PROGRAM BOOKLET

MBOT Approved
CPD Hours:
12 Hours

International Conference on Computational Intelligence 2020 (ICCI 2020)

First virtual conference by
Computer and Information Sciences Department (CISD)
UNIVERSITI TEKNOLOGI PETRONAS (UTP)

8th – 9th October 2020

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BACKGROUND OF ICCI2020

ICCI2020 is organised by the Department of Computer and Information Sciences Department, Universiti Teknologi PETRONAS. The theme is "Computational Intelligence for Sustainability". In today's world, innovations brought by Computational Intelligence (CI) has inarguably helped humanity to face disruptive challenges brought by unprecedented occurrences of pandemics and natural disasters by ensuring continuity of every daily aspects of living. The conference will be held using Microsoft Teams as the platform on 8th and 9th of October 2020. ICCI2020 will be hosting academics, researchers, professionals, industrial representatives, students, and practitioners whose interests are in fundamental studies to emerging applications in computing. Participants will share and learn computational models and tools of intelligence capable of handling large raw numerical sensory data directly from storages or streams; processing them by exploiting the representational parallelism and pipelining the problem; and generating reliable just-in-time responses. The organiser welcomes presentation of recent results related to CI algorithms, software systems and architecture, data analytics, current challenges, and new-and-emerging applications. Presentations related to the industry, novel applications and emerging CI theory and concepts are strongly encouraged.

CONFERENCE CHAIRS

TS. DR. ALIZA SARLAN
CONFERENCE CHAIR

Dr Aliza Sarlan is Senior Lecturer with 20 years of experience as an academia. She is currently the Chair of Computer & Information Sciences Department at Universiti Teknologi PETRONAS, Malaysia. She obtained her Bachelor of IT from Universiti Utara Malaysia, in 1996; MSc of IT from University of Queensland, Australia in 2002; and PhD of IT from Universiti Teknologi PETRONAS in 2015. She is a member of Professional Technologist under the Malaysian Board of Technologist (MBOT) of since 2018. She is certified in IREB Professional Requirements Engineering (CPRE), ISTQB certified Tester Foundation Level (CTFL). Her research interest includes Digital Divide, Human Behavior & Technology Adoption, Information System analysis design, development and modelling, requirements engineering as well as software testing. She is now embarking into new research area of data analytics, sentiment analysis and visualization.

ASSOC. PROF. TS. DR. AHMAD KAMIL MAHMOOD

CONFERENCE CO-CHAIR

Associate Professor Dr Ahmad Kamil Mahmood earned his Bachelor and Master degree in Actuarial Science and Statistics from the University of Iowa, Iowa City, USA in 1986 and 1988 respectively. He was with UUM, Bank Negara Malaysia, Public Service Department and PETRONAS. He joined UTP, Tronoh, after 10 years of industrial experience in 1998. He earned his PhD in Information Systems in 2005 from the University of Salford, UK. With his research team, a number of journal articles and conference papers have been published. He has supervised more than 20 postgraduate students until completion.

ASSOC. PROF. TS. DR. JAFREEZAL JAAFAR

CONFERENCE ADVISOR

Jafreezal Jaafar is an Associate Professor and Dean at Faculty of Science and Information Technology at Universiti Teknologi PETRONAS (UTP), Malaysia. He holds a PhD from University of Edinburgh, UK (2009), MAppSc in IT from RMIT University, Australia (2002) and BSc in Computer Science from Universiti Teknologi Malaysia (1998). He also appointed as Professional Technologies (P.Tech) by Malaysia Board of Technology. He joined Department of Computer and Information Sciences, UTP since 1999, where he was a former Head (2012-2016). He also a former Head of Center for Research in Data Science (2017-2020), which focus on implementation of Machine Learning and predictive analytic in Oil and Gas (O&G) industry. He also active in conducting professional training in AI dan Big Data Analytic for public and industry. Based on his experience and expertise, he had become member of Academy Science Malaysia SIG in Machine Learning, Senior Member and Executive Committee (2016-2018) for IEEE CS Malaysia Chapter and Executive Committee for MyAIS (2017-2019). His main research area are AI, Machine Learning and Data Analytics, with over 100 technical publications.

KEYNOTE SPEAKERS

DR. DZAHARUDIN MANSOR

KEYNOTE SPEAKER 1

Dr. Dzaharudin Mansor is the National Technology Officer of Microsoft Malaysia. He received a First-Class Honors Degree in Computer Systems Engineering from Monash University, Australia in 1985, and completed his PhD in Computer Science in 1988. Dr Dzahar joined Microsoft in 2005 and has more than 33 years of professional experience in ICT and telecommunications in senior leadership, engineering, research as well as academic roles.In 2010, he had the honor of leading the Business Services Economic Transformation Program (ETP) Labs, and in 2018 appointed a committee member of the National Education Policy Review Council. He also presently is an Adjunct Professor at International Islamic University Malaysia (IIUM) and member of Industrial Advisory Panels at several other universities where he works closely with academia and has publications as well as professional certifications and recognition in Data Science, Artificial Intelligence, Cyber Security, Software Engineering, Computer Architectures Telecommunications and Digital Transformation. He also holds several associate positions at PIKOM, MQA, Department of Standards/SIRIM and others. Dr. Dzahar is passionate about technology and aspires to contribute towards the nation's Digital Economy initiative and has contributed in a number of national strategic publications in the areas of Data Science, Cybersecurity, Technology Foresight, Computing, Telecommunications, Economic Transformation and Education.

DR. MAZLAN ABBAS

KEYNOTE SPEAKER 2

Dr. Mazlan is the co-founder and CEO of FAVORIOT Sdn Bhd. He is ranked among Top 50 Global Thought Leaders on the Internet of Things (February 2019) and Digital Disruption (October 2019) by Thinkers360, Top 50 Most Impactful Smart Cities Leaders by World CSR Congress 2017, ranked Top 10 in IoT Top 100 Influencers by Postscapes 2017 & 2018, ranked No. 20th Thought Leader in IOT by 2014 Analytics Report – "The Internet of Things – Top 100 Thought Leaders" and UTM Alumni Industry Personality 2016. He is currently one of Global Vision Board Member (2017). Before FAVORIOT, he spent 2.5 years as CEO of REDtone IOT and 8 years in MIMOS Berhad as Senior Director Wireless Communications Cluster. He also spent 13 years in CELCOM (mobile operator), handling many senior management positions. Prior to Celcom, he spent 10 years as an Assoc. Professor at Universiti Teknologi Malaysia. He was the Adjunct Professor for UTM from 2008 to 2013, UTHM (2004-2005, 2013-2016), Universiti Teknologi Petronas (2018-2019) and Universiti Sultan Zainal Abidin (UniSZA) (2017-2018) and Universiti Malaysia (UniMY) (2017-2019). Dr.Mazlan is a frequent speaker at many major & established IOT, IR 4.0, Smart Cities and telco conferences locally and globally. He sits in Industry Advisory Panel (IAP) for several local universities. He graduated from Universiti Teknologi Malaysia with a BEE (1984), University of Essex (UK) with MSc. in Telematics (1986) and Universiti Teknologi Malaysia with a Ph.D. in Telecommunications (1993). He also received an Honorary Doctorate in Electrical Engineering from UTHM (2017). He is also a TEDx Speaker.

PROF. BALAMURUGAN BALUSAMY

KEYNOTE SPEAKER 3

Prof. Balamurugan Balusamy has served up to the position of Associate Professor in his stint of 14 years of experience with VIT University, Vellore. He has completed his Bachelors, Masters and Ph.D Degrees from Top premier institutions .His passion is teaching and adapts different design thinking principles while delivering his lectures .He has done around 30 books on various technologies and visited 15 plus countries for his technical discourse .He has several top notch conferences in his resume and has published over 150 of quality journal, conference and book chapters combined. He serves in the advisory committee for several startup and forums and does consultancy work for industry on Industrial IOT. He has given over 175 talks in various events and symposium. He is currently working as professor in Galgotias University and teaches students, does research on Blcokchian and IOT.

DR. TRI CONG PHAM

KEYNOTE SPEAKER 4

Tri Cong PHAM received master degree in Computer and Information Science from the Hanoi University of Science and Technology, Hanoi (USTH), Vietnam, in 2013. He achieved Ph.D. program with the topic "Deep Learning to Enhance Accuracy and Efficiency of Cancer Diagnosis" of USTH, Vietnam (2020). He has been serving as a Lecturer with Thuyloi University, Hanoi, Vietnam, since 2009. He has many years of experience in engineering, research as well as academic activities. He has published numerous research articles in the field of medical image processing applied for cancer diagnosis. His research interests include computer vision, genomic analysis, and artificial intelligence. Major projects he participated in are related to medical fields as lung cancer, skin cancer, thyroid cancer, and breast cancer using different input data types of medical images and gene expression. He joined FPT Software in 2019. Since then, he became the technical leader of the AI team of FHN.DCS department and has been making remarkable contributions to the success of FPT Software's core products and projects. With deep expertise in computer vision, deep learning, PHAM and colleagues are researching on cancer diagnosis by medical images as well as application deployment for healthcare products such as thyroid, breast, and liver tumor detection and skin cancer diagnosis. His research direction is applying AI technologies in medical fields.

LIST OF ORGANIZING COMMITTEE

POSITION	NAME OF COMMITTEE MEMBERS
CONFERENCE ADVISOR	AP Ts Dr Jafreezal Jaafar
CHAIR	Ts Dr Aliza Sarlan
CO-CHAIR	AP Ts Dr Ahmad Kamil Mahmood
SECRETARY	AP Dr Dhanapal Durai Dominic
TREASURER	Ts Dr Khairul Shafee Kalid
PUBLICITY & PROMOTION	Ts Dr Shuib Basri Ts Ahmad Izuddin Zainal Abidin Ts Dr Yew Kwang Hooi
SPONSORSHIP	AP Dr Manzoor Ahmed Hashmani AP Ts Dr Wan Fatimah Wan Ahmad

PUBLICATION	Ts Dr Said Jadid Abdulkadir Ts Dr Hitham Seddig Alhassan Alhussian
EVENT MANAGEMENT	Ts Dr Savita A/P K.Sugathan Ts Dr Maythem Kamal Abbas Al-Adilee Mr Mohd Zulkarnain Zulkiflee (CORP COM) Mrs Sharifah Yasmin Rafidah Wafa (CORP COM) Mr M Soharzry Salehudin (ITMS) Mr Kamal Azreel Kamarudin Mr Ahmad Lutfi Haron (FIN)
IT & MEDIA	Ts Dr Helmi Md Rais Ts Saipunidzam bin Mahamad Ts Dr Lukman A Rahim Ts Abdullah Sani B A Rahman Ts Faizal Ahmad Fadzil Ts Jale Ahmad Mr Abdul Saboor Mr Mohamad Rimzan

PROGRAM TABLE

Day/Time (GMT+8)	Day 1 (8 October 2020)
08:30am – 09:00am	**WELCOMING REMARKS by Associate Professor Ts Dr Jafreezal Jaafar, Dean, Faculty of Science & Information Technology, Universiti Teknologi PETRONAS** **OPENING by Professor Ts Dr Mohamed Ibrahim Abdul Mutalib, Vice Chancellor, Universiti Teknologi PETRONAS** MAIN ROOM (KLCC) Link: http://bit.ly/ICCI2020KLCC-Day1
09:00am – 10:00am	**FORUM 1** **Title: "Post-Pandemic: What's Next Towards Advancements & Humanization of Educational Landscape"** Moderator: Assoc Prof Dr Ahmad Kamil Mahmood Expert 1: Dr Dzaharudin Mansor, National Technology Officer, MICROSOFT Malaysia Expert 2: Dr Mazlan Abbas, CEO, FAVORIOT Expert 3: Prof Dr Balamurugan Balusamy, Professor & Chief Research Coordinator of Galgotias University India, IEEE Brand Ambassador Expert 4: Dr Tri Cong Pham, FPT Malaysia and Lecturer at Thuyloi University, Hanoi, Vietnam MAIN ROOM (KLCC) Link: http://bit.ly/ICCI2020KLCC-Day1
10:00am – 10:10am	**LUCKY DRAW 1** MAIN ROOM (KLCC) Link: http://bit.ly/ICCI2020KLCC-Day1
10:10am – 10:20am	**BREAK**

