



ICOTEN

*THE INTERNATIONAL CONGRESS OF ADVANCED
TECHNOLOGY AND ENGINEERING*



The International Congress of Advanced Technology and Engineering (ICOTEN 2021)

Congress Themes:

- **Toward Intelligent Solutions for Societies' Development**
- **Toward Smart and Sustainable Engineering and Environment**
- **Enhancing Management and Education Policies and Technologies in Crises Time**

• **ICOICS 2021**
• **ICOSEE 2021**

• **ICOEEE 2021**
• **ICOAPS 2021**

• **ICOBBE 2021**
• **ICOMET 2021**

(Virtual Conference) July 4-5, 2021

Organized by:



International Collaborators:



ENSET





The International Congress of Advanced Technology and Engineering (ICOTEN 2021)

July 4-5, 2021

(Virtual Conference)

“Toward Intelligent Solutions for Societies' Development.

Toward Smart and Sustainable Engineering and Environment.

Enhancing Management and Education Policies and Technologies in Crises Time.”



Editors:

Faisal Saeed

Fathey Mohammed

Fuad A. Ghaleb

Organizing Committee

Congress Parton

Prof. Dr. Khalid Alwesabi, Minister of Higher Education, Scientific Research and Technical Education, Yemen

Congress Honorary Chair

Mohammed Saeed Khanbsh, President, Hadhramout University, Yemen

Congress General Chair

Faisal Saeed, Yemeni Scientists Research Group (YSRG)

Conferences Chairs

Faisal Saeed, Chair of the International Conference of Intelligent Computing and Informatics (ICOICS 2021)

Zaid Shamsan, Chair of the International Conference of Advances in Electrical and Electronic Engineering (ICOEEE 2021)

Wahdi Ali, Chair of the International Conference of Advances in Bioscience and Biomedical Environment Engineering (ICOBBE 2021)

Adeeb Qaid, Chair of the International Conference of Advances in Sustainable Environmental Engineering (ICOSEE 2021)

Muneer Aziz, Chair of the International Conference of Advances in Applied Sciences (ICOAPS 2021)

Nabil Hussein Alfahim, Chair of the International Conference of Advances in Management and Education Technology (ICOMET)

IEEE-Yemen Subsection Technical Sponsors

Ammar Zahari, Chair of IEEE-Yemen Subsection

Mazen Bahashwan, Vice-Chair of IEEE-Yemen Subsection

Muneer Al-Mekhlafi, Secretary IEEE-Yemen Sub-Section

Abdelqader Muhsen, Treasurer, IEEE-Yemen Sub-Section Treasurer

Program Co-Chairs

Mohammed Alshargabi, Najran University, Saudi Arabia

Tawfik Al-Hadhrami, Nottingham Trent University, United Kingdom

Ammar Al-Zahari, Chair of IEEE Yemen SubSection

Imed Riadh Farah, University of Manouba, Tunisia

Mamoun Alazab, Charles Darwin University, Australia

Publication Committee

Fathey Mohammed (Chair), Universiti Utara Malaysia, Malaysia and Taiz University, Yemen

Fuad A. Ghaleb, Universiti Teknologi Malaysia, Malaysia and Sana'a Community College, Yemen

Maged Nasser, Universiti Teknologi Malaysia, Malaysia

General Secretary

Nadhmi Gazem, Yemeni Scientists Research Group (YSRG)

IT Committee

Sameer Hasan Albakri (Chair), Sana'a University, Yemen

Amer Alsaket, Sitecore, Malaysia

Mohammed Al-Sarem, Yemeni Scientists Research Group (YSRG)

Registration and Finance Chair

Abdullah Aysh Dahawi, Universiti Teknologi Malaysia, Malaysia

Publicity Committee Co-Chairs

Abdullah Faisal Abdulaziz Al-shalif, UTHM, Malaysia

Wadii Boulila, University of Manouba, Tunisia

Publicity Committee Members

Ali Salem, UTHM, Malaysia



Organizing Committee

Bassam Alhammadi, UTeM, Malaysia
Esmat Wahdain, USM-Malaysia
Majed Nasser, UTM, Malaysia
Nabil Mohammed, Macquarie University, Australia
Redhwan Algabri, Sungkyunkwan University, South Korea
Abdulmajeed Al-hokabi, UMP, Malaysia

International Technical Committee

Abdullah Ali,	Universiti Teknologi Malaysia (UTM), Malaysia
Abdullah Gharib,	University of Sheba Region, Yemen,
Abdullah Saleh Ali Algamili,	UTP, Perak, Malaysia, Yemeni
Abdulmajeed Ali Al-Hokabi,	KK2-UMP-Gambang, Yemen
Abdulmalik Haider Yusef Saad,	Universiti Sains Malaysia, Malaysia
Abdulqader Muhsen,	University of Science and Technology, Yemen
Abdulrahman Alsewari,	Universiti Malaysia Pahang (UMP), Malaysia
Abdulrahman Baborail,	Kazan, Russia, Yemeni
Abdulrazak Alhababi,	UNIMAS, Malaysia
Abrar Mohammed,	Bacha Khan University, Charsadda, KPK, Pakistan
Adel Ali Ahmed Alharby,	Hajjah University, Yemen
Adel Alshabi,	Universiti Kebangsaan Malaysia (UKM), Malaysia
Adnan Hussein Ali,	Middle Technical University, IRAQ
Aeiman Gadafi,	Oakville, Canada
Ahmed Al-Samman,	Universiti Teknologi Malaysia (UTM), Malaysia
Ahmed Fuad AlDubai,	SRTM university, India
Ahmed Hasan Al-Masoodi,	Petaling Jaya, Malaysia
Ahmed Sayegh,	Universiti Tun Hussein Onn Malaysia (UTHM), Malaysia
Ali Ben Abbas,	Montpellier, France, Tunisian
Ali Jwaid,	Nottingham Trent University, UK
Ammar Abdullah Qasem,	Taiz, Yemen
Ammar Zahary,	Sana'a University, Yemen
Anwar Ameen Hezam Saeed,	Universiti Teknologi PETRONAS, Yemen
Arwa Aleryani,	Canada – Mississauga
Ashraf Osman,	Alzaiem Alazhari University, Sudan
Ayad Abdullah Mutafti,	Yemen
Badia S. Babaqi,	Hadhrumout University, Mukalla, Yemen, Yemeni
Badia Saeed Babqi,	Hadhrumout University, Yemen
Bander Al-Rimy,	Universiti Teknologi Malaysia (UTM), Malaysia
Bassam Ali Qasem Al-Qatab,	University of Malaya, Yemeni
Belal Alfahaidi,	University of Science and Technology, Yemen
Beverley Cook,	Nottingham Trent University, UK
Bouchaib CHERRADI,	Hassan II University of Casablanca, Mohammedia, Morocco
Doaa Mustafa Hashim AbuZaid,	National university, Sudan
Ebrahim Alnahari,	East China University of Science and Technology, China
El Bachir Tazi,	USMBA FEZ MOROCCO , Moroccan
Essa Hezzam,	Taibah University, KSA
Fadhl Hujainah,	Universiti Malaysia Pahang, Kuantan, Malaysia
Faisal Saeed,	Taibah University, KSA
Fuad Al Yarimi,	KKU, Muhail Aseer, KSA
Funminiyl Olajide,	Nottingham Trent University, UK
Galal Adel Abdo AL-Rummana,	SRTM University, Nanded, India
Hael Al-bashiri,	University Malaysia Pahang (UMP), Malaysia
Hani Al-Mohair,	King Fahd University, Dhahran, KSA
Haruna Saidu,	Gombe State University, Gombe, Nigeria, Nigeria
Hasan Ali Gamal Al-kaf,	Sanaa, Yemen

International Technical Committee

Hasham Abudllah Bakarman,
 Hesham Awadh Bahamish,
 Hiba Zuhair,
 Hussein Hussein Abualrejal,
 Imed Riadh Farah,
 Kamal Ali Alezabi,
 Kamal Karkonasasi,
 Kamal Moh'd Alhendawi ,
 Khaled Sahal Bin Sahaq,
 Khalid AL-Hussaini,
 M.S.S. Alkasadi,
 Majdi Salem Marai,
 Makarem Mohmmmed Bamatraf,
 Mazen Bahashwan,
 Mohamed FARAH,
 Mohammad Abrar,
 Mohammed Ali Zulaif,
 Mohammed Abdullahi,
 Mohammed alhendi,
 Mohammed Alruqimi,
 Mohammed Al-Sarem,
 Mohammed Al-Sharafi,
 Mohammed Awadh Ben Mubarak,
 Mohammed Hadi Al-Douh,
 Mohammed Issam Younis,
 Mohammed Jibrin Ndejiko,
 Mohammed Salem Atoum,
 Muaadh Mukred,
 Mufti Mahmud,
 Muneer Abdualh Almekhlafi,
 Murad Rassam,
 Nabeel Alsohybe,
 Nabil Mohammed,
 Nabil Munassar,
 Nadhem sultan
 Nasrin Makbol,
 Naziah Mohammed Al-Aidroos,
 Nezha BENMOUSA,
 Nibras Faqerah,
 Noor Akhmazillah Mohd Fauzi,
 Ola Al-wasabi,
 Omar Bazighifan,
 Omar Zahour,
 Omprakash Kaiwartya,
 Osama Sayaydeh,
 Qais Al-Nuzaili,

