2]vegnishrao93@gmail.com
[3]syahiramali@gmail.com,[4]weejing.tee@taylors.edu.my
[5]rajakumar.murugesan@taylors.edu.my
[6]MuhammedDzulkhiflee.Hamzah@hilti.com

Paper ID: CS-28

Hallway testing, Remote Usability testing, Expert review, Automated expert review and A/B testing are the methods commonly used for Usability testing. However, there is no reliable system that integrates Brain Computer Interface (BCI) into the testing process with focus given towards user emotion analysis using electroencephalography (EEG) signals. This paper proposes a system that would be able to identify user emotions while they are conducting usability tests and the results would be able to increase the accuracy of the usability test. In the proposed system the results of the usability test would be displayed in real time on a dashboard and a summary report can be generated for distribution.

International Conference on
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Attribute based Access Control Policies with Trust (ABAC-T) Mechanism in Pervasive Computing

[1]Abirami.G, [2]RevathiVenkataraman
[1,2]Department of Computer Science and Engineering
SRM IST, KTR, Tamil Nadu - India
✉: [1]abirami.g@ktr.srmuniv.ac.in, [2]revathi.n@ktr.srmuniv.ac.in

Paper ID: CS-31

Access control to sensitive information such as health details of patients and health professionals in pervasive computing is a prominent task. Also, healthcare applications are probably the most sensitive with respect to a high level of security. In addition to authentication and authorization, an access control of information is required in pervasive environments. Furthermore, pervasive or ubiquitous computing has contextual sensitive data that allow access to the resources for some operations. In this context, Integrity of data and privacy must be assured through proper access control mechanisms. Although many access control models are available, Attribute based access control (ABAC) provided fine-grained access policy to grant or deny permission to the user for performing some operations on resources. Hence a new model of ABAC incorporates with trust, called ABAC-T has been proposed to provide granularity and efficiency of access control policy. Also, ABAC-T is implemented in XACML framework which has enriched attribute and supports contextual information. In addition, a policy specification language for access control model with trust is being included and defined in healthcare scenario.

International Conference on
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Instrument for Measuring the Influencing of iTV Advertising Design Model toward Impulse Purchase Tendency

Azizah Che Omar
School of Multimedia Technology and Communication
Universiti Utara Malaysia
✉: co.azizah@uum.edu.my

Paper ID: CS-33

Conceptual design model of Interactive Television Advertising Toward Influencing Impulse Purchase Tendency (iTVAdIP) is proposed to provide guideline for advertising designers to develop iTV advertisements which embed elements that are perceived could influence impulse purchase tendency. Previous literature studied on the factors of impulse purchase in different advertising mediums like website, mobile, traditional retail store and traditional television. However, none of the impulse purchase model is dedicated towards influencing impulse purchase tendency for interactive TV advertising. Therefore, this study focuses on the influencing measurement of iTVAdIP design model through reliable constructs. These constructs are collected and formed based on literature study and content analysis. An influencing instrument was developed based on these constructs and a pilot study was conducted to assess the research feasibility and adequacy of the instrument. The methods and results of the pilot study are also presented in this paper, indicating that these constructs are valid, reliable, and practical to be used for measurement of the proposed model.

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Vision based Obstacle Avoidance for Mobile Robot using Optical Flow Process

[1]Hairol Nizam Mohd Shah, [2]Zalina Kamis, [3]Mohd Fairus Abdollah
[4]Alias Khamis, [5]Mohd Shahrieel Mohd Aras, [6]Ifwat Nor Azni
[1,2,3,4,5,6]Center for Robotics and Industrial Automation
Faculty of Electrical Engineering
Universiti Teknikal Malaysia Melaka - Malaysia

Paper ID: CS-34

The paper is discuss on develop and implement an object detection algorithm for avoid obstacle based on vision system. There are four stages in obstacle avoidance approach will be implement in this paper which are image pre-processing, optical flow process, filtering, object stance measuring and obstacle avoidance approach. The processes that involve in the optical flow are image resizing, set parameters, convert color to grayscale, Horn-Schunk method and change grayscale image to binary number. Next process is a filtering done by smoothing filter then image center will be defined. The maximum distance object from a camera has been set as 20 cm. Therefore, the decisions of the robot to move whether left or right are based on the direction of optical flow. This avoidance algorithm allows the mobile robot to avoid the obstacles which are in different shape either square or rectangular. A friendly graphical user interface (GUI) had been used to monitor the activity of mobile robot during run the systems.

Mymis: An Appointment System for Outpatient Department

[1]Mohamed Najib Salleh, [2]Halim Mad Lazim, [3]Mohd Nizam Saad
[1,2]School of Technology Management and Logistics
Universiti Utara Malaysia, Sintok - Kedah
[3]School of Multimedia Technology and Communication
Universiti Utara Malaysia, Sintok – Kedah
✉: [1]najib@uum.edu.my

Paper ID: CS-35

This paper had discussed on the development of MyMIS, which is an appointment system for outpatient department. The main objective of the system is to manage the flow of patients at the department. The system was developed based on the patients and staffs requirement. MyMIS is generated in the format of PreHypertext (PHP) and Apache application server was used to run and read the system. MySQL database was selected to store all the patients and appointment information. The system effectiveness was verified through ARENA simulation model. Results show the system can reduce significantly waiting time at the outpatient department. Even though the system is developed for UUM Health Center, it can also be used by other medical centers as well. It is hope that the system will help government to meet their target of serving patients within 30 minutes.