10:20am – 11:25am	**KEYNOTE 1 by Dr Dzaharudin Mansor, National Technology Officer, MICROSOFT Malaysia** **Title: "Realizing the Promise of Data and AI"** MAIN ROOM (KLCC) Link: http://bit.ly/ICCI2020KLCC-Day1
11:25am – 11:35am	**LUCKY DRAW 2** MAIN ROOM (KLCC) Link: http://bit.ly/ICCI2020KLCC-Day1
11:35am- 11:40am	**WELCOMING OF PRESENTERS & ANNOUNCEMENTS**
11:45am – 01:15pm	**DAY 1 SESSION 1** Room 1: Redang (Link: https://bit.ly/ICCI2020-Room1Redang-D1) Room 2: Langkawi (Link: http://bit.ly/ICCI2020-Room2Langkawi-D1) Room 3: Sipadan (Link: https://bit.ly/ICCI2020-Room3Sipadan-Day1) Room 4: Rawa (Link: https://bit.ly/ICCI2020-Room4Rawa-Day1)
01:15pm – 02:00pm	**LUNCH BREAK**
02:00pm – 03:15pm	**KEYNOTE 2 by Dr Mazlan Abbas, CEO, FAVORIOT** **Title: "IoT - A New Frontier in IR 4.0"** MAIN ROOM (KLCC) Link: http://bit.ly/ICCI2020KLCC-Day1
03:15pm – 03:25pm	**LUCKY DRAW 3** MAIN ROOM (KLCC) Link: http://bit.ly/ICCI2020KLCC-Day1

03:25pm – 04:55pm	**DAY 1 SESSION 2** Room 1: Redang (Link: https://bit.ly/ICCI2020-Room1Redang-D1) Room 2: Langkawi (Link: http://bit.ly/ICCI2020-Room2Langkawi-D1) Room 3: Sipadan (Link: https://bit.ly/ICCI2020-Room3Sipadan-Day1) Room 4: Rawa (Link: https://bit.ly/ICCI2020-Room4Rawa-Day1)

Day/Time (GMT+8)	**Day 2 (9 October 2020)**
08:00am – 11:00am	**DAY 2 SESSION 1** Room 1: Redang (Link: http://bit.ly/ICCI2020-Room1Redang-D2) Room 2: Langkawi (Link: https://bit.ly/ICCI2020-Room2Langkawi-Day2) Room 3: Sipadan (Link: http://bit.ly/ICCI2020-Room3Sipadan-Day2) Room 4: Rawa (Link: https://bit.ly/ICCI2020-Room4Rawa-Day2)
11:00am – 11:15pm	**BREAK**
11:15am – 12:15am	**KEYNOTE 3** **by Prof Dr Balamurugan Balusamy, Professor & Chief Research Coordinator of Galgotias University** **Title: "An Insights into Academic Research and Publications"** MAIN ROOM (KLCC) Link: http://bit.ly/ICCI2020KLCC-Day2
12:15pm-12:30pm	**LUCKY DRAW 4** MAIN ROOM (KLCC) Link: http://bit.ly/ICCI2020KLCC-Day2
1230pm-230pm	**LUNCH BREAK**

2:35pm - 3:35pm	**KEYNOTE 4 by Dr Tri Cong Pham, FPT Malaysia and Lecturer at Thuyloi University, Hanoi, Vietnam** **Title: "Deep Learning for Cancer Diagnosis"** MAIN ROOM (KLCC) Link: http://bit.ly/ICCI2020KLCC-Day2
0335pm – 0350pm	**LUCKY DRAW 5** MAIN ROOM (KLCC) Link: http://bit.ly/ICCI2020KLCC-Day2
0350pm – 0520pm	**DAY 2 SESSION 2** Room 1: Redang (Link: http://bit.ly/ICCI2020-Room1Redang-D2) Room 2: Langkawi (Link: https://bit.ly/ICCI2020-Room2Langkawi-Day2) Room 3: Sipadan (Link: http://bit.ly/ICCI2020-Room3Sipadan-Day2) Room 4: Rawa (Link: https://bit.ly/ICCI2020-Room4Rawa-Day2)
0520pm – 0530pm	**ANNOUNCEMENT OF BEST PRESENTER, BEST PAPER & GRAND LUCKY WINNER** **LUCKY DRAW 6** MAIN ROOM (KLCC) Link: http://bit.ly/ICCI2020KLCC-Day2
0530pm – 0545pm	**CLOSING REMARKS OF ICCI 2020 by Ts Dr Aliza Sarlan** MAIN ROOM (KLCC) Link: http://bit.ly/ICCI2020KLCC-Day2

LIST OF TITLES AND PRESENTATION TIME

Paper Number (PN), Paper ID (PID)

Day/Time (GMT+8)	Day 1 (8 October 2020)			
	DAY 1 SESSION 1			
11:45am – 01:15pm	**Day 1: Room 1 (Redang)** Chairman: AP Dr Dominic Assistant Chairman: Shahab Ul Hassan Link: https://bit.ly/ICCI2020-Room1Redang-D1	**Day 1: Room 2 (Langkawi)** Chairman: AP Ts Dr Low Assistant Chairman: Faisal Baseer Link: http://bit.ly/ICCI2020-Room2Langkawi-D1	**Day 1: Room 3 (Sipadan)** Chairman: Dr Sobri Assistant Chairman: Mehak Memon Link: https://bit.ly/ICCI2020-Room3Sipadan-Day1	**Day 1: Room 4 (Rawa)** Chairman: Ts Dr Hitham Assistant Chairman: Abdullahi Mujaheed Link: https://bit.ly/ICCI2020-Room4Rawa-Day1
11:45am – 12:15pm	**PN:55** **PID:252** The Pro-environmental Behaviour and the Effect of COVID-19 Pandemic in Malaysia on Green IT Practices *Assoc Prof Dr Kesava Rao All (Mahsa University)*	**PN:9** **PID:199** Unsupervised Deep Learning Algorithm to Solve Sub-Surface Dynamics for Petroleum Engineering Applications *Mr Abhishek Kumar (UTP)*	**PN:42** **PID:242** Efficient and Flexible Checkpoint/Restore of Split-memory Virtual Machines *Mr Tokito Murata Kyushu (Institute of Technology)*	**PN:11** **PID:201** Comparative Study Of Privacy Preserving-Contact Tracing on Digital Platforms *Ms Forum Patel (Shah And Anchor Kutchhi Engineering College)*
12:15pm – 12:45pm	**PN:44** **PID:236** A Preliminary Study on the Factors Affecting the Adoption of E-Government Services by Malaysians *Mr. Joel Yong Jin Lim (UTAR)*	**PN:35** **PID:235** Efficient Energy Usage Model For WSN-IoT Environments *Dr Gunasekar Thangarasu (MAHSA University)*	**PN:27** **PID:224** Hybrid Parameterisation Model for Missing Data Sets *Mrs Masurah Mohamad (UITM)*	**PN:51** **PID:231** Detection of Error-Related Potentials during Robot Navigation Task by Humam *Prof Kiyohisa Natsume (Kyushu Institute of Technology)*

12:45pm – 01:15pm	**PN:56** **PID:251** A Proposed Framework for Identifying the Role of Data Science in Handling Future Pandemics for Malaysian SMEs through Technology Acceptance Model *Ms Jessica Chew Jia Wong (MAHSA University)*	**PN:66** **PID:261** Fine-tuned Surface Object Detection Applying Pre-trained Mask RCNN Models - a Preliminary Evaluation *Prof. Haruhiro Fujita*	**PN:70** **PID:264** An Improved Robust Watermarking Scheme using Flexible Scaling Factor *Dr Ferda Ernawan (Universiti Malaysia Pahang)*	**PN:46** **PID:247** Human Action Recognition using ConvLSTM with GAN and Transfer Learning *Dr Syed Hasan Adil (Iqra University)*
DAY 1 SESSION 2				
03:25pm – 04:55pm	**Day 1: Room 1 (Redang)** Chairman: AP Dr Dominic Assistant Chairman: Fairuz Husna Link: https://bit.ly/ICCI2020-Room1Redang-D1	**Day 1: Room 2 (Langkawi)** Chairman: AP Ts Dr Low Assistant Chairman: Rehman Abdul Link: http://bit.ly/ICCI2020-Room2Langkawi-D1	**Day 1: Room 3 (Sipadan)** Chairman: Dr Sobri Assistant Chairman: Farrukh Hassan Link: https://bit.ly/ICCI2020-Room3Sipadan-Day1	**Day 1: Room 4 (Rawa)** Chairman: Ts Dr Hitham Assistant Chairman: Abdul Sattar Link: https://bit.ly/ICCI2020-Room4Rawa-Day1
03:25pm – 03:55pm	**PN:36** **PID:200** COVID-19: A Novel Framework to Globally Track Coronavirus Infected Patients using Blockchain *Mr Mohamed Rimsan (UTP)*	**PN:28** **PID:225** Cybersecurity Impact over Bigdata and IoT Growth *Ms Dhuha Alferidah (King Faisal University)*	**PN:25** **PID:217** A Deep Learning Based Neuro-fuzzy Approach For Solving Classification Problems *Ms Noureen Talpur (UTP)*	**PN:48** **PID:249** SMTrust: Proposing Trust-Based Secure Routing Protocol for RPL Attacks for IoT Applications *Ms Syeda Mariam Muzammal (Taylor University)*
03:55pm – 04:25pm	**PN:19** **PID:200** Application of Blockchain to Ensure Temper-Proof Data Availability for Energy Supply Chain *Mr Mohamed Rimsan (UTP)*	**PN:7** **PID:196** Improving Classification Accuracy of Scikit-learn Classifiers with Discrete Fuzzy Interval Values *Mr Muhammad Nur Fikri (UTP)*	**PN:12** **PID:203** Feature Selection Based on Grey Wolf Optimizer for Oil & Gas Reservoir Classification *Mr Qasem Al-Tashi (UTP)*	**PN:59** **PID:254** Missing Values Imputation Using Fuzzy C Means Based On Correlation of Variable *Ms Farahida Hanim Mausor (UTP)*

04:25pm – 04:55pm	**PN:32** **PID:230** Assessing Suitable Word Embedding Model for Malay Language through Intrinsic Evaluation *Mr Yeong Tsann Phua (UTP)*	**PN:61** **PID:257** Performance comparison of CNN and LSTM algorithms for arrhythmia classification *Mr Shahab Ul Hassan (UTP)*	**PN:15** **PID:214** A review of weight optimization techniques in recurrent neural networks *Mr Alawi Alqushaibi (UTP)*	**PN:26** **PID:223** Semantic Segmentation for Visually Adverse Images – A Critical Review *Mr Mehak Memon (UTP)*

Day/Time (GMT+8)	**Day 2 (9 October 2020)**			
DAY 2 SESSION 1				
08:00am – 11:00am	**Day 2: Room 1 (Redang)** Chairman: AP Ts Dr Dayang Assistant Chairman: Ghaleb Ebrahim Link: http://bit.ly/ICCI2020-Room1Redang-D2	**Day 2: Room 2 (Langkawi)** Chairman: AP Ts Dr Kamil Mahmood Assistant Chairman: Maryam Ahmad Link: https://bit.ly/ICCI2020-Room2Langkawi-Day2	**Day 2: Room 3 (Sipadan)** Chairman: Ts Dr Suziah Assistant Chairman: Abdulsalam Ahmed Link: http://bit.ly/ICCI2020-Room3Sipadan-Day2	**Day 2: Room 4 (Rawa)** Chairman: Ts Dr Emelia Assistant Chairman: Syahirah Suboh Link: https://bit.ly/ICCI2020-Room4Rawa-Day2
08:00am – 08:30am	**PN:5** **PID:16** Predicting potential development for land areas in Perak, Malaysia using spatial data technique *Miss Nur Azmina Mohamad Zamani (UITM)*	**PN:60** **PID:255** Motorcycle Plated Recognition Based on FPGA *Mr Mohd Ali Mat Nong (UPM)*	**PN:69** **PID:246** Face Recognition for Smart Door Lock System using Hierarchical Network *Dr Ramesh Kumar Ayyasamy (UTAR)*	**PN:16** **PID:214** An optimized recurrent neural network for metocean forecasting *Mr Alawi Alqushaibi (UTP)*
08:30am – 09:00am	**PN:72** **PID:264** Real Time Vein Visualization using Near-Infrared Imaging *Dr Ferda Ernawan (Universiti Malaysia Pahang)*	**PN:67** **PID:262** Mobile Application to Predict Future Risk of Depression *Dr Wan Fatimah Wan Ahmad (UTP)*	**PN:8** **PID:197** Blockchain in Education – Trackability and Traceability *Ms Aisha Zahid Junejo (UTP)*	**PN:65** **PID:260** Simulation of Hydrogen Sulfide Generation in Oil and Gas Geological Formations *Mr Haithm Salah Mohammed Salah Hagar (UTP)*