Hadhramout University, Yemen
 Hadhramout University, Yemen
 Al-Nahrain University, Baghdad, Iraq, Iraq
 Universiti Utara Malaysia (UUM), Malaysia
 Campus Universitaire de la Manouba, Tunisia
 UPM, Serdang, Malaysia
 Universiti Sains Malaysia, Malaysia
 USM, Malaysia
 Hadhramout University, Yemen
 Thamar University, Thamar, Yemen
 Hadramout university-Mukalla-Yemen, Yemen
 Hadhramout University, Yemen
 Hadhramout University, Yemen
 Hadhramout University, Yemen
 Campus Universitaire de la Manouba, Tunisian
 Bacha Khan University Chasadda, KPK, Pakistan
 Sana'a university. Yemen, Yemeni
 IBB University, Lapai, Niger State, Nigeria
 Binghamton University, NY, USA, Yemeni
 Abdelmalek Essaadi University, Tetouan, Morocco
 Taibah University, KSA
 Universiti Malaysia Pahang (UMP), Malaysia
 Jouf University, Jouf, Saudi Arabia
 Hadhramout University, Yemen
 University of Baghdad, Baghdad, Iraq
 Ibrahim Badamasi Babangida University, Nigeria
 Irbid National University, Irbid, Jordan
 Universiti Kebangsaan Malaysia (UKM), Malaysia
 Nottingham Trent University, UK
 Thamar University, Thamar, Yemen
 Taiz University, Yemen
 Sana'a University, Yemen
 Macquarie University, Sydney, Australia
 UST, Hodaiah, Yemen
 Ali Ebrahim, University of Bisha, Saudi Arabia
 Universiti Malaysia Pahang (UMP), Malaysia
 Hadhramout University, Yemen
 Bd Hassan II Mohammedia, Morocco
 Universiti Sains Malaysia (USM), Malaysia
 UTHM, Malaysia
 Hodeidah University, Yemen
 Hadhramout University, Hadhramout, Yemeni
 Université Hassan II de Casablanca, Marocaine
 Nottingham Trent University, UK
 University Malaysia Pahang (UMP), Malaysia
 Alnasir University, Yemen

International Technical Committee

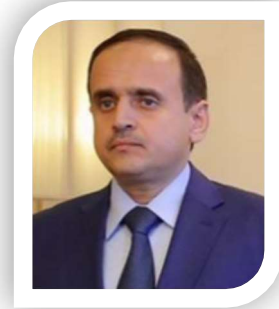
Qasem Abdullah Qasem Al-Tashi,
 Raihani Abdelhadi,
 Redhwan Shaddad,
 Sabri Hanish,
 Sabri M. Hanshi,
 Sadik Al-Taweel,
 Saeed Mohammed Baneamoon,
 Saeed Ali Bin Ajjaj,
 Saghir Ahmed Saghir Alfasly,
 Salem Abudllah Bin Saadon,
 Salem Mgamal Awadh Al-Ameri,
 Salim F. Bamsaoud,
 Salim Mubarak Bin-Gadeem,
 Sami Abdulla Mohsen Saleh,
 Samir Ahmed Al-Gailani,
 Samir Algailani,
 Shada omer khanbari,
 Sharaf abdulhak alhomdy,
 Sulaiman Mohammed,
 Syazwani Binti Mohd Asharuddin,
 Taha Hussain,
 Tawfik Al-Hadhrami,
 Waleed Abdulmaged Hammood,
 Waseem Alromimah,
 Wed Omar Ali Elaiwah,
 Yahya Al-Dheleai,
 Yahya Ali Abdelrahman,
 Yaseen Mohammed Sulaiman Al-Wesabi,

UTP, PERAK, MALAYSIA
 Hassan II university of Casablanca, Morocco
 Taiz University, Yemen
 Universiti Sains Malaysia (USM), Malaysia
 Seiyun Community College, Yemen
 UST, Sana'a, Yemen
 Hadhramout University, Yemen
 Hadhramout University, Yemen
 South China University of Technology
 Hadhramout University, Yemen
 Universiti Tun Hussein Onn Malaysia, Malaysia
 Hadhramout University, Yemen
 Hadhramout University, Yemen
 Universiti Sains Malaysia (USM), Malaysia
 Universiti Sains Malaysia (USM), Malaysia
 Universiti Sains Malaysia (USM), Malaysia
 University of Aden, Yemen
 Sana'a, Yemen
 Gombe State University, Nigeria, Nigeria
 Universiti Tun Hussein Onn Malaysia
 Universiti Malaysia Pahang (UMP), Malaysia
 Nottingham Trent University, UK
 University Malaysia Pahang, Malaysia
 Taibah University, Kingdom of Saudi Arabia
 Sana'a university, Sana'a, Yemen
 Universiti Sains Malaysia (USM), Malaysia
 Najran University, Najran. Saudi Arabia
 Binghamton University, USA,

Messages

CONGRESS PATRON MESSAGE

I am pleased to be with you today in the International Congress of Advanced Technology and Engineering (ICOTEN 2021), which is organized by Hadhramaut University and the Yemeni Scientists Research Group, in collaboration with eight international universities from the United Kingdom, Australia, Malaysia, Indonesia, Morocco, Tunisia and Libya. The congress is technically sponsored by the branch of the Institute of Electrical and Electronics Engineers in Yemen (IEEE Yemen Subsection). I am very pleased with the great participation in this conference, as the researchers came from 35 countries, in addition to the researchers from Yemeni universities. I would like to welcome our distinguished guests, scholars, keynote speakers and all participants of the conference.



This conference, which is considered the largest scientific event of its kind in Yemen, includes six international conferences in various fields of smart computing and informatics, various fields of engineering, applied sciences, educational technologies and management.

I greatly appreciate the great efforts of the main organizers of this congress, and I extend my sincere thanks to Hadhramaut University and the Yemeni Scientists Research Group, who have actively participated for years in organizing local and international conferences, research workshops and established excellent research collaboration with local and international universities. These events have encouraged many Yemeni researchers to participate in international conferences and promoted the culture of scientific research in Yemen. In addition, these conferences have provided distinguished publishing opportunities in international indexed publishers such as IEEE, Springer and other and indexed journals. Also, I would like to express my sincere thanks to the keynote speakers and all participants of this conference for sharing your expertise and research findings in ICOTEN.

I wish you a very successful congress.

Prof. Dr. Khalid Alwesabi

Minister of Higher Education, Scientific Research and Technical Education, Yemen

ICOTEN 2021 Parton

Messages

CONGRESS HONORARY CHAIR MESSAGE

Scientific conferences are an important aspect of progress since they enable academics from various universities, academic institutions, and research institutes to communicate with each other. Conferences offer several opportunities for idea exchange, experience gain, and the development of new solutions to problems confronting humanity, the environment, and society.

Today, Hadhramout University is pleased to announce the second collaboration with the Yemeni Scientists Research Group (YSRG) in organizing the International Congress on Advanced Technology and Engineering (ICOTEN 2021). I would like to take this opportunity to welcome all the congress special guests, keynote speakers, session chairs and all participants.



As the congress is technically sponsored by the Electrical and Electronics Engineering Institute (IEEE) Yemen section, we hope that the papers will find their way to various scientific research platforms and groups locally, regionally, and internationally, and that their content will guide the production of studies and research that contribute to enriching human production, the environment, and the confluence.

Prof. Dr. Mohammed Saeed Khanbsh,
Chancellor of Hadhramout University,
ICOTEN 2021 Honorary Chair

Messages

CONGRESS GENERAL MESSAGE

On behalf of the conference organizers, I am pleased to welcome all of you to the the International Congress of Advanced Technology and Engineering (ICOTEN 2021). The Congress is held online on July 4-5, 2021 and organized by the Yemeni Scientists Research Group (YSRG) and Hadhramout University (Yemen). We are very pleased to collaborate with our colleagues from University of the West of Scotland (United Kingdom), Charles Darwin University (Australia) Universiti Teknologi Malaysia (Malaysia), Hassan II University (Morocco), UIN SUSKA Riau (Indonesia), Universiti Tun Hussein Onn Malaysia (Malaysia), University of Manouba (Tunisia) and Bright Star University (Libya). This great international collaboration becomes stronger every year since we organized our first international conference in 2014.



The conference proceedings include 142 papers that discuss several research fields field of technology and engineering. It will include several sub-conferences on intelligent computing and informatics, electrical and electronic engineering, bioscience and biomedical engineering, environmental engineering, applied sciences, and management and education technology. The congress main themes are: Toward Intelligent Solutions for Societies' Development Toward Smart; Sustainable Engineering and Environment Enhancing Management; and Education Polices and Technologies in Crises Time. The congress program includes 20 ketnote speeches, six parallel sessions for the two days.

I would like to express my appreciations and thanks to keynote speakers and authors for sharing their expertise and contributions with us. And I would like to thank the organizing committee for their great efforts in managing the congress; the technical committee for reviewing all the submitted papers; and I would like to thank His Excellency, Prof. Dr. Khalid Alwesabi, the Minister of Higher Education and Scientific Research in Yemen and His Excellency, Dr. Adel Bahamid, the Ambassador of Yemen in Malaysia for their great support to ICOTEN 2021.

I wish you all the best in your research and studies. I hope to see you again in our next conference. Stay safe and healthy.

Assoc. Prof. Dr. Faisal Saeed
ICOTEN 2021 General Chair
President, Yemeni Scientists Research Group (YSRG)

Messages

IEEE YEMEN SUBSECTION CHAIR MESSAGE

First, I would like to welcome all of you to the International Congress of Advanced Technology and Engineering (ICOTEN 2021), which is held online on July 4-5, 2021.

We, in the Executive Committee of the IEEE Yemen Subsection, are pleased to congratulate the organizing committee of the ICOTEN 2021, which is organized by the Yemeni Scientists Research Group (YSRG) and Hadhramout University in Yemen, in collaboration with eight international institutions. The congress is technically sponsored by IEEE Yemen Subsection. This Congress includes six diverse conferences in engineering and emerging technologies, which attracted several local and international researchers from different countries. This participation helps for transferring the knowledge and exchanging of researchers' experiences.



The scientific committees have adhered to the professional criteria in reviewing all submitted papers to ensure the quality of accepted papers, which will be published in IEEE XPLORE.

We thank the organizing committee and scientific committee for their good efforts in making this conference a success. We wish them a great success and we assure that we will always support their distinguished conferences.