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Investigation on the Access Log Pattern of the CSR UUMWIFI among Changlun's Community

[1]Mohamad Farhan Mohamad Mohsin, [2]Mohd Noor Abdul Hamid
[3]Nurakmal Ahmad Mustaffa, [4]Razamin Ramli, [5]Kamarudin Abdullah
[1]School of Computing, College of Arts & Sciences
[2]School of Creative Industry Management & Performing Arts
College of Arts & Sciences
[3,4]School of Quantitative Sciences, College of Arts & Sciences
[5]UUM Information Technology, Universiti Utara Malaysia - Malaysia
✉: [1]farhan@uum.edu.my, [2]mohdnoor@uum.edu.my, [3]nurakmal@uum.edu.my
[4]razamin@uum.edu.my, [5]kamaruddin@uum.edu.my

Paper ID: CS-36

CSR UUM WiFi is a CSR project under Universiti Utara Malaysia (UUM) that provides unlimited free internet connection for the Changlun community. Launched in 2015, the service has accumulated a huge number of users with diverse background and interest. This paper aims to uncover interesting service users' behavior by mining the usage data. To achieve that, the access log for 3 months with 24,000 online users were downloaded from the Wi-Fi network server, pre-process and analyzed. The finding reveals that there were many loyal users who have been using this service on a daily basis since 2015 and the community spent 20-60 minutes per session. Besides that, the social media and leisure based application such YouTube, Facebook, Instagram, chatting applications, and miscellaneous web applications were among the top applications accessed by the Changlun community which contributes to huge data usage. It is also found that there were few users have used the CSR UUM WiFi for academic or business purposes. The identified patterns benefits the management team in providing a better quality service for community in future and setting up new policies for the service.

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Requirement Model for MyBazaar Tax: A Mobile Tax Solution for Night Market Hawkers

[1]Nur AzzahAbu Bakar, [2]Noraziah Che Pa, [3]Mohamad Asad Razali
[1,2,3]School of Computing, Universiti Utara Malaysia
UUM Sintok, Kedah - Malaysia
✉: [1]nurazzah@uum.edu.my, [2]aziah@uum.edu.my

Paper ID: CS-37

The introduction of e-Filing system by the Malaysian government has been seemed as a solution to problems that arose due to the use of paper-based income tax filing. The number of taxpayers submitting their Income Tax Return Forms through e-Filing is increasing every year. However, this does not eliminate the need for the Inland Revenue Board Malaysia (IRBM) personnel to pay regular visits to the night market venues in order to assess the eligibility of the night market hawkers to pay tax, and the amount they should be charged. This has been exacerbated by the practice of the hawkers who do not always keep their business record in a systematic manner; most still employ traditional way of keeping the amount of their revenue and expenditure in books or pile of papers. This paper presents the requirement model for MyBazaar Tax, a mobile-based application which is developed as a single platform for the night market hawkers to keep their business records. At the same time, MyBazaar Tax apps will also make the process easy for the IRBM personnel to gather tax-related information from the hawkers. The methodology used in this study consists of four phases: requirement gathering; requirement modeling; prototyping and evaluation. UML notation is used in modeling the requirements through the use of use cases, sequence diagram and class diagram. The model presented in this paper could be used as a reference model for developers in developing similar apps to cater the needs of other small business operators.

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A Stepping Stone Perspective to Detection of Network Threats: Spam Detection

[1]Mohd Nizam Omar, [2]Ali Yusny Daud, [3]Osman Ghazali
[1,2,3]InterNetworks Research Laboratory, School of Computing
Universiti Utara Malaysia, UUM Sintok, Kedah - Malaysia
✉: [1]niezam@uum.edu.my, [2]aliyusny@uum.edu.my, [3]osman@uum.edu.my

Paper ID: CS-38

This paper explores one of a novel application of the stepping stone detection concept in addressing network threats known as spams. Previous research has been identified in several applications such as spams, backdoors, proxy server intrusions and denial of service attacks as the possible solution that can be solved by using stepping stone perspective against network threats. In this paper, an experiment has been conducted as to proof two formulas that generated to solve spam problem. Through the control environment and the development of special prototype to detect spam, the result shows that both formulas in detecting spam attack can be used to detect spam successfully. The successful result of the experiment proofs that one of the identified application really works in the real experiment testbed. By producing another solution to detect spam in this research hopefully can contribute another solution to detect a spam problem.