09:00am – 09:30am	**PN:47** **PID:215** An Evolutionary Stream Clustering technique for outlier detection *Ms Nadilah Ayu Supardi (UTP)*	**PN:58** **PID:245** PITEH: Providing Financial Identities to Those Without Credit Score *Miss Ayu Shahirah Salem (UTP)*	**PN:33** **PID:21** Student Absenteeism Monitoring System Using Bluetooth Smart Location Based Technique *Ms Zalikha Zulkifli (UITM)*	**PN:74** **PID:327** Refined Urdu Lexicon Development *Mr Faisal Baseer (UTP)*
09:30am – 10:00am	**PN:31** **PID:229** Binary Grey Wolf Optimizer (BGWO) With KNN Classifier For Feature Selection *Ms Ranya Al-wajih (UTP)*	**PN:37** **PID:239** P-BBA: A Master/Slave Parallel Binary-based Algorithm for Mining Frequent Itemsets in Big Data *Ms Aliya Najiha Amir (UTP)*	**PN:6** **PID:19** Comparison between Conventional and Fuzzy Hypotheses Test Results for Parameter Treatment Effect for Heart Patients *Mr Naga Sunil Kumar Gandikota (UTP)*	**PN:77** **PID: 18** A Hybrid Model of Holt-Wintor and Neural Network Methods for Automobile Sales *Ms Kayalvizhi Subramanian (UTP)*
10:00am – 10:30am	**PN:40** **PID:237** Interactive Tool Using Augmented Reality (AR) for Learning Knee and Foot Anatomy Based on CT Images 3D Reconstruction. *Ms Liew Set Lee (UTAR)*	**PN:39** **PID:241** Fuzzy Type-1 Triangular Membership Function Approximation Using Fuzzy C-Means *Mr. Muhammad Hamza Azam (UTP)*	**PN:54** **PID:250** Optimal Feature Identification for Machine Prediction of Wind-Wave Parameters at Wave Energy Converter Site *Mr Muhammad Umair (UTP)*	**PN:21** **PID:222** Random Search One Dimensional CNN for Human Activity Recognition *Mr Mohammed Ragab (UTP)*
10:30am – 11:00am	**PN:62** **PID:247** Virtual Reality Training and Skill Enhancement for Offshore Workers *Dr Syed Hasan Adil (Iqra University)*	**PN:50** **PID:218** Predictive Analytics for Crude Oil Price Using RNN-LSTM Neural Network *Dr Norshakirah Aziz (UTP)*	**PN:45** **PID:23** Collaborative Visualization Framework for Cross-field Working Group: A Qualitative Focus Group Study *Mr. Danial Ilman Muhammad Hasni (IHS Markit Malaysia)*	**PN:41** **PID:232)** An Approach for SARS-CoV-2 Infected Cases Report Analysis *Mr Duc Long Nguyen (FPT University*

DAY 2 SESSION 2				
	Day 2: Room 1 (Redang) Chairman: AP Ts Dr Dayang Assistant Chairman: Noureen Talpur Link: http://bit.ly/ICCI2020-Room1Redang-D2	**Day 2: Room 2 (Langkawi)** Chairman: Dr Nordin Assistant Chairman: Jayasankari Link: https://bit.ly/ICCI2020-Room2Langkawi-Day2	**Day 2: Room 3 (Sipadan)** Chairman: Ts Dr Suziah Assistant Chairman: Aisha Zahid Link: http://bit.ly/ICCI2020-Room3Sipadan-Day2	**Day 2: Room 4 (Rawa)** Chairman: AP Ts Dr Soperi Assistant Chairman: Nor Syahirah Link: https://bit.ly/ICCI2020-Room4Rawa-Day2
03:50pm – 05:20pm				
0350pm – 0420pm	**PN:22** **PID:219** Covid-19 Disease Simulation using GAMA platform *Mr Ban Tran Quy (FPT University)*	**PN:38** **PID:226** Using SURF to Improve ResNet-50 Model for Poultry Disease Recognition Algorithm *Mr Luyl Da Quach (FPT University)*	**PN:4** **PID:6** An Initiative To Prevent Japanese Encephalitis Using Genetic And Machine Learning Algorithms *Ms Saranya A (SRM Institute Of Science And Technology)*	**PN:71** **PID:265** Wave Height and Peak Wave Period Prediction Using Recurrent Neural Networks *Prof Keiichi Horio (Kyushu Institute Of Technology)*
0420pm – 0450pm	**PN:23** **PID:219** A Benchmarking of the Effectiveness of Modular Exponentiation Algorithms using the library GMP in C language *Mr Ban Tran Quy (FPT University)*	**PN:73** **PID:325** SCADA System Framework for Monitoring, Controlling and Data Logging of Industrial Processing Plants *Dr Syed Sheraz Ul Hasan Mohani (Iqra University, Karachi)*	**PN:24** **PID:6** An Initiative to Prevent Japanese Encephalitis Using Genetic Algorithm And Artificial Neural Network *Ms Saranya A (SRM Institute Of Science And Technology)*	**PN:78** **PID: 14** IIoT Forensics and Major Security issues *Mr. Venkata Venugopal Rao Gudlur (Veritas University College)*
0450pm – 0520pm	**PN:49** **PID:218** A Study on Gradient Boosting Algorithms for Development of AI Monitoring and Prediction Systems *Dr Norshakirah Aziz (UTP)*	**PN:52** **PID:244** Semi-Supervised Learning for limited medical data using Generative Adversarial Network and Transfer Learning *Mr Ibrar Amin (Kohat University Of Science And Technology)*	**PN:13** **PID:205** Aedes Larvae Classification and Detection (ALCD) by Using Deep Learning *Mr Muhammad Izzul Azri Bin Zainol Azman (UTP)*	**PN:79** **PID: 14** IoT based Secure Digital Forensic Process Management Model *Mr. Venkata Venugopal Rao Gudlur (Veritas University College)*

ABSTRACTS

Session: Day (D), Session (S)

Date: 8th October 2020 Time: 11:45AM Session: D1S1 (Room 1: Redang)

THE PRO-ENVIRONMENTAL BEHAVIOUR AND THE EFFECT OF COVID-19 PANDEMIC IN MALAYSIA ON GREEN IT PRACTICES

Kesava Rao Alla; Zainuddin Hassan; Dr. Soong Der Chen

Abstract: The COVID-19 pandemic has caused disruption to human life throughout the world in 2020. This virus has recorded above 21 Million infected cases and 750,000 deaths by early August 2020 [7]. As there is no cure and vaccine available yet, this unprecedented infectious virus is still claiming its toll on daily basis. The year 2020 will be remembered throughout the world for the pandemic and is the same in Malaysia too. Malaysia observed stringent movement control orders (MCO) by locking down the economy from March 18th, 2020. This has greatly reduced the carbon emissions by commercial/ educational entities throughout the country. At the same time, since people were required to stay home and the use of communication and work channels through digital platforms escalated, it has caused the surge in the residential network and energy demand to the peak. The online meetings and the Directto-Home (DTH) connections caused enormous load on the network infrastructure and the related energy surge. This study is an attempt to study the effects of pro-environmental behaviour and the Green IT practices during the lockdown period through applying the Protection Motivation Theory (PMT). Our research indicated that the constructs of PMT has the significant capability to define the pro-environmental behaviour in the individuals. The PMT constructs, 'selfefficacy' and 'response-efficacy', along with the extrinsic and intrinsic rewards of intentions can derive pro-environmental behaviour in the given circumstances related to this study.

Date: 8th October 2020 Time: 11:45AM Session: D1S1 (Room 2: Langkawi)

UNSUPERVISED DEEP LEARNING ALGORITHM TO SOLVE SUB-SURFACE DYNAMICS FOR PETROLEUM ENGINEERING APPLICATIONS

Abhishek Kumar; Syahrir Ridha; Suhaib Umer Ilyas

Abstract: Ordinary and partial differential equations play a significant role across various energy domain as they aid in approximating solution for complex mathematical problems. Drilling optimization and reservoir simulation are some common application that takes the form of differential equations and are dominated by their respective governing equations. Approximating the solution of such mathematical problems requires a fast and reliable methodology. However, the computational complexity increases with the dimension for the classical numerical techniques and the quality of the result is dependent upon the discretization and sampling methods of the subspace. Recent advances in deep learning techniques, based on universal approximation theorem of neural network seems promising to tackle the high dimensional problem. The solution provided by deep learning for a differential equation is in a closed analytical form which is differentiable and could be used in any subsequent computation. In the present study, the solution for the initial condition and boundary value problems in ordinary and partial differential equation by deep learning method have been analyzed. The proposed algorithm could be valuable aid for analyzing the fluid flow and reservoir simulation in an effective manner.

Date: 8th October 2020 Time: 11:45AM Session: D1S1 (Room 3: Sipadan)

EFFICIENT AND FLEXIBLE CHECKPOINT/RESTORE OF SPLIT-MEMORY VIRTUAL MACHINES

Tokito Murata; Kenichi Kourai

Abstract: Recently, clouds provide virtual machines (VMs) with a large amount of memory for big data analysis. For easier migration of such VMs, split migration divides the memory of a VM into several pieces and transfers them to multiple hosts. Since the migrated VM called a splitmemory VM needs to exchange memory data between the hosts, it is inherently subject to host and network failures. As a countermeasure, a checkpoint/restore mechanism has been used to periodically save the state of a VM, but the traditional mechanism is not suitable for split-memory VMs. It has to move a large amount of memory data between hosts during checkpointing and can just restores a normal VM on one host. This paper proposes D-CRES for efficient and flexible checkpoint/restore of split-memory VMs. D-CRES achieves fast checkpointing by saving the memory of a VM in parallel at all the hosts without moving memory data. For live checkpointing, it consistently saves the memory of a running VM by considering memory data exchanged by the VM itself. In addition, it enables a split-memory VM to be restored in parallel at multiple hosts. We have implemented checkpoint/restore of D-CRES in KVM and showed that the performance was up to 5.4 times higher than that of using the traditional mechanism.

Date: 8th October 2020 Time: 11:45AM Session: D1S1 (Room 4: Rawa)

COMPARATIVE STUDY OF PRIVACY PRESERVING-CONTACT TRACING ON DIGITAL PLATFORMS

Forum Bhavesh Patel; Nilakshi Jain; Ramesh Menon; Srikanth Kodeboyina

Abstract: The rapid development in digital infrastructure such as computing power and less expensive mobile devices and explosive growth of the internet has made an impact on digital processing. This revolution has bought many new applications and new technologies, now aiming at replacement with improving effectiveness and efficiency of manual contact tracing with new approaches with maintaining user privacy. The successful containment of the Coronavirus pandemic (COVID-19) depends on the ability to identify quickly and reliably those who have been in close proximity to a contagious positive-tested individual. This can be made possible with contact tracing method. The information about interaction which happens between two users should be revealed only to themselves to maintain privacy of individuals. Users which are detected positive should not share any of their contact details or personal information or history with the authority or any other party but pass the anonymous IDs and help in tracing out the contacted people. This paper presents the most popular contact tracing data privacy techniques.

Date: 8th October 2020 Time: 12:15PM Session: D1S1 (Room 1: Redang)

A PRELIMINARY STUDY ON THE FACTORS AFFECTING THE ADOPTION OF E-GOVERNMENT SERVICES BY MALAYSIANS

Joel Lim Yong Jin; Aamir Amin

Abstract: E-government is no longer stranger to everyone in this technological era. In Malaysia, e-government was used to enhance governmental processes and services and to shorten the time and increase efficiency. It is also known to enhance communication between government, citizens, businesses, agencies. However, it is reported that the government's objective is not aligned with citizens' needs in implementing egovernment. After the adoption of e-government services by the Malaysian government, it is crucial to study the adoption of these services by Malaysian citizens and the factors which affect this adoption. Through Technology Acceptance Model, the present study has proposed a theoretical framework for the impact of social influence, awareness, perceived usefulness, perceived ease of use, and behavioral intention on the actual usage of online services by Malaysian citizens. The results show that social influence and awareness of the online services are significant predictors of perceived usefulness as well as perceived ease of use. In the future, the proposed framework will be statistically validated by first collecting the data from Malaysian citizens and then analyzing the data with the use of statistical software tools. This study will provide significant value towards the Knowledge Body which pertains to e-services, especially in Malaysia.

Date: 8th October 2020 Time: 12:15PM Session: D1S1 (Room 2: Langkawi)

EFFICIENT ENERGY USAGE MODEL FOR WSN-IOT ENVIRONMENTS

Gunasekar Thangarasu; P.D.D. Dominic; Kayalvizhi Subramanian

Abstract: Nowadays, the usage of Wireless Sensor Networks (WSN) with Internet of Things (IoT) is increasing in many commercial and industrial applications to perform various tasks inexpensively. Internet of Things (IoT) is the expansion of smart objects and Wireless Sensor Networks by interfacing distributed and identifiable communication devices. The accessibility of imbalanced resources and heterogeneous IoT communication leads to vitality utilization imperatives. This study proposed an improved Chaotic Whale Optimization model to improve the utilization of vitality. The proposed system result shows better vitality effectiveness in coordinates WSNIoT environment.

Date: 8th October 2020 Time: 12:15PM Session: D1S1 (Room 3: Sipadan)

HYBRID PARAMETERISATION MODEL FOR MISSING DATA SETS

Masurah Mohamad; Ali Selamat; Suraya Masrom; Khairulliza Ahmad Salleh

Abstract: Missing data sets usually exist in many fields such as medical diagnosis, traffic controlling, meteorology, business, industrial process, computer and network telecommunication. This missing data also might decrease the efficiency of the results during the decision making process. Besides, missing data could caused the decision is difficult to be made. Therefore, an efficient method such as parameterisation method is required to deal with these problems. Various approaches like probability, heuristic and machine learning have been proposed, so that an optimised attribute set can be generated. However, some of the proposed works only consider on certain problems to be solved and failed to analyse certain type of data. The aimed of this study is to propose an hybrid parameterisation model that capable to deal with missing data sets. Experimental results have shown that the proposed model is significant to be implemented in handling missing data sets. It also proved that, the processing time and memory space could be reduced while assisting the classifier in gaining high results performance.