Assoc. Prof. Dr. Ammar Zahary
Chair of IEEE Yemen Subsection

Keynote Speakers



Keynote Speaker 1 (Computing): :

Professor Amin Al-Habaibeh

Professor of Intelligent Engineering, Nottingham
Trent University, United Kingdom

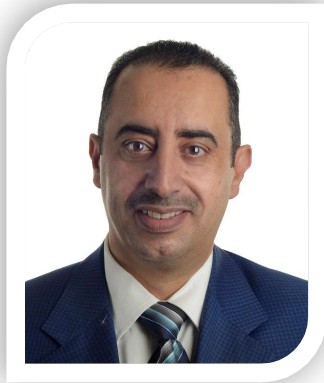
Keynote title:

“The ASPS Approach- a Self-Learning Artificial Intelligence Method for Sensor Fusion and the Rapid Design of Condi-tion Monitoring Systems”

Brief Profile

Professor Amin Al-Habaibeh is Professor of Intelligent Engineering Systems within the Product Design team at Nottingham Trent University. Amin's research helps reshaping futures by creating a positive impact on individuals and society. He is the Director of the national DTA-Energy (Doctoral Training Alliance) and also the Director of Product Innovation Centre. His research and teaching activities focus on several multi-disciplinary topics in the broad area of product design and innovation, automation, energy, condition monitoring and artificial intelligence. Amin is currently leading the Innovative and Sustainable Built Environment Technologies research group (iSBET) and co-founder of the Advance Design and Manufacturing Engineering Centre (ADMEC). His international research profile and academic activities cover a wide range of countries. Amin has strong links and collaboration with industry including eight years as the industrial placement adviser and over 25 years of industrial research and collaboration. Amin holds a PhD in Advanced Manufacturing Technologies and an MSc in Manufacturing Systems from the University of Nottingham; he also received his BSc in Industrial Engineering (Design and Manufacturing) from the University of Jordan. Before joining NTU, Amin had several industrial and academic positions including leading research roles at the University of Nottingham (Rolls-Royce University Technology Centre) and Loughborough University (Mechatronics Research Centre). Amin is a Chartered Engineer and member of the Institution of Engineering and Technologies (The IET) and past chairman of the IET for the East Midlands Region and Derbyshire/Nottinghamshire local network panel. He has acted as an external examiner at numerous UK and international universities. Amin has over 180 international publications and patents, and his research work has been highlighted by major TV channels and newspapers such as the CNN, the BBC, The Daily Telegraph, The Guardian, The Sun and The Daily Mail.

Keynote Speakers



Keynote Speaker 2 (Computing):

Assoc. Prof. Dr. Nabeel Alsohybe

Associate Professor at

Sana'a University, Yemen

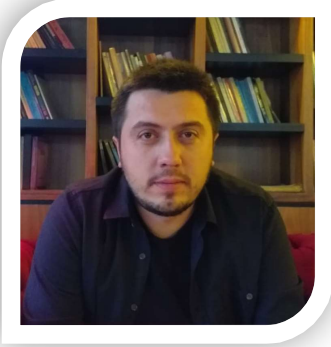
Keynote title:

“Smart Governance for Smart City: Current Issues, Challenges and Trends”

Brief Profile

Assoc. Prof. Dr. Nabeel Alsohybe has graduated from San Jose State University in 1996 with a B.S. degree in Computer Science. For several years, Dr. Nabeel worked as a "Database Administrator", and "Project Manager" for Intel Corporation in the U.S. before relocating to the Republic of Yemen where he worked for the World Bank and the Ministry of Finance of Yemen as the director of the Accounting Financial Management Information System (AFMIS) project. For several years, he held the position as the Dean of Sana'a Community College and headed the Department of Information Systems in the Faculty of Computer and Information Technology at Sana'a University in the Republic of Yemen. He held the Dean position of the Faculty of Computer and Information Technology at Sana'a University. Now, Nabeel is an associate professor at Sana'a University giving management and IT lectures. Nabeel completed a Master of Science in Telecommunications Systems Management from National University in 2001 and a PHD in Organization and Management specialized in Information Technology Management from Capella University in the United States of America in 2007.

Keynote Speakers



Keynote Speaker 3 (Computing):

Assoc. Prof. Dr. Korhan Cengiz

Associate Professor at

Trakya University, Edirne, Turkey

Keynote title:

“Novel Wireless Sensor Network Protocols”

Brief Profile

Assoc. Prof. Dr. Korhan Cengiz, PhD, SMIEEE was born in Edirne, Turkey, in 1986. He received the B.S. degrees in electronics and communication engineering from Kocaeli University, Turkey and business administration from Anadolu University, Turkey in 2008 and 2009 respectively. He took his M.S. degree in electronics and communication engineering from Namik Kemal University, Turkey in 2011, and the Ph.D. degree in electronics engineering from Kadir Has University, Turkey in 2016. Since 2018, he has been an Assistant Professor with the Electrical-Electronics Engineering Department, Trakya University, Turkey. He is the author of over 40 articles including IEEE Internet of Things Journal, IEEE Access, Expert Systems with Applications and Knowledge Based Systems, 3 book chapters, 2 international patents and 1 book in Turkish. He serves several book and journal editorial positions in Springer, Elsevier and IEEE. He presented 10+ keynote talks in reputed IEEE and Springer Conferences about WSNs, IoT and 5G. His research interests include wireless sensor networks, wireless communications, statistical signal processing, indoor positioning systems, power electronics and 5G. He is Editor of the Turkish Journal of Electrical Engineering and Computer Sciences and Associate Editor of IET Electronics Letters. He is Senior Member, IEEE since August 2020. Dr. Cengiz' s awards and honors include the Tubitak Priority Areas Ph.D. Scholarship, the Kadir Has University Ph.D. Student Scholarship, best presentation award in ICAT 2016 Conference and best paper award in ICAT 2018 Conference.

Keynote Speakers



Keynote Speaker 4 (Computing):

Dr. Afnizanfaizal Abdullah

Senior Lecturer at

Universiti Teknologi Malaysia, Malaysia

Keynote title:

“Machine Learning-as-a-Service (MLaaS): Putting the Intelligence into a cloud”

Brief Profile

Dr. Afnizanfaizal Abdullah is senior lecturer at the School of Computing, with a PhD. in Computer Science, specializing in artificial intelligence techniques for analyzing complex data. My research interest is in designing machine learning algorithms for large data analysis, in which I have published in major tiers of journals and conferences including PLOS ONE, Expert Systems with Applications, and Briefings in Functional Genomics. I believe in solving computing problems in industries and public societies.

Keynote Speakers



Keynote Speaker 5 (Electrical and Electronics):

Prof. Dr. Haitham Abu-Rub

IEEE Fellow and Professor at:

Texas A&M University, Qatar

Keynote title:

“Renewable Energy Dominated Grid – Opportunities and Challenges “

Brief Profile

Prof. Dr. Haitham Abu-Rub is a full professor at Texas A&M University at Qatar and holds two PhDs. Abu-Rub has research and teaching experiences at many universities in many countries including Qatar, Poland, Palestine, USA, and Germany. Abu-Rub has served for five years as the chair of Electrical and Computer Engineering Program at Texas A&M University at Qatar and is still serving as the managing director of the Smart Grid Center at the same university. Abu-Rub’s main research interests include power electronic converters, renewable energy systems, electric drives, and smart grid. Abu-Rub is the recipient of many national and international awards and recognitions. He has published more than 450 journal and conference papers, five books, and six book chapters. Abu-Rub has mentored many PhD students and led many research projects on smart grid, power electronics converters, and renewable energy systems. Dr. Abu-Rub is a Fellow of the IEEE and Co-Editor in Chief of the IEEE Transactions on Industrial Electronics.

Keynote Speakers



Keynote Speaker 6 (Electrical and Electronics):

Prof. Dr. Mohamed Benbouzid

IEEE Fellow and Professor at:

University of Brest, France

Keynote title:

“Marine Renewables Energies Grid Connection: Issues and Challenges”

Brief Profile

Prof. Dr. Mohamed Benbouzid received the B.Sc. degree in electrical engineering from the University of Batna, Batna, Algeria, in 1990, the M.Sc. and Ph.D. degrees in electrical and computer engineering from the National Polytechnic Institute of Grenoble, Grenoble, France, in 1991 and 1994, respectively, and the Habilitation à Diriger des Recherches degree from the University of Picardie “Jules Verne,” Amiens, France, in 2000. After receiving the Ph.D. degree, he joined the Professional Institute of Amiens, University of Picardie “Jules Verne,” where he was an Associate Professor of electrical and computer engineering. Since September 2004, he has been with the University of Brest, Brest, France, where he is a Full Professor of electrical engineering. Prof. Benbouzid is also a Distinguished Professor and a 1000 Talent Expert at the Shanghai Maritime University, Shanghai, China. His main research interests and experience include analysis, design, and control of electric machines, variable-speed drives for traction, propulsion, and renewable energy applications, and fault diagnosis of electric machines. Prof. Benbouzid has been elevated as an IEEE Fellow for his contributions to diagnosis and fault-tolerant control of electric machines and drives. He is also a Fellow of the IET. He is the Editor-in-Chief of the INTERNATIONAL JOURNAL ON ENERGY CONVERSION and the APPLIED SCIENCES (MDPI) Section on Electrical, Electronics and Communications Engineering. He is a Subject Editor for the IET RENEWABLE POWER GENERATION. He is also an Associate Editor of the IEEE TRANSACTIONS ON ENERGY CONVERSION.