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A Requirements Modeling for E-Learning Management System (eLMS)

[1]Mazni Omar, [2]Abdulkadir Osman Mohamed
[1,2]School of Computing, Universiti Utara Malaysia
UUM Sintok, Kedah - Malaysia
✉: [1]mazni@uum.edu.my, [2]hadramiabdulkadir@gmail.com

Paper ID: CS-39

Nowadays, technology simplifies the learning process and assists in the communication between learners, lecturers, and administrators of universities and other educational organisations. At present, most of the universities in Somalia still use the face-to-face teaching approach and lecturers do not have an electronic repository for the learning materials. This demonstrates that an e-Learning model that is able to fulfil the users' requirements is lacking. This shortcoming is addressed in this study by developing a requirements model for an e-Learning Management System (eLMS) to improve the quality of the learning process. To achieve this objective, a design research methodology was adopted. During the modelling process, the Web Application Extension (WAE) for the Unified Modeling Language (UML) model was used to design the requirements model for the proposed eLMS. The significance of this model is that it facilitates the interaction between students, lecturers, and administrators, thus enhancing the learning process at the university. In addition, the proposed model will be a useful reference for other researchers working in a similar domain, or for developers who are interested in developing similar models. Additionally, the expected output of this research is the eLMS system that will enable students, lecturers, and administrators to communicate with each other.

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Stepping Stone Detection: Measuring the SSD Capability

[1]Ali Yusny Daud, [2]Osman Ghazali, [3]Mohd Nizam Omar
[1,2,3]School of Computing, UniversitiUtara Malaysia, Sintok, Kedah - Malaysia
✉: [1]aliyusny@uum.edu.my, [2]osman@uum.edu.my, [3]niezam@uum.edu.my

Paper ID: CS-40

The performance of Stepping Stone Detection (SSD) is measured by the accuracy to detect attacks that were initiated using stepping-stone hosts. The pattern of the attacks needs to be recognized to implement the detection. To evaluate the SSD, a variation of metrics have been used by many researchers but a benchmark should be introduced in calculating the measures. In this paper, we review the approaches used in evaluating the SSD and proposed the beneficial insights metrics in evaluating the effectiveness of SSD.

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Investigating the Effectiveness of Peer Support to Enhance the Quality of Life of Older Adults: A systematic Literature Review

[1]Murtaja Ali Saare, [2]Azham Hussain, [3]Wong Seng Yue
[1,2]Human-Centered Computing Research Lab, School of Computing
Sintok, Universiti Utara Malaysia, Kedah - Malaysia
[3]Centre for the Initiation of Talent & Industrial Training
Universiti Malaya - Kuala Lumpur
✉: [2]azham.h@uum.edu.my

Paper ID: CS-41

Aging is the biological, psychological, or social change that occur with the passage of time which leads to functional impairment, and eventually chronic diseases. The number of people living older is rapidly increasing, and there is a natural decline in physical activity. The reduced mobility affects their daily life activities making them dependent on others for health. Therefore, mobile technologies such as m-health applications provide potential for enhanced health care among older adults. The present study highlights the factors that affect the adoption of smartphone applications, and potential factors such as peer support can facilitate older adults to adopt latest technologies. However, previous studies have remained unsuccessful in explaining the moderating role of peer support. Therefore, this paper aims to provide an insight with potential solution to the challenges of aging life, hence, enhancing their quality of life. This paper is only a conceptual explanation, which aims to identify the possible factors that influence their smartphone adoption using a systematic literature review on relevant peer-reviewed papers. It is expected that this work will lead towards the empirical findings on the explanation of the interplay of the peer support to address the relationship of assistive mobile health applications and quality of life. This paper provides directions for future studies in improving the quality of life of older adults by using technology.

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A Study on the Performance Metrics for Evaluating Stepping Stone Detection (SSD)

[1]Ali Yusny Daud, [2]Osman Ghazali, [3]Mohd Nizam Omar
[4]Dahliyusmanto, [5]Devi Willieam Anggara
[1,2,3]School of Computing, College of Arts & Sciences
Universiti Utara Malaysia, Sintok, Kedah - Malaysia
[4,5]Department of Informatics Engineering
Faculty of Engineering, Universitas Riau - Indonesia
✉: [1]aliyusny@uum.edu.my

Paper ID: CS-42

A good SSD managed to detect attacks that were initiated using stepping-stone hosts with high accuracy. In evaluating the SSD, various metrics have been used by many researchers but a benchmark should be introduced in calculating the measures. The performance metrics are used to evaluate Stepping Stone Detection (SSD) to recognize the best configurations or which SSD is better. The stepping stone attacks have pattern that needs to be recognized for the detection to be successful. In this paper, we analyze the approaches used in evaluating the SSD and suggested the beneficial insights metrics in evaluating the effectiveness or the accuracy of the SSD.