Date: 8th October 2020 Time: 12:15PM Session: D1S1 (Room 4: Rawa)

DETECTION OF ERROR-RELATED POTENTIALS DURING ROBOT NAVIGATION TASK BY HUMAN

Kentaro Nakamura; Kiyohisa Natsume

Abstract: We have developed a system in which humans and autonomous robots can collaborate with each. In the system, robots often have behaviors which humans do not intend to. To avoid the situation, it is necessary to send the human's will to the robots. To do that we have focus on one of electroencephalogram (EEG) Error-related Potential (ErrP). Using ErrP, we can detect ErrP when a person observes an error of robots. In the previous study, we recorded ErrP from subjects in a maze task when a robot moves to the direction which subjects did not intend to. However, the mean epoch number of ErrP per subject was small. Using a deep neural network it is necessary to collect a large number of data. Generally human medical data and the physiological data recorded from persons are small. Few Shot Learning is necessary for the small number of data. Thus Siamese neural network has been proposed. In the present study, we combined the Siamese deep neural network with support vector machine to discriminate EEG's with an error (ErrP) and without an error. As a result, we were able to get above 70 % of the maximum classification accuracy (ACC) among in subjects and 0.60 ± 0.22 of area under curve (AUC).

Date: 8th October 2020 Time: 12:45PM Session: D1S1 (Room 1: Redang)

A PROPOSED FRAMEWORK FOR IDENTIFYING THE ROLE OF DATA SCIENCE IN HANDLING FUTURE PANDEMICS FOR MALAYSIAN SMES THROUGH TECHNOLOGY ACCEPTANCE MODEL

Jessica C. J. Wong; Kesava Rao Alla; P.D.D. Dominic

Abstract: The year 2020 will be written in the history as the year that has caused catastrophic impact on health, human lives, and most importantly the economy that has been rumbled in some countries to the levels of World War I and II. This pandemic also exposed the loopholes in the systems for few 'Developed Nations', 'Established Public Health Systems', and 'Billion Dollar Forex Reserves' that most of the countries relied upon in general. All these were challenged to the core once the COVID-19 pandemic started growing exponentially from March 2020 forcing the countries to go under lockdown which has curved down their economic charts. Malaysia too has suffered with a months-long lockdown, growing unemployment and shrinking economy. The SMEs in Malaysia are among the worst affected. In May 2020, almost 50% of the SMEs reached a position where their very existence was at stake. A potential second or third wave of COVID-19 or some other pandemic in future is not any surprise for Malaysia. But, how far the country and its SMEs are prepared to face such situation again is the question. A quick and accurate data analytics on historical pandemics, hospital data, infection rates, tracking, testing and treatments offered may help in predicting the primary signs that can protect from disasters to a great extent. This study applies 'technology acceptance model' to Malaysian SMEs to explore the possibility of Data Science in launching accurate forecasts that could keep them in a better position rather than getting caught in surprise lockdowns. Since the acceleration in the spread of infectious diseases lately around the globe is due to the growth in the human population and globalisation, Data Analytics can be used to predict where the potential outbreaks may unfold next and thereby to flag the early alert.

Date: 8th October 2020 Time: 12:45PM Session: D1S1 (Room 2: Langkawi)

FINE-TUNED SURFACE OBJECT DETECTION APPLYING PRE-TRAINED MASK RCNN MODELS - A PRELIMINARY EVALUATION

Haruhiro Fujita; Masatoshi Itagaki; Kenta Ichikawa; Yew Kwang Hooi; Kazuyoshi Kawahara; Aliza Sarlan

Abstract: This study evaluates road surface object detection tasks using four Mask RCNN models available on the TensorFlow Object Detection API. The models were pre-trained by COCO datasets and fine-tuned by 1418 segmented road surface annotation data. Validation data set was used to obtain Average Precisions and Average Recalls. Result indicates a substantial false negatives or "leaving judgement" counts in the classes of linear cracks, joints, fillings, potholes, stains, shadows and patching with grid cracks. There were also significant number of incorrectly predicted label instances. To improve the result, an alternative metric calculation method was used. However, the results showed strong mutual interferences caused by misinterpretation of the scratches with other classes.

Date: 8th October 2020 Time: 12:45PM Session: D1S1 (Room 3: Sipadan)

AN IMPROVED ROBUST WATERMARKING SCHEME USING FLEXIBLE SCALING FACTOR

Ferda Ernawan; Dhani Ariatmanto; Jasni Mohamad Zain; Zuriani Mustaffa

Abstract: Digital watermarking is needed to avoid piracy, forgery and illegal distribution from unauthorized people. The watermarking scheme is used to protect the ownership and copyright information in the multimedia data. A scaling factor plays an important role for balancing between invisibility and robustness for embedding watermark. However, the usage of a scaling factor may not be suitable for different selected blocks and image inputs. Flexible scaling factor is an alternative solution to obtain high robustness and invisibility in image watermarking. This research proposed a flexible scaling factor for DCT coefficients based on the image content itself. This research analyses the selected DCT coefficients against average coefficients on its block to obtain flexible scaling factor. The proposed scheme produced high invisibility with SSIM and PSNR values of 0.991 and 45dB, respectively. The proposed watermarking scheme also achieved strong resistant against noised image, filtered image and compressed image.

Date: 8th October 2020 Time: 12:45PM Session: D1S1 (Room 4: Rawa)

HUMAN ACTION RECOGNITION USING CONVLSTM WITH GAN AND TRANSFER LEARNING

Mohsin Raza Siyal; Mansoor Ebrahim; Syed Hasan Adil; Kamran Raza

Abstract: Human Action Recognition (HAR)is a challenging time series classification problem that has received significant attention from computer vision researchers. In this paper, different techniques used for human activities are investigated, and a human action recognition approach using a Convolutional Neural Network (CNN) with Long Short Term Memory (LSTM) and generative adversarial network is proposed. The proposed research evaluates the performance of cross-entropy and adversarial loss function for HAR analysis. Two different datasets UFC101 and the classic KTH dataset, are used for experimental purposes. The UFC101 dataset contains 13k videos in which 101 human actions are included i.e., playing instrument, makeup, etc. In contrast, KTH dataset contains 600 videos containing six human activities, including walking, running, jogging, hand clapping and hand waving, performed by 25 different persons. Also, demonstrates the process of HAR by mixing both datasets and evaluate the performance. The GAN enhances the model robustness by applying adversarial training which fully discovers the underlying connections in both intra-view and cross-view aspects.

Date: 8th October 2020 Time: 03:25PM Session: D1S2 (Room 1: Redang)

COVID-19: A NOVEL FRAMEWORK TO GLOBALLY TRACK CORONAVIRUS INFECTED PATIENTS USING BLOCKCHAIN

Mohamed Rimsan; Ahmad Kamil Mahmood; Muhammad Umair; Farruk Hassan

Abstract: An outbreak of coronavirus caused by a novel virus called SARS-CoV-2 occurred at the end of 2019. The unexpected outbreak and unchecked global spread of COVID19 indicate that the current global healthcare networks have limitations in addressing the crises for public safety. The detection of infected or tested patients globally is challenging when patients travel abroad. As such, innovative technology such as blockchain has emerged as a potential approach for addressing coronavirus patient tracking. Blockchain technology can tackle pandemics by allowing early detection of outbreaks, protecting individual privacy while maintaining data security by using smart contracts. Motivated by these facts, we propose a novel blockchain-based framework that integrates intercountry for COVID-19 to track infected or tested patients globally using the methodology of design science research. The proposed framework could help governments, aviation industries, health authorities, and residents make essential decisions on infection identification, infection prediction, and infection prevention.

CYBERSECURITY IMPACT OVER BIGDATA AND IOT GROWTH

Dhuha Khalid Alferidah; NZ Jhanjhi

Abstract: Big Data and IoT based applications are promising and being necessary for almost all the fields. IoT applications provide us with beneficial services, and also they gather and transmit data to Big Data databases where data can be stored and analyzed. Big Data and IoT started to be involved in smart homes, smart healthcare, education, shopping and even in agriculture field. These Big Data and IoT based applications are growing rapidly. The more these technologies are giving us great applications and making our life better; the more cybersecurity attacks start against them. These applications are the target for attackers due to the useful and massive amount of data they have. Cybersecurity is a significant issue for these technologies. Cybersecurity threats and attacks can stop these technologies from growing, which is considered to be a negative point for us and these promising technologies. Cybersecurity threats weaken these technologies to gain full access over the user's data. Understanding the possible applications and benefits that we could learn from these technologies is important. Also, understanding and being aware of the possible threats that could threaten the various Big Data and IoT based applications is more critical. Understanding the possible cybersecurity attacks and threats can help us to know about how to protect these technologies and applications from cybersecurity attacks. This research presents critical cybersecurity impacts in the form of security threats, and attacks that could be initiated against Big Data and IoT based applications and affect their growth. These impacts are elaborated using a case study of a healthcare system with its possible cybersecurity attacks, which shows the relation between cybersecurity attacks and the growth of Big Data and IoT technologies.

Date: 8th October 2020 Time: 03:25PM Session: D1S2 (Room 3: Sipadan)

A DEEP LEARNING BASED NEURO-FUZZY APPROACH FOR SOLVING CLASSIFICATION PROBLEMS

Noureen Talpur; Said Jadid Abdulkadir; Mohd Hilmi Hasan

Abstract: Techniques involved artificial intelligence and machine learning offers various classification methods in order to deal with daily life problems. Among these methods, ANFIS and DNN are the most commonly used classifiers. Since ANFIS is not suitable for high-dimensional data, therefore DNN was introduced to overcome this problem faced by conventional methods. However, due to the optimization of millions of parameters in their deep architecture, the decision made by DNN faced the criticism of being non-transparent. To overcome this problem, recently, various researchers are coming up with the idea of using fuzzy logic with DNN. Therefore, this study also proposed a deep neuro-fuzzy classifier (DNFC) with a cooperative based structure for solving classification problems, particularly. The performance of the proposed DNFC was evaluated with ANFIS and DNN classifier, where overall results show that the performance of ANFIS classifier decreased when input size increased. While the performance of the proposed model demonstrated nearly similar or slightly higher accuracy as compared to DNN.

Date: 8th October 2020 Time: 03:25PM Session: D1S2 (Room 4: Rawa)

SMTRUST: PROPOSING TRUST-BASED SECURE ROUTING PROTOCOL FOR RPL ATTACKS FOR IOT APPLICATIONS

Syeda Mariam Muzammal; Raja Kumar Murugesan; Noor Zaman Jhanjhi; Low Tang Jung

Abstract: With large scale generation and exchange of data between IoT devices and constrained IoT security to protect data communication, it becomes easy for attackers to compromise data routes. In IoT networks, IPv6 Routing Protocol is the de facto routing protocol for Low Power and Lossy Networks (RPL). RPL offers limited security against several RPL-specific and WSN-inherited attacks in IoT applications. Additionally, IoT devices are limited in memory, processing, and power to operate properly using the traditional Internet and routing security solutions. Several mitigation schemes for the security of IoT networks and routing, have been proposed including Machine Learning-based, IDS-based, and Trust-based approaches. In existing trust-based methods, mobility of nodes is not considered at all or its insufficient for mobile sink nodes, specifically for security against RPL attacks. This research work proposes a conceptual design, named *SMTrust*, for security of routing protocol in IoT, considering the mobility-based trust metrics. The proposed solution intends to provide defense against popular RPL attacks, for example, Blackhole, Greyhole, Rank, Version Number attacks, etc. We believe that *SMTrust* shall provide better network performance for attacks detection accuracy, mobility and scalability as compared to existing trust models, such as, DCTM-RPL and SecTrust-RPL. The novelty of our solution is that it considers the mobility metrics of the sensor nodes as well as the sink nodes, which has not been addressed by the existing models. This consideration makes it suitable for mobile IoT environment. The proposed design of *SMTrust*, as secure routing protocol, when embedded in RPL, shall ensure confidentiality, integrity, and availability among the sensor nodes during routing process in IoT communication and networks.

Date: 8th October 2020 Time: 03:55PM Session: D1S2 (Room 1: Redang)

APPLICATION OF BLOCKCHAIN TO ENSURE TEMPER-PROOF DATA AVAILABILITY FOR ENERGY SUPPLY CHAIN

Mohamed Rimsan; Ahmad Kamil Mahmood

Abstract: Energy supply industries play a vital role in a country. Inefficiencies in the energy supply chain regarding tricky contest and the lack of management instantly change energy tariff calculation. This work proposes the Ethereum blockchain platform with existing traditional infrastructure to track and investigate energy supply chain activities using a unique identity with smart contracts. It maintains the records of the organization's activities that are protected and available to stakeholders according to the recognized collection of procedures and practices without requiring any centralized administration. This paper focuses entirely on analyzing and developing a simplified, low-cost economical solution to quickly connect the present energy supply industry at various geological locations to track and trace the linked data in the energy market.