Keynote Speakers



Keynote Speaker 7 (Electrical and Electronics):

Prof. Dr. Marwan Dhamrin

Specially Appointed Professor at

**Osaka University and Senior Specialist Executive at
Toyo Aluminium K.K, Japan**

Keynote title:

*“Photovoltaics and World Energy Transition Outlook:
Research and Development Opportunities”*

Brief Profile

Prof. Dr. Marwan Dhamrin graduated from Sanaa university in Yemen with a bachelor degree in physics and then master and doctoral degree in engineering from Tokyo University of Agr.&Technology (TUAT) in Japan. He is a JSPS Fellow and worked in TUAT till 2010. In 2011, he joined Toyo Aluminium K. K. As manager of Solar Laboratory and then director of core technology center. Now, specially appointed as a professor at Osaka University and senior specialist executive at Toyo Aluminium K.K. He is holder of more than 15 granted patents and 35 patent applications in addition to over 150 publications in refereed journals and international conferences.

Keynote Speakers



Keynote Speaker 8 (Electrical and Electronics):

Assoc. Prof. Dr. Muhammad Ramlee Kamarudin

Associate Professor at

**Universiti Tun Hussein Onn Malaysia (UTHM),
Malaysia Keynote title:**

*“6th Generation of Mobile Communication
Technology: Challenges and Advantages”*

Brief Profile

Assoc. Prof. Dr. Muhammad Ramlee Kamarudin (M'08 - SM'13) received the degree (Hons.) majoring in Electrical and Telecommunication Engineering from Universiti Teknologi Malaysia, Johor Bahru, Malaysia, in 2003, and the MSc degree in Communication Engineering and the Ph.D. degree in Electrical Engineering from the University of Birmingham, Birmingham, U.K., in 2004 and 2007, respectively, under the supervision of Emeritus Professor Peter Hall. He has been an Associate Professor with the Faculty of Electrical and Electronic Engineering, Universiti Tun Hussein Onn Malaysia since May 2019. Prior to this appointment, he was a Senior Lecturer with the Centre for Electronic Warfare, Information and Cyber, Cranfield Defense and Security, Cranfield University, U.K., and an Associate Professor with the Wireless Communication Centre, Universiti Teknologi Malaysia. He holds a Web of Science (WoS) H-Index of 22 and WoS Citations of more than 1,500. Whilst for SCOPUS, he earns H-Index and Citations of 26 and over 2,650, respectively. He has authored a book chapter of a book entitled Antennas and Propagation for Body-Centric Wireless Communications and has published over 250 technical papers in leading journals and international proceedings including the IEEE Transaction on Antennas and Propagation, the IEEE Antennas and Wireless Propagation Letter, the IEEE Antenna Magazine, the IEEE Access, the International Journal of Antennas and Propagation, Progress in Electromagnetic Research, Microwave and Optical Technology Letters, and Electronics Letters. His research interests include antenna design for 5G/6G, MIMO antennas, Array antenna for beam-forming and beam steering, wireless on-body communications, in-body communications (implantable antenna), RF and microwave communication systems, and antenna diversity. He is a Member of IET, an Executive Member of Antenna and Propagation, Malaysia Chapter, and a Member of the IEEE Antennas and Propagation Society, the IEEE Communication Society, the IEEE Microwave Theory and Techniques Society, the IEEE Electromagnetic Compatibility Society, an Associate Editor for Electronics Letters and IET Microwaves, Antennas and Propagation, and an Academic Editor for the International Journal of Antennas and Propagation. He is currently serving as a Deputy Director of International Office of UTHM..

Keynote Speakers



Keynote Speaker 9 (Management and Education Technology):

Prof. Dr. Dawood Al-Hidabi

Professor at

International Islamic University Malaysia, Malaysia

Keynote title:

“The university Governance and Performance”

Brief Profile

Prof. Dr. Dawood Al-Hidabi got his first degree in Physics (BSc&Ed) in 1977), Sanaa University, Yemen. He studied his P.G.C.E in teaching Physics, MEd and PhD (Education) in the UK (1980-1986). He works at Sanaa University (1987-2015). He was the founding president of the University of Science and Technology, Yemen (1994-2007). He published more than 140 papers, supervised more than 150 master and PhD theses and co-authored several textbooks. Currently, he is the editor-in-chief of three academic journals. Al-Hidabi is a member of the advisory boards and reviewer for several national, and international journals in education. Prof.AL-Hidabi, became a professor of education at IIUM, Malaysia in 2016-now. He also works as an assistant to the deputy Rector of IIUM for Internationalization. He is also the chairman of the Islamic Agency for Quality Assurance and Accreditation of the Federation of Universities of the Islamic world (FUIW) which is hosted by IIUM. He engaged in consultancy and training for national, and international organizations such as ministries of education and higher education, World Bank, UNESCO, UNICEF, ISESCO, OIC, IIIT and others. His areas of interest are curriculum and instruction, quality and governance, integration of knowledge, strategic planning, higher education leadership and universities’ auditing and performance development.

Keynote Speakers



Keynote Speaker 10 (Management and Education Technology):

Dr. Ibrahim Al-Jubari

Faculty of Business Management & Professional Studies, Management and Science University, Malaysia

Keynote title:

“Entrepreneurship and MSMEs at the time of the COVID-19 Pandemic: Resilience and Recovery”

Brief Profile

Dr. Ibrahim Al-Jubari is a Senior Lecturer (Assistant Professor) of Management and Entrepreneurship at the Faculty of Business Management & Professional Studies, Management and Science University, Malaysia. He has received his PhD in Business Administration (Entrepreneurship) from International Islamic University Malaysia. Dr. Ibrahim has several years of teaching, research & professional experience. He has published & presented several papers in entrepreneurship, leadership and behavioral issues as well as attended several national and international events. His current research interests include entrepreneurial behaviors, entrepreneurial well-being, social & rural entrepreneurship, entrepreneurship education, and leadership.

Keynote Speakers



Keynote Speaker 11 (Management and Education Technology):

Dr. Adnan Aldholay

Faculty of Business Management & Professional Studies, Management and Science University, Malaysia

Keynote title:

“The Rise of Big Data in The Scientific Research Process: Prospect Ahead”

Brief Profile

Dr. Adnan Aldholay is currently an Assistant Professor (Senior Lecturer) at the Faculty of Business Management & Professional Studies, Management and Science University, Malaysia. He holds a degree in Information Technology from International Islamic University Malaysia (IIUM). He received his master degree in Business Administration (MBA) from Universiti Teknologi MARA (UiTM), and He completed his doctor of Philosophy (Phd) degree in Business Management (Technology Management) from Universiti Teknologi MARA (UiTM). He has several years of teaching and research experience with an emphasize on areas including online learning, big data in education, technology Management, Information Systems, Strategic Management. His publications have appeared in reputable high ranking journals, the likes of Telematics and Informatics, Computer and Education (Elsevier), Information Technology and People (Emerald). Dr. Adnan can be contacted at adnan.al-dholay@gmail.com.

Keynote Speakers



Keynote Speaker 12 (Bioscience and Biomedical Engineering):

Prof. Dr. Khiralah Alghazali

Yemen international Hospital (YIH), Yemen

Keynote title:

“Roles of Molecular Diagnostics for the diagnosis of Dengue fever in Taiz-Yemen During war”

Brief Profile

Prof. Khiralah Abdulkarem Yaseen Alghazali, YEMEN

Educational Qualification

- PhD in Medical Microbiology (Molecular Virology) 2020 faculty of Medicine, University of Malaya, Kuala Lumpur.
- Master degree in medical microbiology August-2008 faculty of Medicine, Sana'a University.
- High Diploma in medical microbiology in 2005-2006 faculty of medicine, Sana'a university.
- Bachelor of medical laboratories in July-1996 faculty of medicine, Sana'a university.

Field of Expertise

- Yemen international Hospital (YIH) from 2008 until * *
- Lab. Manager of Yemen international Hospital (YIH) from November 2009 until now. (All lab. sections and blood bank)
- Member of medical council of the hospital from 2012 until now.
- Director of the Medical Magazine of the hospital from establishing (2012) until now
- Head of Infection control committee from 2012 until now.
- Member of infection control committee from 2009 until 2012.
- Vice lab. Manager and medical Microbiology department supervisor from September 2008 until November 2009(YIH)

ALsaeed Specialist hospital (1996-2005) morning time:

- Vice head of lab.
- Specialist of medical laboratories.
- Head of blood bank department and medical microbiology.
- Head of infection control committee.
- Member of social committee.
- Editor of AL-Saeed bulletin that issued by ALsaeed specialist hospital for three years.
- AL Tawun Hospital Taiz city (1997-2005) afternoon time.
- Head of the lab. Department and blood bank from 1997 until 2005 AD.

Keynote Speakers



Keynote Speaker 13 (Bioscience and Biomedical Engineering):

Assoc. Prof. Dr. Shafinaz Binti Shahir

Faculty of Science, Department of Bioscience and Health Science, Universiti Teknologi Malaysia

Keynote title:

“Beneficial Microbes in Environmental Biotechnology : UTM’s Experience”

Brief Profile

Prof. Madya Dr. Shafinaz Binti Shahir, Malaysai
Faculty of Science, Department of Bioscience and Health Science
UNIVERSITI TEKNOLOGI MALAYSIA.