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Motivating Low-Achieving Learners to use Assistive Courseware through Signaling Principle

[1]A.M.Ariffin, [2]A.Siti Zulaiha, [3]S.Ahmad Jelani
[1]Institute of Creative Humanities, Multimedia, and Innovation
School of Multimedia Technology and Communication
Universiti Utara Malaysia, Sintok, Kedah - Malaysia
[2]UniversitiTeknologi MARA, Arau, Perlis
[3]School of Education and Modern Languages
Universiti Utara Malaysia, Sintok, Kedah - Malaysia
✉: [1]am.ariffin@uum.edu.my, [2]sitizulaiha@perlis.uitm.edu.my
[3]jelani@uum.edu.my

Paper ID: CS-43

Developing a courseware is easy. However, making a courseware usable for its target user requires a scientific process. As a response to that, a study has been carried out in making courseware usable for low-achieving learners. As part of the study, this paper aims to describe the application of signaling principles in the developed courseware specifically for low-achieving learners. The prototype has been developed through user-centered approach. It involved users during the designing and development process. Then, it was delivered to users. Their experience dealing with the developed prototype was observed in their natural context with assistance of their teachers. Eventually, it was found that they were highly motivated to use the courseware.

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A Sentiment Analysis Visualization System for Property Industry

[1]Nurul Husna Mahadzir, [2]Mohd Faizal Omar, [3]Mohd Nasrun Mohd Nawi
[1,2]School ofQuantitative Sciences
Universiti Utara Malaysia, Sintok, Kedah - Malaysia
[3]School ofTechnology Management and Logistics
Universiti Utara Malaysia, Sintok, Kedah - Malaysia
✉: [1]nhusna84@gmail.com, [2]mfaizal.omar@gmail.com
[3]mohdnasrun@gmail.com

Paper ID: CS-44

The usage of social media platform such as Facebook and Twitter either by public or organizations has been rapidly increasing. The decision makers in the organizations can use social media to engage with their customers as the public users tend to voice out their opinions about certain products and services through this popular mechanism. Hence, this valuable data can be a great used for marketing and business decisions. However, the main obstacle is to obtain meaningful information out of this platform due to the unstructured data it presented. Sentiment analysis is seen as the best tools to analyse insights or opinions out of this huge amount of data. In this article, we extract data on public opinions towards property in order to understand the reason behind the imbalances of supply and demand currently faced by property industry in Malaysia. In addition, we visualize the sentiment results in the form of dashboard so that it may help the property players to understand the public sentiments towards their housing or construction projects.

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The Moderating Effect of Personal Characteristics of Social Media Users on Trust of Virtual Community Cohesion

[1]Nor Iadah Yusop, [2]Zahurin Mat Aji, [3]Zulkhairi Md. Dahalin
[4]Mohd. Khairudin Kasiran, [5]Huda Ibrahim
[1,2,3,4,5]School of Computing, Universiti Utara Malaysia
Sintok, Kedah – Malaysia
✉: [1]noriadah@uum.edu.my

Paper ID: CS-45

This paper presents findings on a study on virtual community cohesion with the aim to determine the effect of trust on virtual community cohesion. The instrument used for this study was developed based on the virtual community cohesion model constructed from previous study. It measures cohesion based on two constructs namely the General Trust and Trust in Administrator. A survey was conducted involving 235 users of the social media. Descriptive data analysis was carried out on the respondents' demography with regards to trust components of the virtual community they were involved with. Multiple regression were performed to determine the effect of the components onto cohesion of virtual community. The overall mean scores show that the respondents' responses fall under the high category of trust for General trust, but low category for Trust in Administrator. These indicate that, pertaining to cohesion, trust among fellow members is more important compared to trust in those who man the virtual group. Nevertheless both constructs were found to have influence on virtual community cohesion.

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Exploring the Potential of Web based 3D Visualization of GIS Data in Coconut Plantation Management

[1]Rizinoor Che Mat, [2]Gonesh Chandra Saha
[1]School of Creative Industry Management & Performing Arts (SCIMPA)
Universiti Utara Malaysia, Sintok, Kedah - Malaysia
[2]School of Multimedia Technology and Communication (SMMTC)
Universiti Utara Malaysia, Sintok, Kedah - Malaysia
✉: [1]ruzinoor@gmail.com

Paper ID: CS-46

Coconut is one of the main agricultural plantation crops in many countries and known as “tree of life”. Coconut universally is facing major challenges to its existence especially in the north part of Malaysia due to poor agricultural practices and farm management. The aim of this paper is to explore the potential of web based 3D visualization of GIS data in managing coconut plantation in terms of problems and issues. In this study, the data collected from a field observation will be used as the source of primary data where coconut plantation took place. Other than that, by interviewing with coconut palm manager, the problems and issues of managing coconut plantation were gathered. The results revealed that due to problem in manual cultivation practices and lack of proper management practices is the main issues could be highlight for introducing the new technologies. Besides that, lack of awareness of the farmers regarding the potential of the new technologies which could be utilised for managing and monitoring coconut plantation. The results from this study possibly will helps in identifying the suitable problem and issues that could be highlight in implementing web based 3D visualization of GIS data for coconut plantation management.