Date: 8th October 2020 Time: 03:55PM Session: D1S2 (Room 2: Langkawi)

IMPROVING CLASSIFICATION ACCURACY OF SCIKIT-LEARN CLASSIFIERS WITH DISCRETE FUZZY INTERVAL VALUES

Muhammad Nur Fikri Hishamuddin; Mohd Fadzil Hassan; Duc Chung Tran; Ainul Akmar Mokhtar

Abstract: Understanding machine learning (ML) algorithm from scratch is time consuming. Thus, many software and library packages such as Weka and Scikit-Learn have been introduced to help researchers run simulation on several amounts of well-known classifiers. In ML, different classifiers have different performance and this depends on factor such as type of data used as input for the classification phase. Thus, it is necessary to perform data discretization when dealing with continuous data for classifiers that perform better with discrete data. However, in data mining, depending solely on discretization is not enough as real-world data can be large, imprecise and noisy. In addition, knowledge representation is necessary to help researchers to understand better about the data during the discretization process. Thus, the objective of this study is to observe the effect of fuzzy elements inside the discretization phase on the classification accuracy of Scikit-learn classifiers. In this study, fuzzy logic has been proposed to assist the existing discretization technique through fuzzy membership graph, linguistic variables and discrete interval values. All classifiers in Scikit-learn packages were used during the classification phase through 10-fold cross validation. The simulation results showed that the presence of fuzzy in assisting the discretization process slightly improved the classification accuracy of ensemble type classifiers such as Random Forest and Naïve Bayes while slightly degrading the performance of other classifiers.

Date: 8th October 2020 Time: 03:55PM Session: D1S2 (Room 3: Sipadan)

FEATURE SELECTION BASED ON GREY WOLF OPTIMIZER FOR OIL & GAS RESERVOIR CLASSIFICATION

Qasem Al-Tashi; Helmi Md Rais; Said Jadid Abdulkadir; Seyedali Mirjalili

Abstract: The classification of the hydrocarbon reserve is a significant challenge for both oil and gas producing firms. The factor of reservoir recovery contributes to the proven reservoir growth potential which leads to a good preparation of field development and production. However, the high dimensionality or irrelevant measurements/features of the reservoir data leads to less classification accuracy of the factor reservoir recovery. Therefore, feature selection techniques become a necessity to eliminate the said irrelevant measurements/ features. In this paper, a wrapper-based feature selection method is proposed to select the optimal feature subset. A Binary Grey Wolf Optimization (BGWO) is applied to find the best features/measurements from big reservoir data obtained from U.S.A. oil & gas fields. To our knowledge, this is the first time applying the Grey Wolf Optimizer (GWO) as a search technique to search for the most important measurements to achieve high classification accuracy for reservoir recovery factor. The wrapper K-Nearest Neighbors (KNN) classifier is used to evaluate the selected features. In addition, to examine the efficiency of the proposed method, two recent algorithms namely: Whale Optimization algorithm (WAO) and Dragonfly Algorithm (DA) are implemented for comparison. The experimental results showed that, the proposed BGWO-KNN significantly outperforms benchmarking methods in terms of feature reduction as well as increasing the classification accuracy. The proposed method shows a great potential for solving the real oil & gas problems.

Date: 8th October 2020 Time: 03:55PM Session: D1S2 (Room 4: Rawa)

MISSING VALUES IMPUTATION USING FUZZY C MEANS BASED ON CORRELATION OF VARIABLE

Farahida Hanim Mausor; Jafreezal Jaafar; Shakirah Mohd Taib

Abstract: Missing values is one of the problems in realworld data and an unavoidable one. It should be handled carefully in a pre-processing technique before being processed in a data mining technique. This paper proposes an imputation technique of Fuzzy C Mean (FCM) with the improved version. The aim is to reduce errors and increase the accuracy of the processing technique. In this paper, the correlation technique was applied before the process of FCM to choose the variables with a certain criterion to be processed in FCM imputation. The result shows that the proposed technique outperforms the conventional technique and useful to overcome the disadvantages of the FCM technique.

Date: 8th October 2020 Time: 04:25PM Session: D1S2 (Room 1: Redang)

ASSESSING SUITABLE WORD EMBEDDING MODEL FOR MALAY LANGUAGE THROUGH INTRINSIC EVALUATION

Phua Yeong Tsann; Yew Kwang Hooi; Foong Oi Mean; Matthew Teow Yok Wooi

Abstract: Word embeddings were created to form meaningful representation for words in an efficient manner. This is an essential step in most of the Natural Language Processing tasks. In this paper, different Malay language word embedding models were trained on Malay text corpus. These models were trained using Word2Vec and fastText using both CBOW and Skip-gram architectures, and GloVe. These trained models were tested on intrinsic evaluation for semantic similarity and word analogies. In the experiment, the customed trained fastText skipgram model achieved 0.5509 for Pearson correlation coefficient at word similarity evaluation, and 36.80% for accuracy at word analogies evaluation. The result outperformed the fastText pre-trained models which only achieve 0.477 and 22.96% for word similarity evaluation and word analogies evaluation, respectively. The result shows that there are still rooms for improvement in both pre-processing tasks and datasets for evaluation.

Date: 8th October 2020 Time: 04:25PM Session: D1S2 (Room 2: Langkawi)

PERFORMANCE COMPARISON OF CNN AND LSTM ALGORITHMS FOR ARRHYTHMIA CLASSIFICATION

Shahab Ul Hassan; Mohd Soperi M. Zahid; Khaleel Husain

Abstract: One of the critical CVDs is cardiac arrhythmia and has caused significant fatalities. Recently, deep learning models are utilized for the classification of arrhythmia disease through electrocardiogram (ECG) signal analysis. Among the existing deep learning model, convolutional neural network (CNN) and long short-term memory (LSTM) algorithms are extensively used for arrhythmia classification. However, there is a lack of study that analyzes the performance comparison of CNN and LSTM algorithms for arrhythmia classification. In this paper, the performance of CNN and LSTM algorithms for arrhythmia classification is compared for a publicly available dataset. Specifically, the MIT-BIH arrhythmia dataset is used and the performance is measured in terms of area under the curve (AUC) and receiver operating characteristic (ROC) curve. Analyzing the performance of these algorithms will further assist in the development of an enhanced deep learning model that offers improved performance.

Date: 8th October 2020 Time: 04:25PM Session: D1S2 (Room 3: Sipadan)

A REVIEW OF WEIGHT OPTIMIZATION TECHNIQUES IN RECURRENT NEURAL NETWORKS

Alawi Alqushaibi; Said Jadid Abdulkadir; Helmi Md Rais; Qasem Altashi; Mohamed G. Ragab

Abstract: Recurrent neural network (RNN) has gained much attention from researchers working in the domain of time series data processing and proved to be an ideal choice for processing such data. As a result, several studies have been conducted on analyzing the time series data and data processing through a variety of RNN techniques. However, every type of RNN has its own flaws. Simple Recurrent Neural Networks (SRNN) are computationally less complex than other types of RNN such as Long Short-Term Memory (LSTM) and Gated Recurrent Unit (GRU). However, SRNN has some drawbacks such as vanishing gradient problem that makes it difficult to train when dealing with long term dependencies. The vanishing gradient exists during the training process of SRNN due to the multiplication of the gradient with small value when using the most traditional optimization algorithm the Gradient Decent (GD). Therefore, researches intend to overcome such limitations utilizing a weight optimized techniques. The objective of this paper is to present an extensive review of the challenges and issues of RNN weight optimization techniques and critically analyses the existing proposed techniques. The authors believed that the conducted review would serve as a main source of the techniques and methods used to resolve the problem of RNN time series data and data processing. Furthermore, current challenges and issues are deliberated to find promising research domains for further study.

Date: 8th October 2020 Time: 04:25PM Session: D1S2 (Room 4: Rawa)

SEMANTIC SEGMENTATION FOR VISUALLY ADVERSE IMAGES – A CRITICAL REVIEW

Manzoor Ahmed Hashmani; Mehak Maqbool Memon; Kamran Raza

Abstract: Semantic Segmentation is one of the high-end visual tasks that has remained a topic of interest in various domains. Segmentation of visual scenes was confined to the extraction of object boundaries present in the image data. However, with the progressive developments in technology, machines are expected to produce assistive decisions to aid versatile tasks. Subsequently, these assistive decisions are dependent on efficient results and must project information on a granular level from the visual scenes. The visual scenes are usually of vast variety depending on the scenarios in which the image data is captured. As per recent trends, semantic segmentation is still an open area of research, one of its worth mentioning challenges is to handle the visually adverse images. These visually adverse images are the result of low light/ high light, rain, fog and sometimes in the form of too many objects present in the scene. The study sheds light on the non-trivial problem and diverts attention to the gaps present in literature by providing in-depth critical analysis. This study comprehensively presents unidentified problems prevailing in existing semantic segmentation techniques. A critical literary study is conducted to examine the working mechanics of existing solutions to identify their limitations to produce accurate results for the visually adverse scenarios. The study discusses some of the possible reasons which result in erroneous semantic segmentation results for visually adverse images. Finally, the problems and challenges to be tackled are concluded which highlight the future direction of analysis.

Date: 9th October 2020 Time: 08:00AM Session: D2S1 (Room 1: Redang)

PREDICTING POTENTIAL DEVELOPMENT FOR LAND AREAS IN PERAK, MALAYSIA USING SPATIAL DATA TECHNIQUE

N. Azmina M. Zamani; Z. Ahmad; S. Ahmad; S. Mohamed Hatim; S. Masrom; M. A. Surani

Abstract: Predicted size and spatial distribution of future population are crucial drivers of development growth and key determinants for the development type per se. Population data is a prime example of spatial demographic inputs that can be used to make prediction for land areas development and also assists in effective rural or urban planning. Data can be collected by various individuals or different teams with a variety of technologies and assumptions over a period span. As a result, they may contain a great many redundancies, duplicates, and inconsistencies. By using Geographic Information System (GIS), data can be more organized and processed to produce a more desirable result. Spatial data technique will be applied in the system by plotting the geocoordinates on the map of Perak state according to the districts being analyzed. Every district contains information of the predicted potential development with the population data for the year 2020. The prediction will be based on exponential model where population data is processed. This information is displayed in an informative way via visualization of data using Data Driven Document (D3) tool. It gives users a dynamic display function to select the area that will show the relevant information. Therefore, it is expected that the development of rural areas can be planned more efficiently in the future.

Date: 9th October 2020 Time: 08:00AM Session: D2S1 (Room 2: Langkawi)

MOTORCYCLE PLATED RECOGNITION BASED ON FPGA

Mohd Ali Mat Nong; Juraina Md Yusof and Rosiah Osman; Roslina Mohd Sidek; Suzila Sabil

Abstract: An intelligent system was developed to recognize motorcycle plate number for traffic enforcement. The system used FPGA as a platform to recognize plate image. The recognition system was designed to detect still and moving plate images at different resolutions. A motorcycle was defined as the target object and Sobel Edge Detection Algorithm (SEDA) was used on FPGA platform. The results showed that the system able to recognize motorcycle's plate number in still and moving conditions. The percentages of the motorcycle image correct detection are 83.3% and 50% for low and high image resolutions respectively.

Date: 9th October 2020 Time: 08:00AM Session: D2S1 (Room 3: Sipadan)

FACE RECOGNITION FOR SMART DOOR LOCK SYSTEM USING HIERARCHICAL NETWORK

Muhammad Waseem; Sunder Ali Khowaja; Ramesh Kumar Ayyasamy; Farhan Bashir

Abstract: Face recognition system is broadly used for human identification because of its capacity to measure the facial points and recognize the identity in an unobtrusive way. The application of face recognition systems can be applied to surveillance at home, workplaces, and campuses, accordingly. The problem with existing face recognition systems is that they either rely on the facial key points and landmarks or the face embeddings from FaceNet for the recognition process. In this paper, we propose a hierarchical network (HN) framework which uses pre-trained architecture for recognizing faces followed by the validation from face embeddings using FaceNet. We also designed a real-time face recognition security door lock system connected with raspberry pi as an implication of the proposed method. The evaluation of the proposed work has been conducted on the dataset collected from 12 students from Faculty of Engineering and Technology, University of Sindh. The experimental results show that the proposed method achieves better results over existing works. We also carried out a comparison on random faces acquired from the Internet to perform face recognition and results shows that the proposed HN framework is resilient to the randomly acquired faces.