Educational Qualification

- Ph.D in Biochemistry-(Biosensors & Microarray Technology) (2006) IMPERIAL COLLEGE LONDON, United Kingdom.
- MSc in Chemistry-Biotechnology (1997) UNIVERSITI TEKNOLOGI MALAYSIA (UTM), Malaysia.
- B. Applied Science (HONOURS) in Chemical Technology- Microbiology (1995) UNIVERSITY OF SOUTH AUSTRALIA (UNISA), Australia.
- BSc in Chemistry and Applied Microbiology (1994) UNIVERSITY OF SOUTH AUSTRALIA (UNISA, Australia)

Field of Expertise

- Biosensors Technology
- Protein Microarray Technology
- Environmental Management & Bioremediation
- Management of Solid Waste from Mining Industry using
- Bioleaching Technique

Professional Membership

- Member of the Malaysian Society of Microbiology (MSM)
- Member of the Malaysian Microscope Society

Keynote Speakers



Keynote Speaker 14 (Bioscience and Biomedical Engineering):

Dr. M. Abu Naser

**Charles River Laboratory, Chesterford Research Park,
Saffron Walden, Cambridge, United Kingdom**

Keynote title:

*“Biomolecular Modelling and Simulation: A Cheaper of
Way of Doing Biology”*

Brief Profile

Dr. M. Abu Naser, Bangladesh

Educational Qualification

- MSc Student of Applied Statistics (2020- 2022) Birbeck College, London
- July, 2019, Graduate Certificate in Statistics Birbeck College, London
- June, 2008, PhD in Biochemistry (Computational) Heriot-Watt University
- November, 2003 MSc in IT (Bioinformatics) Heriot-Watt University
- June, 2002 MSc in Molecular Biology, Staffordshire University
- September, 1999 MS in Biochemistry Bangladesh Agricultural University
- September, 1997 BSc in Agriculture Bangladesh Agricultural University

Field of Expertise

- September, 2020- Present Data Team Lead
- Charles River Laboratory, Chesterford Research Park, Saffron Walden, Cambridge, CB10 1XL
- Leading the PCR Data Analytics Team during Covid-19 pandemic.
- March, 2018 - August, 2020 Tutor
- JFC Training College, 12-14 Wellington Street, Woolwich, London, SE18 6PE
- Teaching Mathematics and Sciences to GCSE (year 9-11 secondary school) students
- August, 2017 – February, 2018 Various Temporary Assignments
- Editing and proofreading services for graduate and undergraduate assignments and dissertations
- Helping graduate and undergraduate students with statistical data analysis
- Tutoring MSc students
- October, 2016- July, 2017 Family carer
- Budgeting – accountable for the control and administration of household budget
- Prioritizing – Establishing schedules, meeting deadlines and simultaneously coordinating several tasks at the same time
- Liaising - with doctors, teachers and tradesmen
- Health & Safety - ensured a clean and safe household environment

Keynote Speakers



Keynote Speaker 15 (Applied Science):

Prof. Dr. Rashad Asharabi

**College of Science and Arts, Najran University,
Saudi Arabia**

Keynote title:

*“Accelerating the Convergence of Various Sampling
Series Using a Gaussian Multiplier”*

Brief Profile

Prof. Dr. Rashad Asharabi

Professor of Mathematics at Najran University, Saudi Arabia

- Worked as an associate professor at Najran University (2016-2020)
- Worked as an assistant professor at Sana'a University, Yemen (2008-2011)
- Worked as a postdoctoral researcher at University of Lübeck, Germany (2012-2013)
- Holds a Ph.D in Pure Mathematics, Cairo University in 2008
- Has more than 30 papers in WoS ranked journals
- Holds a fellowship from Alexander von Humboldt Foundation in 2013
- Referee for a number of scientific journals
- Received a number of funded invitations from Alexander von Humboldt Foundation for research works at the Institute of Mathematics, University of Lübeck (2011-2015-2017-2019).
- He supervised a number of scientific theses.

Keynote Speakers



Keynote Speaker 16 (Applied Science):

Prof. Dr. Mohamed M.S. Nasser

**Department of Mathematics, Statistics and
Physics, Qatar University, Qatar**

Keynote title:

“Computation of conformal capacity”

Brief Profile

Prof. Dr. Mohamed M.S. Nasser is a professor of Mathematics at Qatar University. He received his B.Sc. in Mathematics from Baghdad University, Iraq, in 1999, and received his M.Sc. and Ph.D. in Mathematics from UTM, Malaysia, in 2002 and 2005, respectively. From 2005 until 2009, he was an assistant professor at Ibb University, Yemen. In 2009, he joined King Khalid University, Saudi Arabia, as an assistant professor from 2009 to 2011 and as an associate professor from 2011 until August 2015 when he was promoted to full professor. Prof. Nasser joined the department of mathematics, statistics and physics at Qatar University in September 2015. His research interests are on applied and computational complex analysis.

Keynote Speakers

Keynote Speaker 17 (Applied Science):



Assoc. Prof. Dr. Zaiton Abdul Majid

**Faculty of Science, Universiti Teknologi Malaysia,
Malaysia**

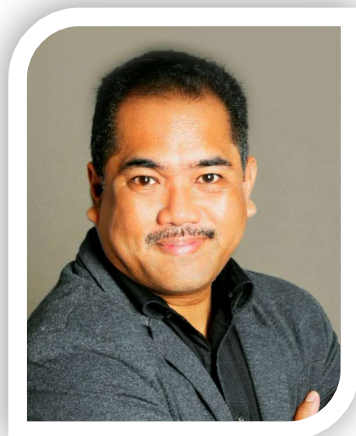
Keynote title:

*Keynote title: “Graphene Cellulose Marriage in
Wastewater Remediation”*

Brief Profile

Assoc. Prof. Dr. Zaiton Abdul Majid is an Associate Professor of Chemistry at the Department of Chemistry, Faculty of Science, Universiti Teknologi Malaysia. She obtained her BSc and MSc in Chemistry from Western Illinois University, USA and PhD in Environmental Engineering from Universiti Malaya. She is currently the Deputy Dean (Research, Innovation, Development and Alumni) of Faculty of Science and an Associate of ASM since 2018. Her research focuses on 2 main areas of waste utilization, i.e. i) development of sorbents from waste, specifically focusing on separation-sorption technology and ii) utilization of waste as cement additives, particularly focusing on cement hydration reactions. She was awarded several national research grants, and research projects funded by the local waterworks department. She is an Associate Member of Academy of Sciences, Malaysia since 2018, member of the Malaysian Institute of Chemistry, ANALIS, and American Chemical Society. She was one of the four recipients, and the first from Asia, of the Lise Meitner Guest Professorship Award, Lund University, Sweden (2012 – 2014). She is actively involved in STEM programs at the national level, for the community especially schools and preschools.

Keynote Speakers



Keynote Speaker 18 (Environmental Engineering):

Assoc. Prof. Dr. Mohd Faris Khamidi

Department of Architecture & Urban Planning, Qatar University, Qatar

Keynote title:

“The ABCD of Emerging Technology: Intelligent Solution to achieve Sustainable Development Goals”

Brief Profile

Assoc. Prof. Dr. Mohd Faris is currently an Associate Professor in Architecture at Qatar University. He holds a PhD from Kyushu University, Japan in the field of Architectural Engineering (2005) and completed a graduate certificate in Tertiary Education Management from LH Martin Institute, University of Melbourne (2016). He has more than 20 years experiences in applying sustainability concept and principles to enhance building lifecycle in particular reducing carbon footprint with optimum building performance. Since 2012, Faris has started developed his capability and competencies in Building Information Modelling (BIM) and Virtual and Digital Construction (VDC) with the emphasis on SMART Technologies. He is a Revit (BIM) certified professional by Autodesk in 2013. Faris was also the founding member and Deputy Director of Taiwan-Malaysia Construction Project Management and Digital Technologies International Centre [DiTIC] with Tamkang University from January 2018 – August 2019. Based on his expertise, he has been invited in various conferences and event as plenary speaker and Visiting Professor in Singapore, Indonesia, Brunei, Taiwan, China, UK, Norway and of course Malaysia.

On the research front, Faris has concluded a dozen of research projects amounting USD 1.1 million, notably the USD750,000 MyRA Top Down Incentive Grant (Malaysia Ministry of Higher Education), titled ‘Smart Integrated Low Carbon Infrastructure Model’ (SMART i-LOCI MODEL) from August 2013 to July 2015 as Co – Lead Principal Investigator.

He is also a reviewer for highly distinguished journals like Facilities (Emerald: ISSN: 02632772), Energy and Buildings (Elsevier: ISSN:0378-7788), Structures (Elsevier:ISSN:23520124), International Journal of Sustainable Construction and Technology (CSM/UTHM:ISSN2180-3242) and a member of Editorial Advisory Board (from 2011 until 2016) for Malaysian Construction Research Journal (MCRJ) (CIDB: ISSN 1985-3807), among others.

He has successfully supervised twelve PhD graduates and seven master’s graduates by research. He has also been an external examiner for more than 25 PhD and Master's (by research) thesis examinations. He co-authored Engineers in Society textbook for use in Malaysian universities and has published more than 130 papers in cited journals and indexed conference proceedings, among others.

Keynote Speakers



Keynote Speaker 19 (Environmental Engineering):

Assoc. Prof. Dr. Dilshan Remaz Ossen

**College of Architecture Engineering and Design,
Kingdom University, Bahrain**

Keynote title:

“Global Warming? A shift toward a Regenerative Paradigm”

Brief Profile

Assoc. Prof. Dr. Dilshan Remaz Ossen obtained his PhD (Architecture) from Universiti Teknologi Malaysia, Skudai Johor Bahru in 2006 under the Commonwealth Scholarship and Fellowship Plan. In year 2000, he obtained his professional qualification as a Chartered Architect and Associate membership from Sri Lanka Institute of Architects (AIA-2000, ARB-2008). He completed his B.Sc. (BE, 1995) and M.Sc. (Architecture, 1998) from University of Moratuwa, Colombo Sri Lanka. Since 2016, he is attached with College of Architecture Engineering and Design, Kingdom University, Kingdom of Bahrain as an Associate Professor. He had served at the Faculty of Built Environment Universiti Teknologi Malaysia, Johor Bahru, Malaysia from 2006 to 2016. During his academic tenure, he has published over 30 high impact journal articles and presented in several international and regional seminars, supervised over 20 PhD and 30 Master research students. His research focus is on - Sustainable City & Urban Climate, Climatic Consideration and Passive Design Strategies in Building, Energy Efficiency in Buildings and Urban Design & Conservation.