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Teams Communication Practices in Industrialised Building System (IBS) Project: An Ability of WhatsApp Platform

[1]Mohd Affendi Ahmad Pozin, [2]Mohd Nasrun Mohd Nawi
[3]Md Azree Othuman Mydin, [4]Aizul Nahar Harun, [5]Md Fauzi Ahmad
[1,2]School of Technology Management and Logistics
Universiti Utara Malaysia, Sintok, Kedah - Malaysia
[3]School of Housing, Building and Planning
Universiti Sains Malaysia, Penang - Malaysia
[4]Department of Environmental Engineering and Green Technology, Malasia-Japan International Institute of Technology, Universiti Teknologi Malaysia
Jalan Sultan Yahya Petra, Kuala Lumpur - Malaysia
[5]Faculty of Technology Management, Universiti Tun Hussein Onn Malaysia (UTHM), Parit Raja, Batu Pahat, Johor - Malaysia
✉: [1]fendtec@gmail.com

Paper ID: CS-47

This article are discussing about the use of WhatsApp application as a communication platform in overcoming the communication barriers in managing Industrialised Building System construction project. Numerous researches have highlighted how effective communication has functioned as a bridge among practitioners to share knowledge, enhance collaboration and integration. The application of WhatsApp messenger has offered great advantages, especially in collecting and managing information and data in a timely manner especially during the process of building up-to-date information. There is a lot of studies looking at the use of WhatsApp application among practitioners on project management in construction project; however, there is still a lack of empirical viewpoint studying on the efficiency and effectiveness of WhatsApp application on project performance solely. Thus, this study seeks to explore project team communication performance perceived from WhatsApp communication channel. The semi-structured interview methodology was used to gain in-depth knowledge from 5 project managers which have experienced in managing construction project virtually through WhatsApp. The finding has revealed that WhatsApp application has become an effective communicative platform that can overcome the barriers of communication while allowing timely information sharing, which leads to efficient project performance.

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IoT – Smart Contracts in Data Trusted Exchange Supplied Chain Based on Block chain

[1]S.Ganesh Kumar, [2]A.Murugan, [3]B.Muriganantham, [4]B.Sriman
[1,2,3,4]Department of Computer Science and Engineering
Faculty of Engineering and Technology, SRM IST, KTR-Chennai
✉: [1]ganesh.ks@ktr.srmuniv.ac.in, [2]murugan.a@ktr.srmuniv.ac.in
[3]muruganantham.b@ktr.srmuniv.ac.in, [4]sriman_b@srmuniv.edu.in

Paper ID: CS-11

Internet of Things (IoT) assumes a critical part in the advancement of different fields. The IoT data trusted exchange in recent year extend of uses influence an awesome request and increasing scale. In such a platform, exchange the data sets that they require and specialist organization can search. However, the enough trust as the third-party mediators for data exchange in centralized infrastructure cannot provide. This paper proposes a blockchain for IoT data trusted exchange based on decentralized solution. In particular, the fundamental standards of blockchain in verify manner, individuals can communicate with each other without a confided in mediator intermediary. Blockchain enable us to have a distributed, digital ledger. IoT (Internet of Things) sensor devices (zigbee) utilizing blockchain technology to assert public availability of temperature records, tracking location shipment, humidity, preventing damage, data immutability. The sensor devices looking the temperature, location, damage of each parcel during the shipment to completely guarantee directions. In blockchain all data is got moved from one position to another, where a smart contract assesses against the product attributes. Ethereum blockchain and smart contracts atlast it gets through knowledge a design to be copied and presents its decentralized distributed digital ledger, auditable, transparent, features visually.

Quantum Cryptography for Secured Communication Networks

[1]B.Muruganantham, [2]S.Ganesh kumar, [3]A.Murugan, [4]P.Shamili
[1,2,3,4]Department of Computer Science and Engineering
Faculty of Engineering and Technology, SRM IST, Kanchipuram District, KTR
✉: [1]muruganantham.b@ktr.srmuniv.ac.in, [2]ganesh.ks@ktr.srmuniv.ac.in
[3]murugan.a@ktr.srmuniv.ac.in, [4]shamili_p@srmuniv.edu.in

Paper ID: CS-12

Quantum cryptography is method for accessing data with the cryptosystem more efficiently. The network security and the cryptography are the two major properties in securing the data in communication network. The quantum cryptography uses the single photon passing through the polarization of photon. In Quantum Cryptography, its impossible for the eavesdropper to copy or modify the encrypted messages in the quantum states in which we are sending through the optical fiber channels. Cryptography performed by using the protocols BB84 and B92 protocols. The two basic algorithms of quantum cryptography are Shor's algorithm and the Grover's's algorithm. For finding the number of integer factorization of each photon, Shor's algorithm is used. Grover's's algorithm used for searching the unsorted data. Shor's algorithm overcomes RSA algorithm by high security. By the implementation of quantum cryptography, we are securing the information from the eavesdropper and thereby preventing data in the communication channel.