Date: 9th October 2020 Time: 08:00AM Session: D2S1 (Room 4: Rawa)

AN OPTIMIZED RECURRENT NEURAL NETWORK FOR METOCEAN FORECASTING

Alawi Alqushaibi; Said Jadid Abdulkadir; Helmi Md Rais; Qasem Altashi; Mohamed G. Ragab

Abstract: Metocean data plays a crucial role in planning and constructing offshore projects. the success of many offshore projects depends on the accuracy of metocean data analyzing and forecasting. And analyzing metocean data requires a tremendous effort to validate the data and determine the transformation of the metocean data conditions. Hence the wind plays an important role in the climate changes, recurrent neural network approaches such as vanilla recurrent neural network (VRNN), long shortterm memory (LSTM), and Gated recurrent units (GRU) are used and compared to yield an accurate wind speed forecasting. The highest wind speed forecasting accuracy contribute to the minimization of cost and helps avoiding the operational faulty risk. Different models for estimating the hourly wind speed one hour ahead and one day ahead has been developed according to literature. However, this research compares the mentioned Artificial Neural Networks and selects the outstanding performance model to process the metocean data. The training and validation data of this work has been collected from free oceanic websites.

Date: 9th October 2020 Time: 08:30AM Session: D2S1 (Room 1: Redang)

REAL TIME VEIN VISUALIZATION USING NEAR-INFRARED IMAGING

Hia Yee May; Ferda Ernawan

Abstract: Vein visualization is one of the most researched biomedical technique. Although the concept behind the technique is not complicated, the vein pattern acquisition method and the design and implementation of image processing algorithms become challenging. Nowadays, the major challenge faced by the medical practitioners is the difficulty in accessing subcutaneous veins for intra-venous injections due to various factors like low visibility of vein by naked eyes and patients with too narrow veins. Failure during venipuncture may lead to several problems like bruises, bleeding and rashes. Therefore, the real time vein visualization system is developed accordance with the objective of visualizing subcutaneous veins which is to assist medical practitioners by providing them visual guidance during venipuncture process. This system is developed based on near-infrared imaging and is connected to the monitor screen. The development stage includes edge detection, vein segmentation and vein visualization. Evolutionary prototyping method is used to develop the system and to ensure the quality of the final system through a few prototype refinement cycles. OpenCV library is also used for its real-time functionalities. The functionality of the system is evaluated through a series of planned system tests. The experimental results show that the proposed system is able to show the veins pattern.

Date: 9th October 2020 Time: 08:30AM Session: D2S1 (Room 2: Langkawi)

MOBILE APPLICATION TO PREDICT FUTURE RISK OF DEPRESSION

Jahizah Mohammed Jabarullah; Wan Fatimah Wan Ahmad

Abstract: Depression has been a major concern and is having some negative results. The number of people who get depressed continues to grow, many of them often fail to communicate with counselors, which inevitably exacerbate one's mental illness. Currently, most of the available applications provide a depression test for a person's current condition, but do not predict future risks. The aim of the paper is to report on a mobile application called "Mental Checker," which provides a platform for people to predict their future risk of depression as well as to obtain insights into related depression information. The mobile application is developed using Ionic, a software using Web technologies such as CSS, HTML5 and Sass. Data on symptoms of depression is to be analyzed to understand similar patterns of people suffering from depression. Prediction will be made based on the obtained patterns. The developed application may help controlling number of people suffering from depression.

Date: 9th October 2020 Time: 08:30AM Session: D2S1 (Room 3: Sipadan)

BLOCKCHAIN IN EDUCATION – TRACKABILITY AND TRACEABILITY

Manzoor Ahmed Hashmani; Aisha Zahid Junejo; Abdullah Abdulrehman Alabdulatif; Syed Hasan Adil

Abstract: Blockchain is one of the latest trends of tech world. The technology was introduced with Bitcoin and is being highly experimented for various cryptocurrencies ever since. However, with recent advancements in the technology, the research community and industries have started focusing on its applicability in other various areas such as healthcare, business, logistics, education and many more. Consequently, the research carried out in this paper investigates the use of blockchain technology in education sector. Over the years, the use of technology in education have helped in improving the accessibility and quality of education using touch screens, Artificial Intelligence, cloud computing, e-classrooms etc. However, there are certain areas in education that need further consideration such as keeping track of students and student related records and transcripts, reduction in manual and paperwork and more. This is where blockchain is predicted to play a significant role. In this paper, the potential applications of blockchain for tracing and tracking in education sector are discussed. The discussion is done by first presenting the existing issues in education sector. Further, using the tracking and tracing ability of the blockchain, few solutions to the existing problems have been proposed. The proposal of solutions is followed by the challenges of integration of blockchain technology in education sector. Finally, the paper concludes stating that blockchain has a huge potential in revolutionizing the education sector if the existing challenges are overcome through research and experimentation.

Date: 9th October 2020 Time: 08:30AM Session: D2S1 (Room 4: Rawa)

SIMULATION OF HYDROGEN SULFIDE GENERATION IN OIL AND GAS GEOLOGICAL FORMATIONS

Haithm Salah Hagar; Jalal Forooezsh; Hesham Abdulelah; Davood Zivar; Iskandar B Dzulkarnain

Abstract: Hydrogen sulphide generation in subsurface formation – often dubbed as souring – is a phenomenon that happens as a result of in-situ biodegradation reactions during and after water-flooded reservoir. This phenomenon is caused by sulfate reducing microorganisms which a group composed of sulfate reducing bacteria and sulfate reducing archaea. Sulfate reducing bacteria, by oxidizing a carbon source can turn sulfate ions into hydrogen Sulfide. Furthermore, Water cut, temperature, pressure and fluid chemistry can have an effect on the concentration observed. In this paper, we introduced a simulation model that describes We simulated H_2S generation (souring) at subsurface formation utilizing 2D model. The conditions that are favorable for souring are met in the constructed model. We chose STARS- CMG – an advanced Process Thermal Compositional Simulator – to simulate the aftermath of geochemical and chemical reactions. The bacterial-induced souring. The results suggests that the bacterial activity has clearly consumed the sulfate in the aqueous phase. Such consumption was seen as the SO4 concentration dropped from 1.8e-05 – 6.0e-06 mol/L.The consumed SO_4 was converted into H_2S or causes water souring. The occurrence of souring was inferred by the sharp increase in H_2S concentration that reached a maximum of ~ 0.0006 mol/L. The introduced simulation appoach could serve as a way of predicting the aftermath of biodegradation reactions that causes H_2S generation in subsurface.

Date: 9th October 2020 Time: 09:00AM Session: D2S1 (Room 1: Redang)

AN EVOLUTIONARY STREAM CLUSTERING TECHNIQUE FOR OUTLIER DETECTION

Nadilah Ayu Supardi; Dr Said Jadid Abdulkadir; Dr Norshakirah Aziz

Abstract: Clustering data streams appeared to be the most popular studies among the researchers due to their developing field. Data stream addresses numerous challenges on clustering such as limited time, memory and single scan clustering. Besides, the approach of identifying arbitrary shapes clusters are very significant in data stream applications. Data streams are countably infinite sequence of element, evolving over time with no knowledge about the number of clusters. Various factors such as some noise appears occasionally have the potential to negatively impact on data streams environment. Density-based technique is proven to be an astounding method in clustering data streams. It computationally efficient to yield arbitrary shape clusters and detect noise immediately. Generally, it does not require the number of clusters in advance. Most of traditional density-based clustering is not applicable in data stream due to the data stream characteristics. Nearly all density-based clustering algorithms are extended for data streams studies. This idea is mainly focus on density-based technique in clustering process overcome with the constraint from data streams nature. This paper proposes a preliminary result on density-based algorithm (evoStream) for clustering which to investigate outlier detection on three different real data sets named, KDDCup99, sensor and power supply. Later, this algorithm will be extended to optimize the model in detecting outlier on data streams.

Date: 9th October 2020 Time: 09:00AM Session: D2S1 (Room 2: Langkawi)

PITEH: PROVIDING FINANCIAL IDENTITIES TO THOSE WITHOUT CREDIT SCORE

Ayu Shahirah Salem; Saipunidzam Mahamad

Abstract: Faced with growing competition in the microfinancing market and higher operational risk, it is ever more important for a Microfinancing Institution (MFI) to be able to leverage less conventional customer data to improve the efficiency of their lending models. Most MFIs are active in Malaysia where financial history is generally non-existent on their user base which increases the difficulty in assessing the credit worthiness of individuals. Instead, an alternative source of data such as mobile phone call and SMS logs can be utilised to assist with this problem. In this project, call and SMS logs from the loan applicants are featured and used to train various classification models. PITEH is an Android mobile lending application that offers microfinance ranging from RM500 – RM5,000 by validating the creditworthiness of a loan applicant through the creation of credit scores using machine learning to classify data existing in the call and SMS logs. With users' explicit permission, the application will collect key pieces of data from users' Android devices solely for the purposes of underwriting loan applicants who do not have documented financial history. It will select these data sources for the purposes of understanding a user's potential financial capacity, his or her behavioural attributes, and to validate his identity. With something as simple as a credit score, we are giving people the power to build their own futures.

Date: 9th October 2020 Time: 09:00AM Session: D2S1 (Room 3: Sipadan)

STUDENT ABSENTEEISM MONITORING SYSTEM USING BLUETOOTH SMART LOCATION BASED TECHNIQUE

Khadijah Baharin; Zalikha Zulkifli; Samsiah Binti Ahmad

Abstract: Conventional method of recording students' attendance is still being used in Universiti Teknologi MARA (UiTM) Perak Tapah Campus. The method used is by recording students' attendance in attendance sheets which is an inefficient way to monitoring students' attendance. The absenteeism of students without valid excuses during lectures appears to be a serious problem as it falls under term of truancy. Once the absenteeism percentage reach 10%, the students will receive a notification letter issued by Academic Affairs Division as the first warning. The last warning will be issued when the absenteeism percentage reach 20% where the students might be barred from sitting the final examination. Therefore, "Student Absenteeism Monitoring System Using Bluetooth Smart Location Based Technique" is developed specifically for lecturers and students of UiTM Tapah Campus to automatically monitor students' attendance. The objective of this project is to determine percentage of students' absenteeism to prevent students from getting a ZZ status. ZZ status is a situation where a student is being barred from sitting final examination. The system was evaluated based on functionality, usability efficiency and user acceptance test. The result from evaluations indicates that most of the user have good experience in using the system. This system which was specifically developed for UiTM can also be enhanced and customized to meet the needs of learning institutions throughout Malaysia.

Date: 9th October 2020 Time: 09:00AM Session: D2S1 (Room 4: Rawa)

REFINED URDU LEXICON DEVELOPMENT

Faisal Baseer; Jafreezal Jaafar; Izzatdin B A Aziz; Asad Habib

Abstract: Urdu is among the most widely used languages in the world for verbal and written communication. Due to lack of optimized and user friendly native Urdu-script support on various platforms, it is mostly written in Romanized script in soft form. In our research, we have developed a refined Urdu lexicon using tokens with the highest frequency of occurrence in the data set. This data set is basically a raw corpus of colloquial Urdu written in Romanized script. The corpus was collected from volunteer participants who used this language as a mode of communication on the Internet and text massaging. The raw corpus is passed through a series of steps such as Prepossessing, Tokenization and Annotation before passing it to computationally extensive subsequent steps. Edit Distance and K-means Clustering techniques are used for identification of candidate tokens and their potential selection/ inclusion in the refined lexicon. We have also identified most commonly used tokens, candidate tokens and other lingual attributes from the data collected. Based on analysis, we have proposed a computational model for refined colloquial Romanized Urdu lexicon development.

Date: 9th October 2020 Time: 09:30AM Session: D2S1 (Room 1: Redang)

BINARY GREY WOLF OPTIMIZER WITH K-NEAREST NEIGHBOR CLASSIFIER FOR FEATURE SELECTION

Ranya Al-wajih; Said Jadid Abdulakaddir; NorShakirah Bt A Aziz; Qasem Al-tashi

Abstract: Iteration number and population size are two key factors that influence the effectiveness of a certain feature selection algorithm. Randomly choosing these factors, however, might be an impractical approach that could lead to low algorithm accuracy. In this paper, we assessed the changes in the accuracy of Binary Grey Wolf Optimizer (BGWO) at varying a function of iteration number (50,100,150 and 200) and population size (10,20,30) in four benchmark datasets. The results generally indicate that there is an optimum iteration number (T) beyond which the accuracy of BGWO started to decrease. Similarly, it was seen that an optimum population size (N) exists, which yield a high average accuracy of the BGWO algorithm. The findings suggest that it is essential to optimize the iteration number and population size before the execution of BGWO.