Keynote Speakers

Keynote Speaker 20 (Environmental Engineering):

Assoc. Prof. Dr. Ahmed Elseragy



**Director of Enterprise, School of Engineering,
University of Lincoln, United Kingdom**

Brief Profile

Assoc. Prof. Dr. Ahmed Elseragy is currently Director of Enterprise and Programme leader for MSc Engineering Management. Prior to joining Lincoln Ahmed held the position of Professor of Sustainable Buildings and Architectural Engineering and the Head of School of Architectural Engineering and Environmental Design (AEED) (RIBA accredited), College of Engineering, at the AASTMT, Alexandria, Egypt. Before that he was the Deputy Director of the International Research and Projects Centre at the AASTMT with the responsibility of instigating and coordinating partnerships with many higher education institutions in over 20 different countries. Dr Elseragy has worked as Internationalisation Consultant for the Higher Education Academy (HEA) currently part of AdvanceHE in the UK. Ahmed has worked with AdvanceHE to develop and implement national higher education reform and internationalisation strategies for different countries in the MENA region. Ahmed has worked on many projects, that have included building university strategic partnerships in different countries and enhancing international institution cooperation in research, learning, teaching and enterprise. He was a consultant for the Minister of Trade and Industry in Egypt advising on National Development Projects in North Sinai. He was the Managing Director and Founder of IBEX-UK knowledge and culture exchange (www.ibex-uk.org). Ahmed has delivered many motivational and entrepreneurial talks titled 'Mind the Gap' in the UK, Egypt and the MENA region. As a highly motivated and results orientated academic, head of school, director, internationalisation expert and entrepreneur in higher education for the over two and a half decades, he has a proven track record of implementing internationalisation strategies in HE and opening new international markets, international business opportunities through developing transnational education TNE, short-courses and summer programmes, and expanding international research and enterprise opportunities in higher education. Ahmed was the Dean of Internationalisation and Global Engagement between 2009-2012 at the AASTMT, London office with the responsibility of the development and implementation of the institution's internationalisation strategy at home and abroad. His role included liaising with international Universities and Governmental bodies. He has held permanent, tenured academic, senior management and leadership posts at both national and international institutions including the University of Nottingham, the HEA, university of Lincoln, the university of Wolverhampton, the university of Salford, AASTMT (Alexandria, Cairo and Aswan campuses) and the University of Alexandria that demonstrates his sustained effectiveness in leadership, management, teaching and learning and research and enterprise.



Conference Program

Note: All times in Yemen/Mecca Time (GMT Time + 3)

Day 1:		Sunday: July 4, 2021				
Zoom Meeting ID: 861 7028 9022 Zoom Passcode: ICOTEN2021 Meeting Link: https://us02web.zoom.us/j/86170289022?pwd=MGJUU2xxUUU1eUxWZlpmS0hsTWxtZz09						
8:10 am – 9:00	Main Room Session 1: Opening Ceremony					
8:10 am - 8:20 am	Doa'a Recitation					
8:20 am - 8:30 am	Welcoming speech by Dr. Faisal Saeed , ICOTEN 2021 General Chair					
8:30 am - 8:40 am	Welcoming speech by Prof. Dr. Mohammed Saeed Khanbsh , ICOTEN 2021 Honorary Chair, President, Hadhramout University, Yemen					
8:40 am – 8:50 am	Welcoming speech by His Excellency Dr. Adel BaHamid, Ambassador of Yemen in Malaysia					
8:50 am – 9:00 am	Welcoming and Officiating speech by His Excellency, Prof. Dr. Khalid Alwesabi , ICOTEN 2021 Parton, Minister of Higher Education, Scientific Research and Technical Education, Yemen					
9:00 am - 9:10 am	Break					
9:10am – 12:00 pm	Session 2: Parallel Keynote Speeches					
9:10am – 10:30 am	Room 1 (ICOICS)	Room 2 (ICOEEE)	Room 3 (ICOSEE)	Room 4 (ICOBBE)	Room 5 (ICOAPS)	Room 6 (ICOMET)
	Parallel Keynote Speeches 1 & 2					
10:30 am – 10:40 am	Break					
10:40 am – 12:00 pm	Room 1 (ICOICS)	Room 2 (ICOEEE)	Room 3 (ICOSEE)	Room 4 (ICOBBE)	Room 5 (ICOAPS)	Room 6 (ICOMET)
	Keynote Speeches 3 & 4	Keynote Speech 3	-	Keynote Speech 3	Keynote Speech 3	Keynote Speech 3
12:00 pm – 1:00 pm	Break					
1:00 pm – 5:30 pm	Session 3: Parallel Paper Presentations					
1:00 pm – 3:00pm	Room 1 (ICOICS)	Room 2 (ICOEEE)	Room 3 (ICOSEE)	Room 4 (ICOBBE)	Room 5 (ICOAPS)	Room 6 (ICOMET)
	8 papers	8 papers	8 papers	5 papers	7 papers	8 papers
3:00 pm – 3:30 pm	Break					
3:30 pm - 5:30 pm	8 papers	8 papers	-	-	-	2 papers



Conference Program

! Note: All times in Yemen/Mecca Time (GMT Time + 3)

Day 2:		Monday: July 5, 2021			
Zoom Meeting ID: 899 3851 1298 Zoom Passcode: ICOTEN2021 Meeting Link: https://us02web.zoom.us/j/89938511298?pwd=T0xyWk8xTHdqVWFidC8yUnRUaDdidz09					
8:00 am – 8:40 am	Main Room: Keynote Speech 4 (ICOEEE)				
8:40 am - 9:00 am	Break				
9:00 am – 12:00 pm	Session 1: Parallel Paper Presentations				
9:00 am – 10:15 am	Room 1 (ICOICS)	Room 2 (ICOEEE)	Room 3 (ICOICS)	Room 4 (ICOICS)	
	5 papers	5 papers	5 papers	5 papers	
10:15 am - 10:30 am	Break				
10:30am – 12:00pm	6 papers	6 papers	6 papers	6 papers	
12:00 pm – 1:00 pm	Break				
1:00 pm – 3:45 pm	Session 2: Parallel Paper Presentations				
	Room 1 (ICOICS)	Room 2 (ICOEEE)	Room 3 (ICOICS)	Room 4 (ICOICS)	
	11 papers	3 papers	10 papers	11 papers	
3:45 pm – 4:00 pm	Break				
4:00 pm - 4:15 pm	Closing ceremony				

ICOICS Presentation Schedule

Day 1: Sunday: July 4, 2021	
Time :	9:10am – 12:00 pm (Yemen/Mecca Time (GMT time + 3))
Zoom link :	https://us02web.zoom.us/j/86170289022?pwd=MGJUU2xxUUU1eUxWZlpmS0hsTWxtZz09
Meeting ID :	861 7028 9022
Passcode :	ICOTEN2021
8:10am – 9:00am	Session I: Opening Ceremony
9:00am-9:10am	Break
Session II: Keynote Speeches	
Room 1	
9:10am – 9:50 am	Keynote Speaker I: Prof. Dr. Amin Al-Habaibeh <i>Professor of Intelligent Engineering, Nottingham Trent University, United Kingdom</i> Keynote title: <i>The ASPS Approach- a Self-Learning Artificial Intelligence Method for Sensor Fusion and the Rapid Design of Condition Monitoring Systems</i>
9:50am – 10:30 am	Keynote Speaker II: Assoc. Prof. Dr. Nabeel Alsohybe <i>Sana'a University, Yemen</i> Keynote title: <i>Smart Governance for Smart City: Current Issues, Challenges and Trends</i>
10:30 am – 10:40 am	Break
10: 40 am – 11:20 am	Keynote Speaker III: Dr. Korhan Cengiz <i>Trakya University, Edirne, Turkey</i> Keynote title: <i>Novel Wireless Sensor Network Protocols</i>

ICOICS Presentation Schedule

Day 1: Sunday: July 4, 2021	
11: 20 am – 12:00 pm	Keynote Speaker IV: Dr. Afnizanfaizal Abdullah <i>Universiti Teknologi Malaysia, Malaysia</i> Keynote title: <i>Machine Learning-as-a-Service (MLaaS): Putting the Intelligence into a cloud</i>
12:00 pm – 1:00 pm	Break
Session III: Paper Presentations	
Room 1: Artificial Intelligence	
1:00 pm – 1:15 pm	<i>Refka Hanachi, Akrem Sellami, Imed Riadh Farah and Mauro Dalla Mura.</i> Semi-supervised Classification of Hyperspectral Image through Deep Encoder-Decoder and Graph Neural Networks
1:15 pm – 1:30 pm	<i>Amira Ayadi, Mongi Boulehmi and Imed Riadh Farah.</i> Proposed Architecture for Hyperspectral Image Parallel Processing Methods Based on GPU
1:30 pm - 1:45 pm	<i>Hela Yahyaoui, Fethi Ghazouani and Imed Riadh Farah.</i> Deep learning guided by an ontology for medical images classification using a multimodal fusion
1:45 pm - 2:00 pm	<i>Umar Anjum, Ahmed Hussain, Babar Ali Channa, Umer Afzal, Israr Hussain, Abdulfattah Noorwali and Syed Aziz Shah.</i> JPEG Image Compression Using Multiple Core Strategy in FPGA achieving High Peak Signal to Noise Ratios
2:00 pm - 2:15 pm	<i>Ardan Hüseyin Eşlik, Emre Akarslan and Fatih Onur Hoccoğlu.</i> Cloud Motion Estimation with ANN for Solar Radiation Forecasting