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Healthcare Information Exchange using Blockchain Technology

[1]Tushar Chechare, [2]A.Murugan, [3]B.Muriganantham
[4]S.Ganesh Kumar
[1,2,3,4]Department of Computer Science and Engineering
Faculty of Engineering and Technology, SRM IST, KTR - Chennai
✉: [1]tushar_ganpat@srmuniv.edu.in, [2]murugan.a@ktr.srmuniv.ac.in
[3]muriganantham.b@ ktr.srmuniv.ac.in, [4]ganesh.ks@ ktr.srmuniv.ac.in

Paper ID: CS-17

Current trend in health-care industry is to shift its data on the cloud, to increase availability of Electronic Health Records (EHR) e.g. Patient's medical history in real time, which will allow sharing of EHR with ease. However, this conventional cloud-based data sharing environment has data security and privacy issues. This paper proposes a distributed solution based on blockchain technology for trusted Health Information Exchange (HIE). In addition to exchange of EHR between patient and doctor, the proposed system is also used in other aspects of healthcare such as improving the insurance claim and making data available for research organizations. Medical data is very sensitive, in both social as well as legal aspects, so permissioned block-chain such as Hyperledger Fabric is used to retain the necessary privacy required in the proposed system. As, this is highly permissioned network where the owner of the network i.e. patient holds all the access rights, so in case of emergency situations the proposed system has a Backup Access System which will allow healthcare professionals to access partial EHR and this backup access is provided by using wearable IOT device.

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An Analysis of Trust and User Privacy by using Password-based Authentication Scheme

[1]Mohd Izuan Mohd Saad, [2]Kamarularifin Abd Jalil, [3]Mazani Manaf
[1,2,3]Faculty of Computer and Mathematical Sciences
UiTM Shah Alam, Selangor - Malaysia
✉: [1]mdizuansaad@gmail.com, [2]kamarul@tmsk.uitm.edu.my
[3]mazani@tmsk.uitm.edu.my

Paper ID: CS-48

Privacy-preserving security control in cloud becomes crucial to ensure the continuity of operation among the party involved. The large scale and dynamic structure in cloud lead to the complexity of organizing dan control security element. Trustworthy framework with strong cloud data protection method need to be prepared to measure and prevent from any vulnerability by intuders. Providing trust and privacy for users through authentication scheme is one of the data protection methods that can be applied in cloud computing. This paper presents an anonymous authentication scheme to preserve user privacy to provide trusted environment of the system. This paper also describes trust and privacy by introducing password-based key exchange method to enhance the security level during authentication process. Discussion is also put forth on security analysis and possible attack which can occur during the identification process. This research is significant to preserve user privacy and enhance the trust framework in cloud environment.

Secured Voting System with Multimodal Biometric Technique using ANN

[1]Payal Deora, [2]Abhishek Kumar, [3]Gayathri.M, [4]Malathy.C
[1,2]Student/CSE, [3]AP / CSE, [4]Professor, CSE, SRM IST – Chennai
✉: [1]payal.deora1997@gmail.com, [2]abhishekkumar_ra@srmuniv.edu.in
[3]gayathri.ma@ktr.srmuniv.ac.in, [4]malathy.c@ktr.srmuniv.ac.in

Paper ID: CS-22

Free and fair elections play a major role to explicate a democratic government, but all too frequently, the actual mechanics of election has always been taken for granted in our country, the largest democracy in the world. The issue of security is very prominent in any system such as the current electoral voting system. There is no proper record of people who have already casted their vote. The voter Id card does not have any record of biometrics of the voter, so we cannot guarantee genuine voting hence creating chances of bogus voting. Therefore, we intend to aid in security of voting system by bringing advanced technologies of neural networks with multimodal biometrics (face recognition, fingerprint scan, retina scan etc). As these biometrics of a person is already recorded in their Aadhar card, so it can be used as database. At the time of voting, biometric information of a voter will be gathered and will be matched to the database obtained by Aadhar card so that the person can be identified correctly. The proposed new voting system with multimodal biometrics can help any democratic government in conducting smooth election by removing all the ambiguities and security issues of current scenario.

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Mode Selection Mechanism to Enable Effective D2D Communication System Over

[1]Feras Zenalden, [2]Suhaidi Hassan, [3]Adib Habbal
[1,2,3]Universiti Utara Malaysia
✉: [1]feraszen2004@hotmail.com, [2]suhaidi@uum.edu.my
[3]adib@uum.edu.my

Paper ID: CS-25

Device-to-Device (D2D) communication is an essential element in the 5G mobile networks. D2D communication enables users to communicate either directly without network assistance or with minimum signalling information through a base station (BS). Hence, D2D communication can enhance system capacity, increase spectral efficiency, better throughput and reduce latency. There are two main challenges in D2D communications. Since a potential D2D pair can switch between direct and conventional cellular communications, there is a challenge on identifying D2D mode selection between communicating devices (D2D pair). This study aims at designing mechanisms based on Multi Attribute Decision Making (MADM) theory to address the above challenges. Peering discovery mechanism is proposed using Analytical Hierarchy Process (AHP) technique. Then, mode selection mechanism based on Simple Additive Weighting (SAW) technique to intelligently choose and switch among the available modes.