Date: 9th October 2020 Time: 09:30AM Session: D2S1 (Room 2: Langkawi)

P-BBA: A MASTER/SLAVE PARALLEL BINARY-BASED ALGORITHM FOR MINING FREQUENT ITEMSETS IN BIG DATA

Aliya Najiha Amir; Hitham Seddig Alhassan Alhussian; Sallam Osman Fageeri; Rohiza Ahmad

Abstract: Frequent itemsets mining is an effective but computational expensive technique especially when dealing with big datasets. Hence, the need for a customizable algorithm to work with big datasets in a reasonable time becomes a necessity. The Binary-based Technique Algorithm (BBT) used a binary representation of the database transactions as well as binary operations in order to simplify the process of identifying the frequent patterns as well as reduce the memory consumption. However, BBT algorithm still suffer the problem of low performance in terms of execution times when dealing with big data. This is due to the fact that the BBT algorithm was designed to run as a single thread of execution. Therefore, there is a need to improve the performance of the Binary-based Technique Algorithm (BBT). In this research, we proposed a Parallel Binary-Based Algorithm (P-BBA) towards solving the above mentioned problem. The objective of the proposed P-BBA is to process big datasets by developing collaborative threads that would work together concurrently and collaboratively and generates the list of frequent itemsets within an acceptable time frame. The algorithm is designed using a Master/Slave thread model to fits in Apache Spark distributed platform. The performance will be evaluated based on the total execution time.

Date: 9th October 2020 Time: 09:30AM Session: D2S1 (Room 3: Sipadan)

COMPARISON BETWEEN CONVENTIONAL AND FUZZY HYPOTHESES TEST RESULTS FOR PARAMETER TREATMENT EFFECT FOR HEART PATIENTS

Naga Sunil Kumar Gandikota; Mohd Hilmi Hasan; Jafreezal Jaafar

Abstract: In the traditional hypotheses test, hypotheses are crisp. In this paper, we consider the hypotheses test for unknown mean in normal populations with fuzzy data when the standard deviation of the population is known. This paper aims to distinguish various parameter effects on clinical Heart Patients with Two- way Anova, and in this fuzzy test, we will make a fuzzy decision for rejection or acceptance null hypothesis on various parameters of clinical data of Heart Patients with Fuzzy p-value and compared the results with the conventional hypothesis test results. These results will be a benchmark for new patients (same characteristics as the old patients) to treat them in a better way.

Date: 9th October 2020 Time: 09:30AM Session: D2S2 (Room 4: Rawa)

A HYBRID MODEL OF HOLT-WINTOR AND NEURAL NETWORK METHODS FOR AUTOMOBILE SALES FORECASTING

Kayalvizhi Subramanian; Mohmod Bin Othman; Rajalingam Sokkalingam; Gunasekar Thangarasu

Abstract: Forecasting is a common statistical task in business, where it helps to inform decisions about the scheduling of production, transportation and provides a guide to long-term strategic planning. The automobile sales forecast plays a vital role in business strategy for generating income for a automobile company. However, it is a very challenging process because of the high level of complexity and uncertainty involved in the competitive world. This study proposed a hybrid model using of an Adaptive Multiplicative Triple Exponential Smoothing HoltWinters (AHW) method and Backpropagation Neural Networks (BPNNs) to forecast automobile sales. The Indian automobile sales data has been used for both training and testing purposes. The result of the proposed method outperforms than the single forecasting model in terms of automobile sales forecasting.

Date: 9th October 2020 Time: 10:00AM Session: D2S1 (Room 1: Redang)

INTERACTIVE TOOL USING AUGMENTED REALITY (AR) FOR LEARNING KNEE AND FOOT ANATOMY BASED ON CT IMAGES 3D RECONSTRUCTION

Liew Set Lee; Sayed Ahmad Zikri Sayed Aluwee; Goh Chuan Meng; Pradeep Palanisamy; Ramani Subramaniam

Abstract: Anatomy is the branch of biological science in medical education that focuses on structured parts of living things, especially the human body. Traditional teaching methods and learning materials of human body anatomy are usually available in the form of textbooks with pictures and images or artificial anatomy mannequins. There are still not enough to help the students in understanding it with actual and accurate knowledge about our human body anatomy. It is because students are hard in learning the human anatomy body part by through imagining it's real and lack of interaction and hard to understand with those 2D images model on the textbooks. Although there are artificial anatomy mannequins available for learning, it is limited in number and access. Technological developments, especially applications based on 3D, are expected to help the learning process of this science subject. In this study, we proposed to develop an augmented reality (AR) mobile application for learning human anatomy knee and foot through medical 3-dimensional (3D) reconstruction based on medical images. By using this application, students expected can easily understand human anatomy using 3D image visualization on the mobile computing platform.

Date: 9th October 2020 Time: 10:00AM Session: D2S1 (Room 2: Langkawi)

FUZZY TYPE-1 TRIANGULAR MEMBERSHIP FUNCTION APPROXIMATION USING FUZZY C-MEANS

Muhammad Hamza Azam; Mohd Hilmi Hasan; Saima Hassan; Said Jadid Abdulkadir

Abstract: Fuzzy logic is a way of many-valued computing logic that deals with the truth values of the variables between 0 and 1, unlike the conventional Boolean logic. Membership functions are used to depict the fuzzy values of given variable. Though membership functions are determined through expert's opinion, however, the one estimated through heuristic algorithms is the preferable methods. Membership functions determined through statistical and knowledge engineering methods are usually application dependent and cannot be applied on different datasets. This research focuses on generating the parametric values of the triangular membership function using a novel method. Initially, the Fuzzy C-means algorithm is utilized to generate the parameters values of the Gaussian membership function. Using a set of equations, these values then estimate the parameters of the triangular membership function. The proposed method is applied to the quality of web services data. From the results it is verified that the new approach of generating triangular membership functions can be adopted.

Date: 9th October 2020 Time: 10:00AM Session: D2S1 (Room 3: Sipadan)

OPTIMAL FEATURE IDENTIFICATION FOR MACHINE PREDICTION OF WIND-WAVE PARAMETERS AT WAVE ENERGY CONVERTER SITE

Muhammad Umair; Manzoor Ahmed Hashmani; Keiichi Horio

Abstract: The hike in fossil-fuel prices and increasing environmental damage due to the subsequent Carbon Monoxide (CO) emission from burning fossil-fuel is becoming a major concern for every nation. The possibility of generating power from natural sources such as solar, wind, and sea waves is thus considered as an alternative. In the case of the sea waves, the kinetic energy of surface waves can be converted into single direction motion which runs a turbine to generate electricity. A Wave Energy Converter (WEC) is an installation that converts the wave energy into electrical energy. In this study, we have investigated the significant meteorological and wind-wave data parameters which determine wave-energy potential at a wave energy converter site and then identified optimal feature sets of buoy data for machine prediction of identified parameters. We hope this study will pave the path of further investigation of identification of an universal buoy features set for the prediction of parameters identified in this study.

Date: 9th October 2020 Time: 10:00AM Session: D2S1 (Room 4: Rawa)

RANDOM SEARCH ONE DIMENSIONAL CNN FOR HUMAN ACTIVITY RECOGNITION

Mohammed G. Ragab; Said Jadid Abdulkadir; Norshakirah Aziz

Abstract: Due to its wide application, human activity recognition (HAR) has become a common subject for research specially with the development of deep learning. Many researchers believe that deep convolutional neural networks (DCNN) are ideal for feature extraction from signal inputs. This has gained widespread interest using these methods to identify human actions on the mobile phone in real time. Here, a deep network architecture using random search one dimensional convolutional neural network (RS-1D-CNN) is proposed to find best networks connects and hyper-parameters to enhance model performance. Furthermore, batch normalization (BN) layer was added to speed up the convergence. Moreover, we have applied a global average pooling (GAP) for dimensionality reduction and to reduce model hyperparameters, followed two dense connected layers. The final dense layer has a softmax activation function and a node for each potential object category. Public UCI-HAR dataset was used to evaluate model performance. Random search has been utilized to perform hyper parameter tuning to determine the optimal model parameters. Proposed model will automatically extract and classify human behaviours. Daily human activities that provided by UCI-HAR include (walking, jogging, sitting, standing, upstairs and downstairs). Results has shown that our approach outperforms both CNN, LSTM method and other stateof-the-art approaches.

Date: 9th October 2020 Time: 10:30AM Session: D2S1 (Room 1: Redang)

VIRTUAL REALITY TRAINING AND SKILL ENHANCEMENT FOR OFFSHORE WORKERS

Shahida binti Sulaiman; Syed Saad Azhar Ali; Syed Hasan Adil; Mansoor Ebrahim; Kamran Raza

Abstract: This project studies the application of virtual training environment for offshore workers. Working in the oil and gas industry where the technology is rapidly evolving results in the employee to perform tasks to current and new equipment. Many offshore workers require years of experience to obtain the relevant skills in handling with hazardous equipment. Due to the laid off experience workers, many companies are facing difficulty in training their new employee as most of them do not have enough training experience and are facing difficulty with adapting with the offshore environment. This virtual reality (VR) offshore training would provide a convenient training experience to the offshore workers in obtaining relevant machinery crane operating skills and operation in pipeline training. A simulator-based training using the Virtual Reality (VR) technology provides a more immersive training experience in a non-hazardous environment and can be perform in any closed room environment such in the office or at home. The training is programmed to monitor the workers performance based on the criteria evaluated will be recorded. The VR offshore training was conducted to a total of five users and the training was repeated for five times. A fifteen minutes rest was given in between each completed training. The percentage of user's achievement was recorded, and the results were tabulated.

Date: 9th October 2020 Time: 10:30AM Session: D2S1 (Room 2: Langkawi)

PREDICTIVE ANALYTICS FOR CRUDE OIL PRICE USING RNN-LSTM NEURAL NETWORK

Norshakirah Aziz; Mohd Hafizul Afifi Abdullah; Ahmad Naqib Zaidi;

Abstract: Prediction of future crude oil price is considered a significant challenge due to the extremely complex, chaotic, and dynamic nature of the market and stakeholder's perception. The crude oil price changes every minute, and millions of shares ownerships are traded everyday. The market price for commodity such as crude oil is influenced by many factors including news, supply-and-demand gap, labour costs, amount of remaining resources, as well as stakeholders' perception. Therefore, various indicators for technical analysis have been utilized for the purpose of predicting the future crude oil price. Recently, many researchers have turned to machine learning approached to cater to this problem. This study demonstrated the use of RNN-LSTM networks for predicting the crude oil price based on historical data alongside other technical analysis indicators. This study aims to certify the capability of a prediction model built based on the RNN-LSTM network to predict the future price of crude oil. The developed model is trained and evaluated against accuracy matrices to assess the capability of the network to provide an improvement of the accuracy of crude oil price prediction as compared to other strategies. The result obtained from the model shows a promising prediction capability of the RNN-LSTM algorithm for predicting crude oil price movement.

Date: 9th October 2020 Time: 10:30AM Session: D2S1 (Room 3: Sipadan)

COLLABORATIVE VISUALIZATION FRAMEWORK FOR CROSS-FIELD WORKING GROUP: A QUALITATIVE FOCUS GROUP STUDY

Danial Ilman Muhammad Hasni; Aliza Sarlan; Rohiza Ahmad

Abstract: This study is conducted to develop a collaborative visualization framework in the cross-field working group. The ultimate goal of this project is to provide a proper framework that can be used to develop a platform to allow collaborative visualization to be implemented inter-disciplinary groups, in two different settings; university students and research groups in research and development companies and institutions. The study begins with preliminary works to define the collaborative visualization based on previous researches. This study will also focus on the factors to develop an effective collaborative working environment thru visualization and shared understanding among the staffs/users from inter-disciplinary backgrounds. In addition, this study will also investigate the interaction between human cognition and ICT attributes of visualization in developing an efficient working group to achieve a common goals and objectives. Towards the end of the study, the framework will be tested to validate its possible contributions to the targeted collaborative working groups.

Date: 9th October 2020 Time: 10:30AM Session: D2S1 (Room 4: Rawa)

AN APPROACH FOR SARS-COV-2 INFECTED CASES REPORT ANALYSIS

Duc Chung Tran; Hong Son Ha; Duc Long Nguyen; Rosdiazli Ibrahim; Luyl Da Quach

Abstract: The information about Coronavirus disease 2019(COVID-19), especially about infected cases in every country is very urgent. In this paper, an algorithm to analyze the COVID-19infected case reports is introduced. Fifty-two (52) reported cases from LuatVietnam - a reputable Vietnamese online newspaper - were taken as input. The retrieved data were analyzed and classified. The analysis output was saved into a CSV file showing the essential extracted information about infected cases. Each output row contains Patient ID, Gender, Age, Address and Status. Based on the tested results, the algorithm achieved the accuracy of 86.67% with the average processing time per patient of 0.103 milliseconds.

Date: 9th October 2020 Time: 03:50PM Session: D2S2 (Room 1: Redang)

COVID-19 DISEASE SIMULATION USING GAMA PLATFORM

Tran Quy Ban; Phan Lac Duong; Nguyen Hoang Son; Tran Van Dinh

Abstract: In less than three months after its emergence in China, the Covid-19 pandemic has spread to at least 180 countries. In the absence of previous experience with this new disease, public health authorities have implemented many experiments in a short period and, in a mostly uninformed way, various combinations of interventions at different scales. These include a ban on large gatherings, closure of borders—individual and collective containment, monitoring of population movements, social tracing, social distancing, etc. However, as the pandemic is progressing, data are collected from various sources. On the one hand, authorities allow to make informed adjustments to the current and planned interventions and reveal them. On the other hand, an urgent need for tools and methodologies that enable fast analysis, understanding, comparison, and forecasting of the effectiveness of the responses against COVID-19 across different communities and contexts. In this perspective, computational modeling appears as invaluable leverage as it allows us to explore in silico a range of intervention strategies before the potential phase of field implementation.