ICOICS Presentation Schedule

Day 1: Sunday: July 4, 2021	
2:15 pm – 2:30 pm	<i>Jarray Nouredine, Ali Ben Abbes, Manel Rhif, Farah Chouikhi and Imed Riadh Farah.</i> An open source platform to estimate Soil Moisture using Machine Learning Methods based on Eo-learn library
2:30 pm – 2:45 pm	<i>Salim Klibi, Makram Mestiri and Imed Riadh Farah.</i> Emotional behavior analysis based on EEG signal processing using Machine Learning: A case study
2:45 pm – 3:00 pm	<i>Najla Hamandi and Jawad Alkhateeb.</i> Sentiment Analysis of Arabic Tweets Related to COVID-19 Using Deep Neural Network
3:00 pm – 3:30 pm	Break
Room 1: Data Science	
3:30 pm – 3:45 pm	<i>Kawser Ahmed Pinto, Nasuha Lee Abdullah and Pantea Keikhosrokiani.</i> Diet & Exercise Classification using Machine Learning to Predict Obese Patient's Weight Loss
3:45 pm – 4:00 pm	<i>Abdulfattah Ba Alawi and Ali Al-Roainy.</i> Deep Residual Networks Model for Star-Galaxy Classification
4:00 pm – 4:15 pm	<i>Soufiane Hamida, Bouchaib Cherradi, Oussama El Gannour, Oumaima Terrada, Abdelhadi Raihani and Hassan Ouajji.</i> New Database of French Computer Science Words Handwritten Vocabulary

ICOICS Presentation Schedule

Day 1: Sunday: July 4, 2021	
4:15 pm – 4:30 pm	<i>Manel Rhif, Ali Ben Abbes, Farah Chouikhi, Noureddine Jarray and Imed Riadh Farah.</i> Towards a Tunisian earth observation data cube for environmental applications
4:30 pm – 4:45 pm	<i>Abubakar Ado, Noor Azah Samsudin and Mustafa Mat Deris.</i> A New Feature Hashing Approach Based on Term Weight for Dimensional Reduction
4:45 pm – 5:00 pm	<i>Nouf Alharbi, Arwa Althagafi, Shrooq Alhazmi, Omamah Alshomrani and Ahad Almotiry.</i> A Blockchain Based Secure IoT Solution for Water Quality Management
5:00 pm – 5:15 pm	<i>Manel Chehibi, Ahlem Ferchichi, Imed Riadh Farah and Allel Hadjali.</i> Management of Uncertain Spatial Information
5:15 pm – 5:30 pm	<i>Hanen Balti, Ali Ben Abbes, Nedra Mellouli, Yanfang Sang, Imed Riadh Farah, Myriam Lamolle and Yanxin Zhu.</i> Big data based architecture for drought forecasting using LSTM, ARIMA, and Prophet: Case study of the Jiangsu Province, China

ICOICS Presentation Schedule

Day 2: Monday: July 5, 2021	
Time	: 9:00 am – 12:00 pm (Yemen/Mecca Time (GMT time + 3))
Zoom link	: https://us02web.zoom.us/j/89938511298?pwd=T0xyWk8xTHdqVW-FidC8yUnRUaDdidz09
Meeting ID	: 899 3851 1298
Passcode	: ICOTEN2021
Session I: Parallel Paper Presentations	
Room1 : Networking and IoT	
9:00 am – 9:15 am	<i>Marwan Qaid Mohammed, Lee Chung Kwek, Shing Chyi Chua and Esmail Ai Alandoli.</i> Color Matching Based Approach for Robotic Grasping
9:15 am - 9:30 am	<i>Evizal Abdul Kadir, Mahmod Othman and Sri Listia Rosa.</i> Smart Sensor System for Detection and Forecasting Forest Fire Hotspot in Riau Province Indonesia
9:30 am - 9:45 am	<i>Zaid Yemeni, Bo Zhang, Waleed Ismael, Yingjuan Xie, Ammar Zahary and Haibin Wang.</i> ST-MLR: A Spatio-temporal Multiple Linear Regression Missing Data Reconstruction Approach for Improving WSN Data Reliability
9:45 am - 10:00 am	<i>Ahmad Baihaqi Ghazali, Yi Ming Chong and Mohamad Tarmizi Abu Seman.</i> Design of Smart Device for Foot of Diabetic Patient in Malaysia
10:00 am – 10:15 am	<i>Noor Hadi Hammood and Bahaa Al-Musawi.</i> Using BGP Features Towards Identifying Type of BGP Anomaly

ICOICS Presentation Schedule

Day 2: Monday: July 5, 2021	
Room 3 : Intelligent Informatics	
9:00 am – 9:15 am	<i>Mohammad Faisal Bin Ahmed, M Saef Ullah Miah, Abhijit Bhowmik and Junaida Binti Sulaiman.</i> Awareness to Deepfake: A resistance mechanism to Deepfake
9:15 am - 9:30 am	<i>Mustakim Mustakim, Emi Rahmi, Medyantiwi Rahmawita, Said Thaufik Rizaldi, Okfalisa Okfalisa and Idria Maita.</i> Comparison of DBSCAN and PCA-DBSCAN Algorithm for Grouping Earthquake Area
9:30 am - 9:45 am	<i>Abdulfattah Ba Alawi and Ahmed Saeed.</i> Facial Age Estimation using Deep Learning Pre-trained Models
9:45 am - 10:00 am	<i>Abdulfattah Ba Alawi, Ahmed Saeed, Ahmed N. Hassan, Fatima Almashhor and Reem Al-Shathely.</i> Solid Waste Classification Using Deep Learning Techniques
10:00 am – 10:15 am	<i>Mohammad Al-Fawa'Reh, Alaa Hawameh, Rana Alrawashdeh and Mousa Tayseer Jafar.</i> Intelligent Methods for flood forecasting in Wadi al Wala, Jordan
Room 4: Security	
9:00 am – 9:15 am	<i>Aliaa Albakaa and Bahaa Al-Musawi.</i> Improving the Performance of Intrusion Detection System through Finding the Most Effective Features
9:15 am - 9:30 am	<i>Faris Alsuhaym, Tawfik Al-Hadhrami, Faisal Saeed and Kenny Awuson-David.</i> Toward Home Automation: An IoT Based Home Automation System Control and Security

ICOICS Presentation Schedule

Day 2: Monday: July 5, 2021	
9:30 am - 9:45 am	<p><i>Chris Few, James Thompson, Kenny Awuson-David and Tawfik Al-Hadhrami.</i></p> <p>A case study in the use of attack graphs for predicting the security of cyber-physical systems</p>
9:45 am - 10:00 am	<p><i>Abdullah Alanazi, Tawfik Al-Hadhrami, Faisal Saeed and Kenny Awuson-David.</i></p> <p>Wireless Remote Control-Security System for Entrances (WRC-SSE)</p>
10:00 am - 10:15 am	<p><i>Wael Alnahari and Mohammad Tabrez Quasim.</i></p> <p>Privacy Concerns, IoT Devices and Attacks in Smart Cities</p>
10:15 am - 10:30 am	Break
Room 1: Artificial Intelligence	
10:30 am - 10:45 am	<p><i>Assif Shamim Mustaffa and Ani Shabri.</i></p> <p>Optimized Non-linear Multivariable Grey Model for Carbon Dioxide Emissions in Malaysia</p>
10:45 am - 11:00 am	<p><i>Elvia Budianita and Okfalisa.</i></p> <p>The Prediction of E-Money Circulation: Backpropagation with Genetic Algorithm Adoption</p>
11:00 am - 11:15 am	<p><i>Ardan Hüseyin Eşlik, Emre Akarslan and Fatih Onur Hocaoglu.</i></p> <p>Sun Closeness/Clearance Estimation for 3 Different Days</p>
11:15 am - 11:30 am	<p><i>Benny Sukma Negara, Dimas Reynaldi Dwi Santoso, Suwanto Sanjaya and Eki Satria.</i></p> <p>COVID-19 Classification from Chest X-Ray Images using Deep Learning and Resnet-101</p>

ICOICS Presentation Schedule

Day 2: Monday: July 5, 2021	
11:30 am – 11:45 am	<p><i>Ahmed Saeed, Yasmin Abdo, Halima Al-Khurasani, Hanadi Saeed, Mohammed Hashem Almourish and Mogeheb A. Saeed.</i></p> <p>Fall detection system for elderly people using machine learning algorithms</p>
11:45 am - 12:00 am	<p><i>Zaid Alhaboobi, Manjit Sidhu and Thaharah Hilaluddin.</i></p> <p>A Review on Emotional Recognition System Based E-learning: Technology and Challenges</p>
Room 3: Data Science	
10:30 am – 10:45 am	<p><i>Esraa Faisal Malik, Pantea Keikhosrokiani and Moussa Pourya Asl.</i></p> <p>Text Mining Life Cycle for a Spatial Reading of Viet Thanh Nguyen's The Refugees (2017)</p>
10:45 am - 11:00 am	<p><i>Bouchaib Cherradi, Oumaima Terrada, Asmae Ouhmida, Soufiane Hamida, Abdelhadi Raihani and Omar Bouattane.</i></p> <p>Computer Aided Diagnosis System for Early Prediction of Atherosclerosis using ML and K-fold cross-validation</p>
11:00 am - 11:15 am	<p><i>Nur Shakirah Binti Md Salleh, Azizah Suliman and Bo Nørregaard Jørgensen.</i></p> <p>Experiment on Electricity Consumption Prediction using Long Short-Term Memory Architecture on Residential Electrical Consumer</p>
11:15 am - 11:30 am	<p><i>Tariq Saeed.</i></p> <p>Automation of Bug-Report Allocation to Developer by using Deep Learning Algorithm</p>