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To Trust or Not to Trust? An Investigation into Users Action and Perception towards Crowdsourced Information

[1]Aqilah Azizan, [2]Hazleen Aris
[1]College of Computer Science and Information Technology
Universiti Tenaga Nasional Kajang - Malaysia
[2]Institute of Informatics and Computing in Energy
Universiti Tenaga Nasional Kajang - Malaysia
✉: [1]aqilah@uniten.edu.my, [2]hazleen@uniten.edu.my

Paper ID: CS-27

Crowdsourcing is a job or task completed by a large number of people in the form of an open call. Due to the crowdsourcing characteristic, which opens participation to everyone, anyone may participate and provide information to the crowdsourcing platforms. With the rising of the number of crowdsourcing applications, the number of the participating crowd has increased as well. The identities of the crowd are mostly not known or anonymous. Thus, the risk of having malicious crowd providing unreliable information is there. It is therefore important to have a built-in or automated mechanism that is able to distinguish between reliable and unreliable information contributed by the crowd to increase the reliability of the crowdsourcing applications. The first step towards the construction of such mechanism is to understand how people usually verify the online information received. Therefore, in this research, a survey was performed with the aim to obtain information on the users (crowd) perception towards the information received online from the other crowd and how they react to it, either trusting it right away, verifying it first or ignoring it. For those who indicated that they verified the information first, the means to verify the information were also identified. Analysis was performed on various ways performed by the crowd in determining the accuracy of the online information obtained. From the analysis, six means to verify the online information were identified; verifying with the original source, reputable source, neutral source, other sources, trusted people and self. The six means can become the basis in the construction of the mechanism to automatically verify the online information received from the crowd, which would be useful for crowdsourcing applications. Other than determining the means to verify information, the paper also presents the factors that influence the crowd to trust or ignore the online information received.

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IOT Based Soldier Monitoring System

[1]Sudha H Ayatti, [2]Shivaprakash T
[1]Department of Computer Science & Engineering
KLS GIT, Belagavi, Karnataka - India
[2]Department of CSE, VVIT - Bangalre
✉: [1]shayatti@git.edu, [2]shivarakasht@gmail.com

Paper ID: CS-29

In current world scenario the security of a nation is the uttermost important factor and hence enemy warfare plays an important role. The security of any nation depends on the military, army, air-force, navy of the country and the backbone of all these forces are our soldiers. Without the soldier it would be nearly impossible to protect a nation. But there are many concerns revolving around the security of these soldiers, especially the army soldiers. When the soldier enters into the war zone, it is essential for the base station to determine the exact health status of the soldier and hence more emphasis should be given to health monitoring technology for the soldiers in the war torn zone. In this project the exact health status parameters of the soldier can be sent to the base station in real time so that the appropriate actions can be taken in case of crisis. This technology helps to minimize the rescue wounded and unfit soldiers at war zone.

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A Review on Content Distribution through Caching in Information Centric Networking

[1]Muhammad Ali Naeem, [2]Shahrudin Awang Nor, [3]Suhaidi Hassan
[1,2,3]InterNetworks Research Laboratory, School of Computing (SOC)
University Utara Malaysia, UUM Sintok - Malaysia
✉: [1]malinaeem7@gmail.com, [2]shah@uum.edu.my, [3]suhaidi@uum.edu.my

Paper ID: CS-49

The current Internet paradigm is insufficient to meet today's Internet requirements. The present host based Internet paradigm is converting to a new information based Internet paradigm. Ubiquitous in-network caching is one of the central feature of Information-Centric Networking (ICN) which has acknowledged extensive research interest in recent years. Content Centric Networking (CCN) is one of relevant Internet architecture the principle is that leveraging in-network caching to store content within all node along the data routing path can improve content delivery. In this paper, we first explore the idea about future Internet and explain saveral important modules of ICN and the techniques that is used to manage ICN cache in efficient manner. Moreover, the goal how a content place and replace in on-path cache is explain in subsections

Global Online Marketplaces Review on Trust and Security: Case of Alibaba, Amazon, eBay and TaoBao

Paper ID: CS-50

Customer disposition to the data and information nature of the site, trust, protection concerns, security concerns, and the organization's notoriety effectually affect Internet shoppers' trust in the site. Significant two basic issues for both e-commerce consumers and sites are trust and security, trust to believe that someone is good and honest and will not harm you, or that something is safe and reliable; security is the attempted access to data by unauthorized users. Information security, therefore, is an essential management and technical requirement for any efficient and effective payment transaction activities over the internet. E-commerce security is the protection of e-commerce assets from unauthorized access, destruction, alteration, or use so its dimensions to be studied are integrity, privacy, Non-repudiation, Authenticity, Confidentiality, and Availability. This paper use four popular online marketplaces which are Alibaba, Amazon, eBay and TaoBao as case study on two main criteria i.e. building trust among users and ensure security on the platform. Furthermore, we discuss on the methods of each online marketplace build trust and their unique way of improve the security. Finally, we use table form to show the way of building trust and technique of ensuring the security in a table form for each online marketplace.