Date: 9th October 2020 Time: 03:50PM Session: D2S2 (Room 2: Langkawi)

USING SURF TO IMPROVE RESNET-50 MODEL FOR POULTRY DISEASE RECOGNITION ALGORITHM

Luyl-Da Quach; Nghi Pham Quoc; Nhien Huynh Thi; Duc Chung Tran; Mohd Fadzil Hassan

Abstract: ResNet-50 is an architecture of residual network and known to have numerous advantages. However, the application of the model to the poultry domain for identifying chickens' diseases has demonstrated insufficient and overfitting results. This is due to the limitation in the training data set which comprises the whole images of chicken body, while the diseases in chickens have been known to be involved specific chicken body parts. As such, in this research work, it has been hypothesised that by pre-processing the data, specific features could be effectively identified during training. Therefore, this research uses the combination of SURF feature analysis with Kmeans model and then re-selects the main characteristics such as head, wings, legs, and other specific parts of chickens where the known diseases could be identified. The obtained data set was later provided into the ResNet-50 model and resulted in 93.56% accuracy, which is 20% higher than the previous research.

Date: 9th October 2020 Time: 03:50PM Session: D2S2 (Room 3: Sipadan)

AN INITIATIVE TO PREVENT JAPANESE ENCEPHALITIS USING GENETIC AND MACHINE LEARNING ALGORITHMS

Rishabh Mehra; Kaustubh Pachpor; Kottilingam K; A. Saranya

Abstract: Japanese Encephalitis primarily affects children. Most adults in endemic countries have natural immunity after childhood infection, but individuals of any age may be affected. This work deals with the data of those who are affected. The primary step is studying the data obtained to figure out the unique and similar symptoms which are present in Japanese Encephalitis in comparison with normal Viral Fever. The fundamental concept which is used in this paper is Machine Learning. Since the work deals with the Human Body and its response to the disease, the Genetic Algorithm is used for optimization. To obtain precise results along with the justification, the Attribute Selection algorithm is also used. The main objective of the work is to create preventive awareness of the disease at the initial stage. Extract the essential features of biotest from the affected person, which is taken into consideration with the genetic algorithm and Attribute Selection algorithm. Genetic algorithms give higher quality for the optimized problem and produce an approximate result using the Attribute Selection algorithm with factor analysis. OpenCV color change detection and Artificial Neural Network (ANN) is used to detect the change in the color and infection information of the Brain cell. The results outperform with the existing methodologies to detect whether the cell is parasitized or uninfected.

Date: 9th October 2020 Time: 03:50PM Session: D2S2 (Room 4: Rawa)

WAVE HEIGHT AND PEAK WAVE PERIOD PREDICTION USING RECURRENT NEURAL NETWORKS

Kazuki Osawa; Hiroki Yamaguchi; Muhammad Umair; Manzoor Ahmed Hashmani; Keiichi Horio

Abstract: —In this paper, we applied a recurrent neural network to predict a wave height and a peak wave period for next 24 hours from only those last 24 hours. We adopted LSTM as the network structure and used statistic gradient decent method and adaptive moment estimation method as the learning methods. It was difficult to estimate short-time fluctuations because only the wave height and period data were used as inputs, but it was shown that the wave height and peak wave period within the next 2 hours can be predicted with an accuracy within 20 percent in error.

Date: 9th October 2020 Time: 04:20PM Session: D2S2 (Room 1: Redang)

A BENCHMARKING OF THE EFFECTIVENESS OF MODULAR EXPONENTIATION ALGORITHMS USING THE LIBRARY GMP IN C LANGUAGE

Tran Quy Ban; Tran Thi Thuy Nguyen; Vu Thanh Long; Pham Dang Dung

Abstract: This research aims to implement different modular exponentiation algorithms and evaluate the average complexity and compare it to the theoretical value. We use the library GMP to implement seven modular exponentiation algorithms. They are Left-to-right Square and Multiply, Right-to-left Square and Multiply, Left-to-right Signed Digit Square, and Multiply Left-to-right Square and Multiply Always Right-to-left Square and Multiply Always, Montgomery Ladder and Joye Ladder. For some exponent bit length, we choose 1024 bits and execute each algorithm on many exponent values and count the average numbers of squares and the average number of multiplications. Whenever relevant, our programs will check the consistency relations between the registers at the end of the exponentiation.

Date: 9th October 2020 Time: 04:20PM Session: D2S2 (Room 2: Langkawi)

SCADA SYSTEM FRAMEWORK FOR MONITORING, CONTROLLING AND DATA LOGGING OF INDUSTRIAL PROCESSING PLANTS

Syed Sheraz Mohani; Muhammad Khalid; Syed Saiq Hussain; Shahwaiz Ghori; Hamza Akbar

Abstract: In this research, an advancement of an open source administrative control and information obtaining Supervisory Control and Data Acquisition Systems (SCADA) framework is presented. The framework utilizes the universally useful programming platform, Python. The SCADA framework offers correspondence capacities through an open source OPC-UA worker, which comprehends information trade with control gadgets, for example, PLC, PAC, and so on. The framework additionally gives adaptation to non-critical failure highlights because of the execution of a functioning shortcoming open minded control (AFTC) engineering. The proposed approach plays out a three-layer connection of the CIM model, and offers comparable capacities of business SCADA frameworks.

Date: 9th October 2020 Time: 04:20PM Session: D2S2 (Room 3: Sipadan)

AN INITIATIVE TO PREVENT JAPANESE ENCEPHALITIS USING GENETIC ALGORITHM AND ARTIFICIAL NEURAL NETWORK

Rishabh Mehra; Kaustubh Pachpor; Kottilingam K; A.Saranya

Abstract: Japanese Encephalitis primarily affects children. Most adults in endemic countries have natural immunity after childhood infection, but individuals of any age may be affected. This work deals with the data of those who are affected. The primary step is studying the data obtained to figure out the unique and similar symptoms which are present in Japanese Encephalitis in comparison with normal Viral Fever. The fundamental concept which is used in this paper is Machine Learning. Since the work deals with the Human Body and its response to the disease, the Genetic Algorithm is used for optimization. To obtain precise results along with the justification, the Attribute Selection algorithm is also used. The main objective of the work is to create preventive awareness of the disease at the initial stage. Extract the essential features of biotest from the affected person, which is taken into consideration with the genetic algorithm and Attribute Selection algorithm. Genetic algorithms give higher quality for the optimized problem and produce an approximate result using the Attribute Selection algorithm with factor analysis. OpenCV color change detection and Artificial Neural Network (ANN) is used to detect the change in the color and infection information of the Brain cell. The results outperform with the existing methodologies to detect whether the cell is parasitized or uninfected.

Date: 9th October 2020 Time: 04:20PM Session: D2S2 (Room 4: Rawa)

IIOT FORENSICS AND MAJOR SECURITY ISSUES

Venkata Venugopal Rao Gudlur @ Saigopal; Valliappan Raju

Abstract: The significant area in the growing field of internet security and IIoT connectivity is the way that forensic investigators will conduct investigation process with devices connected to industrial sensors. This part of process is known as IIoT digital forensics and investigation. The main research on IIoT digital forensic investigation has been done, but the current investigation process has revealed and identified major security issues need to be addressed. In parallel, major security issues faced by traditional forensic investigators dealing with IIoT connectivity and data security. This paper address the issues of the challenges and major security issues identified by review conducted in the prospective and emphasizes on the aforementioned security and challenges.

Date: 9th October 2020 Time: 04:50PM Session: D2S2 (Room 1: Redang)

A STUDY ON GRADIENT BOOSTING ALGORITHMS FOR DEVELOPMENT OF AI MONITORING AND PREDICTION SYSTEMS

Norshakirah Aziz; Emelia Akashah Patah Akhir; Izzatdin Abdul Aziz; Jafreezal Jaafar; Mohd Hilmi Hasan; Ahmad Naufal Che Abas

Abstract: Data-driven predictive maintenance for the prediction of machine failure has been widely studied and performed to test machine failures. Predictive maintenance refers to the machine learning method, which utilizes data for identification of potential system malfunction and provides an alert when a system assessed to be prone to breakdown. The proposed work reveals a novel framework called Artificial Intelligence Monitoring 4.0 (AIM 4.0), which is capable of determining the current condition of equipment and provide a predicted mean time before failure occurs. AIM 4.0 utilizes three different ensemble machine learning methods, including Gradient Boost Machine (GBM), Light GBM, and XGBoost for prediction of machine failures. The machine learning methods stated are implemented to produce acceptable accuracy for the monitoring task as well as producing a prediction with a high confidence level.

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SEMI-SUPERVISED LEARNING FOR LIMITED MEDICAL DATA USING GENERATIVE ADVERSARIAL NETWORK AND TRANSFER LEARNING

Ibrar Amin; Saima Hassan; Jafreezal Jaafar

Abstract: Deep Learning is progressively becoming popular for computer based automated diagnosis of diseases. Deep Learning algorithms necessitate a large amount of data for training which is hard to acquire for medical problems. Similarly, annotation of medical images can be done with the help of specialized doctors only. This paper presents a semi-supervised learning based model that combines the capabilities of generative adversarial network (GAN) and transfer learning. The proposed model does not demand a large amount of data and can be trained using a small number of images. To evaluate the performance of the model, it is trained and tested on publicly available chest Xray dataset. Better classification accuracy of 94.73% is achieved for normal X-ray images and the ones with pneumonia.

Date: 9th October 2020 Time: 04:50PM Session: D2S2 (Room 3: Sipadan)

AEDES LARVAE CLASSIFICATION AND DETECTION (ALCD) BY USING DEEP LEARNING

Muhammad Izzul Azri Bin Zainol Azman; Aliza Binti Sarlan

Abstract: Nowadays, the presence of the latest technologies like Artificial Intelligence and lenses that can capture the micro-living being like larva have been used in our surrounding environment. Deep Learning technologies which are a subset of Artificial Intelligence have been implemented in used for processing the image. As before this, there is a study to detect the possible place of Aedes mosquito breeding place with the use of Internet of Things (IoT) technologies to detect the humidity of certain places and relate it to the possibility of Aedes mosquito breeding present. To support the study and have verification of the place is the breeding place of Aedes mosquito, a study to classify the larva and detect it has been proposed. The Aedes Larvae Classification and Detection (ALCD) System by using Deep learning is a system that uses deep learning technologies to detect the pattern of the larva and classify it according to its type. The proposed developed system ALCD because Malaysia is having a rapid increase in dengue cases throughout the year. While there are many approaches from the government and non-government organizations (NGOs) to help combat the dengue virus outbreak, this study is focusing on preventing the virus from spreading in the early stages. The life cycle of an Aedes mosquito is starting from the egg to larva to pupa and lastly became an adult mosquito. The early stages of Aedes mosquito that can be used to differentiate between Aedes and Non-Aedes were at the larva stages. This study is meant to do a background study on using the latest technology of deep learning subset of Artificial Intelligence technology to find the pattern of the Aedes and Non-Aedes on the larva. After the pattern of the larva type is recognized, the process to classify it between the Aedes larvae and Non-Aedes larvae can be continued for classification. Real-time classification testing will be conducted to test the accuracy and efficiency of the ALCD system.

Date: 9th October 2020 Time: 04:50PM Session: D2S2 (Room 4: Rawa)

IOT BASED SECURE DIGITAL FORENSIC PROCESS MANAGEMENT MODEL

Venkata Venugopal Rao Gudlur @ Saigopal; Valliappan Raju

Abstract: The implementation of Secure FI process by digitally by adapting the IoT based connecting many wireless smart devices may expose security vulnerabilities. The DF related to IoT based can be characterized as a field of study however ought to be utilized in defensive condition which is absence of the present world and the use of innovative and constant techniques for collect, preserve, validate, analyze, interpret and present the evidences extracted using the forensic tools and carefully separated from various sources and presenting official courtroom for justice and fair judicial processor legal cycle. The IoT smart devices will require appropriate procedural and ensured remote condition with safer and secure information reinforcement in place from secure home control to cutting edge city the executives connected networks. The smart gadgets will detect their condition with interconnected one another to shape canny brilliant spaces and any suspected or unapproved occasion will be put away and set off to the requirement office to heighten the issue or Forensic examination. These smart devices all things considered produce and store enormous sum delicate criminological information. The paper clarifies the current Process by zeroing in and improving on pre and post examination measure with more solid and secure cycle with back up Data stockpiling with proof. The information stream from Pre-examination to post examination and capacity or cloud-based focusing on key zones of character on irregular action registering impressions to the worker (pre-examination) when recognized and continue to post examination with assessment and sparing the information in to make sure storage.