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Detection of Social Media Exploitation via SMS and Camera

[1]Madihah Mohd Saudi, [2]Azuan Ahmad, [3]Mohamad Adib Azhar
[1,2]CyberSecurity & Systems Research Unit
Islamic Science Institute (ISI), USIM
[1,2,3]Faculty of Science & Technology (FST)
Universiti Sains Islam Malaysia (USIM), Nilai - Malaysia
✉: [1]madihah@usim.edu.my, [2]azuan@usim.edu.my

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From worldwide perspective, Internet users are highly linked to social media where they are being exposed and vulnerable to be influenced by this new cyber silent killer. Excessive use of social media could lead to Internet Addiction Disorder (IAD). Social media users can be monitored and controlled closely based on mobile phone surveillance features, which include of camera, SMS, audio, geolocation (GPS) and call log. Therefore, this paper presents 5 Application Programming Interface (API) and 4 permissions for SMS and camera in mostly and widely used of social media applications. These 9 APIs and permissions matched and represent 17% from the extracted of APIs and permission related with SMS and camera from the training dataset. This experiment was conducted by using hybrid analysis, which inclusive of static and dynamic analyses and 1926 training dataset from Brunswick These features extraction if being misused by the attackers, could lead to privacy issues. The finding from this paper can be used as a guidance and reference for formation of new mobile malwares detection technique and modeling.

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Sentiment Collection & Analysis of Students in Classroom

[1]S. Ganesh Kumar, [2]Devansh Jain
[1]Asst. Professor (S.G)
[1,2]Department of Computer Science and Engineering
SRM IST, KTR, Kancheepuram, Tamil Nadu - India
✉: [1]ganesh.ks@ktr.srmuniv.ac.in, [2]devansh_jain@srmuniv.edu.in

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The paper and the developed algorithm aims to enhance the quality of STEM Education given in Technical Colleges across India. The study combines researches done by several institutions (listed as references). The algorithm developed consist of five stages: Image Extraction, Image Recognition, Emotional Analysis, Data Warehousing, Data Analytics. The following results can be achieved by implementation of this algorithm: Understanding of particular student sentiment across a time period, favorability of a group of students towards a faculty, favorability of a class towards a subject.

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Service Selection in Service Oriented Architecture Using Probabilistic Approach and Asynchronous Queues with Interceptor Validation

[1]Balika .J. Chelliah, [2]K. Sathish, [3]S.Ganesh Kumar
[1,2,3]Department of Computer Science and Engineering
SRM IST, Chennai - India
✉: [1]ballika.j@rmp.srmuniv.ac.in, [2]sathish.k@rmp.srmuniv.ac.in
[3]ganesh.ks@ktr.srmuniv.ac.in

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In service Oriented Architecture, many services are offered with similar functionality but with different service quality parameters. Thus the service selection using a deterministic approach causes conflicts and inefficient results. We use asynchronous queue to model the service inventory architecture avoiding unnecessary locking of resources and thus allowing a provision to consumers to get their required services without intervening and with temporally decoupled fashion. Actually this kind of service selection strategy is considered in regards with game theory to eliminate fluctuations of queue length. It offers a discrete random service which is equal to some request requested by consumers, it means service can be provided based on probability mass function as a substitute of deterministic decisions for selecting a proper service provider as of the consumers. Once the request is taken out from the queue, it is delivered to the interceptor that has validation and sanitization module. It thus reduces the peak queue length and reduces periodic fluctuations in the queue length.

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Agile-Based Explicit Congestion Control Mechanism for Named Data Networks

[1]Mohammed Alsamman, [2]Suhaidi Hassan, [3]Suki Arif
[1,2,3]InterNetWorks Research Lab, School of Computing
Universiti Utara Malaysia, UUM Sintok
✉: [1]alsamman@internetworks.my, [2]suhaidi@uum.edu.my
[3]suki1207@uum.edu.my

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Named Data Networking (NDN) shifts the paradigm of Internet communication model by addressing the name of the needed data instead of data locations. Thus, requesting the content by name enable the receiver to retrieve the needed content from multiple points. Hence, one of NDN router features is the capabilities to cache content into the network. This changes the concept of transport model control from the sender to the receiver and content cache will affect the concept of the present transport model parameters control. To overcome the problem, an efficient congestion control mechanism for NDN has become an essential requirement increase the production and the sophisticated network that can be deployed in the future network. This study focuses on the design of a hop by hop Interest control mechanism for NDN to achieve full efficiency and fairness under a proper parameters setting. The congestion control mechanism, called EC-Agile, adapts the core idea of Agile-SD to control the sending rate of interest Packets on consumers. In routers, a queue was designed for every prefix in each interface and was associated with AQM mechanism to measure the packet sojourn time in each queue and send the explicit congestion signal to consumers to decrease their traffic rate. Also, this mechanism was implemented in ndnSIM and was evaluated with PCON mechanism in various scenario settings and it was showed this mechanism out performs it in terms of window size, download time, link utilization, rate adaptation, and fairness.