ICOICS Presentation Schedule

Day 2: Monday: July 5, 2021	
11:30 am – 11:45 am	<p><i>Rahmad Kurniawan, Fitra Lestari, Abdul Somad Batubara, Mohd Zakree Ahmad Nazri, Khairunnas Rajab and Rinaldi Munir.</i></p> <p>Indonesian Lexicon-Based Sentiment Analysis of Online Religious Lectures Review</p>
11:45 am - 12:00 pm	<p><i>Muhammed Zaharadeen Ahmed, Aisha Hassan Abdallah Hashim, Othman Omran Khalifa, Raed Ali Alsaqour, Rashid Abdelhaleem Saeed and Abdulkadir Hamidu Alkali.</i></p> <p>Queuing Theory Approach for NDN Mobile Producer's Rate of Transmission Using Network Coding</p>
Room 4: General Topics	
10:30 am – 10:45 am	<p><i>Asmae Ouhmida, Oumaima Terrada, Abdelhadi Raihani, Bouchaib Cherradi and Soufiane Hamida.</i></p> <p>Voice-Based Deep Learning Medical System for Parkinson's Disease Classification</p>
10:45 am - 11:00 am	<p><i>Muneeb A. Khan, Muazzam A. Khan, Maha Driss, Wadii Boulila and Jawad Ahmad.</i></p> <p>Evolution of Target Localization in Wireless Sensor Network (WSN): A Review</p>
11:00 am - 11:15 am	<p><i>Wadii Boulila, Anmar Abuhamdah, Maha Driss, Slim Kammoun and Jawad Ahmad.</i></p> <p>GuideMe: An Approach based on Global Positioning System and Object Recognition Towards a Smart Tourist Guide</p>
11:15 am - 11:30 am	<p><i>Ammar Al-Ashmori, P.D.D Dominic, Shuib Basri, Amgad Muneer, Ebrahim Ghaleb and Qasem Al-Tashi.</i></p> <p>Software Process Improvement During the Last Decade: A Theoretical Mapping and Future Avenues</p>

ICOICS Presentation Schedule

Day 2: Monday: July 5, 2021	
11:30 am – 11:45 am	<p><i>Nor Azizah Hitam, Amelia Ritahani Ismail, Ruhaidah Samsudin and Omair Ameerbakhsh.</i></p> <p>The Influence of Sentiments in Digital Currency Prediction Using Hybrid Sentiment-based Support Vector Machine with Whale Optimization Algorithm (SVMWOA)</p>
11:45 am - 12:00 pm	<p><i>Umara Umar, Muazzam A. Khan, Rabia Irfan and Jawad Ahmad.</i></p> <p>IoT-based Cardiac Healthcare System for Ubiquitous Healthcare Service</p>
12:00 pm – 1:00 pm	Break
Session II: Parallel Paper Presentations	
Room 1: Information Systems	
1:00 pm – 1:15 pm	<p><i>Lina Fatini Azmi, Norasnita Ahmad and Noorminshah A.lahad.</i></p> <p>Gamification Elements in E-commerce – A Review</p>
1:15 pm - 1:30 pm	<p><i>Lim Hui Ting, Sharin Hazlin Huspi and Roliana Ibrahim.</i></p> <p>A Conceptual Framework for Malay-English Mixed-language Question Answering System</p>
1:30 pm - 1:45 pm	<p><i>Zhenisgu Rakhmetullina, Gulnaz Zunimovaline, Gulzhan Soltan, Raushan Mukhamedova, Roza Mukasheva and Shynar Tezekpayeva.</i></p> <p>Functional and architectural solution of a software package for the analysis of educational data</p>

ICOICS Presentation Schedule

Day 2: Monday: July 5, 2021	
1:45 pm - 2:00 pm	<i>Adnan Ibrahim, Osama Hamda and Mohammed Moreb.</i> The Efficiency of mobile E-Wallet in Palestine – Case Study
2:00 pm - 2:15 pm	<i>Khalid Krayz Allah, Nor Azman Ismail and Hisham Elrobaa.</i> Empathy Map Instrument for Analyzing Human-Computer Interaction in Using Web Search UI by Elderly Users
2:15 pm - 2:30 pm	<i>Osama Abied and Othman Ibrahim.</i> Cloud service adoption model in the Libyan e-government implementation
2:30 pm - 2:45 pm	<i>Ashley Wang Sze Mei, Chong Hui Xin, Pee Ling Hong, Tan Xue Ying, Pantea Keikhosrokiani and Narimah Samat.</i> A GIS-based Mobile Application to Improve Tourism Experience: A Case Study of Terengganu, Malaysia
2:45 pm - 3:00 pm	<i>Muhammad Saqib Iqbal and Zulhasni Abdul Rahim.</i> Industry 4.0 Revolution and Challenges in Developing Countries: A Case Study on Pakistan
3:00 pm - 3:15 pm	<i>Rabbia Alamdar, Allan Mathews and Sharanjit Kaur.</i> A proposed Integrated Medicine Management System Tool based on System, Utilization and Evidence Based Theory for Malaysian Health Information System Optimization
3:15 pm - 3:30 pm	<i>Abubakar Mu'Azu Ahmed and Nor Athiyah Abdullah</i> Conceptual Paper: Behavioural Intention to Use MOOCs the Moderating Effect of Perceived Openness and Facilitating Condition
3:30 pm - 3:45 pm	<i>Hasan Beyari.</i> Improving enterprise performance using agent based modelling and simulation system driven price optimization

ICOICS Presentation Schedule

Day 2: Monday: July 5, 2021	
Room 3: Intelligent Informatics	
1:00 pm – 1:15 pm	<p><i>Kathryn-Ann Tait, Jan Sher Khan, Awais Aziz Shah, Fadia Ali Khan, Mujeeb Ur Rehman, Wadii Boulila, Jawad Ahmad and Fehaid Alqahtani.</i></p> <p>Intrusion Detection using Machine Learning Techniques: An Experimental Comparison</p>
1:15 pm - 1:30 pm	<p><i>Pritheega Magalingam, Nurazeen Maarop, Mohana Shanmugam, Nur Amalina Diyana Suhaimi, Syaza Iffah Mohammad Salleh and Siti Amanina Farhanah Abdul Hakim.</i></p> <p>Malaysian Politicians' Connection Pattern on Twitter using SNA: A Case of Najib Razak</p>
1:30 pm - 1:45 pm	<p><i>Mohd Shahrizan Abd Rahman, Nor Azliana Akmal Jamaludin, Zuraini Zainol and Tengku Mohd Tengku Sembok.</i></p> <p>Machine Learning Algorithm Model for Improving Business Decisions Making in Upstream Oil & Gas</p>
1:45 pm – 2:00 pm	<p><i>Ahmed Saeed and Abdulfattah Ba Alawi.</i></p> <p>Covid-19 Diagnosis Model Using Deep Learning with Focal Loss Technique</p>
2:00 pm - 2:15 pm	<p><i>Ali Razzaq, Rozaida Ghazali and Nidhal El Abbadi.</i></p> <p>Face Recognition – Extensive Survey and Recommendations</p>
2:15 pm - 2:30 pm	<p><i>Abdulrazak Yahya Saleh and Sashwini Thiagaraju.</i></p> <p>Brain Tumor Classification using Deep Learning with Residual Attention Network</p>

ICOICS Presentation Schedule

Day 2: Monday: July 5, 2021	
2:30 pm - 2:45 pm	<i>Mukesh Pandey and Rajendra Kumar Bharti.</i> Futuristic Hybrid Image Enhancement Using Fuzzy and Cubic Interpolation Methods
2:45 pm - 3:00 pm	<i>Ali A. Adam, Mohamed Yagob, Hanaa S. Abdalaziz, Nihad A. A. Elhag, Fayha Mohamed, M. A. Ahmed, Osama Hussein, Fakhreldeen Abbas Saeed, N. Eassa and Sharief F. Babiker.</i> An Ensemble Machine Learning Model to Investigate the Screen System for the Identification of Potential COVID-19 Patients in Sudan
3:00 pm - 3:15 pm	<i>Akram Saeed Aqlan Alhammedi and Vasanthi V.</i> Multi-Objective Algorithms for Virtual Machine Selection and Placement in cloud Data Center
3:15 pm - 3:30 pm	<i>Benny Sukma Negara, Eki Satria, Suwanto Sanjaya and Dimas Reynaldi Dwi Santoso.</i> Resnet-50 for Classifying Indonesian Batik with Data Augmentation
3:30 pm - 3:45 pm	<i>Roziyani Setik, Raja Mohd Tariqi Raja Lope Ahmad and Suziyanti Marjudi</i> Sentiment Analysis using Effective Keyword Extraction Algorithm of Twitter Posts on Subject #solatjumaat During MCO in Malaysia
Room 4: Security	
1:00 pm – 1:15 pm	<i>Daniah Hasan and Linah Tasji.</i> Investigating the Information Security Awareness at Taibah University (TU)

ICOICS Presentation Schedule

Day 2: Monday: July 5, 2021	
1:15 pm - 1:30 pm	<p><i>Yasin Genç and Erkan Afacan.</i></p> <p>Implementation of New Message Encryption using Elliptic Curve Cryptography Over Finite Fields</p>
1:30 pm - 1:45 pm	<p><i>Rizzo Mungka Rechie, Yusnani Mohd Yusoff, Lucyantie Mazalan and Suhairi Mohd Jawi.</i></p> <p>THE IMPLEMENTATION OF HARDWARE SECURITY BASED ZYMKEY 4i IN HDVA</p>
1:45 pm - 2:00 pm	<p><i>Abdulhafid Bughari, Abdullah Khalifa Mohamed Hamad and Mansour Khalifa Hamad Mohamed.</i></p> <p>Cloud Computing Security Model Adoption for SMEs in Libya</p>
2:00 pm - 2:15 pm	<p><i>Mohammed Alghenaim, Nur Azaliah Abu Bakar, Rasimah Che Mohd Yusoff, Noor Hafizah Hassan and Hasimi Sallehudin.</i></p> <p>Employee Awareness Model to Enhance Awareness of Social Engineering Threats in the Saudi Public Sector</p>
2:15 pm - 2:30 pm	<p><i>Wael Alnahari and Mohammad Tabrez Quasim.</i></p> <p>Authentication of IoT Device and IoT Server Using Security Key</p>
2:30 pm - 2:45 pm	<p><i>Sidra Rashid, Muazzam Ali Khan Khattak, Ali Saeed and Ch Muhammad Hamza.</i></p> <p>A Survey of Prediction-based Routing Protocols for Vehicular Ad-hoc Networks</p>

ICOICS Presentation Schedule

Day 2: Monday: July 5, 2021	
2:45 pm - 3:00 pm	<p><i>Muhammed Zaharadeen Ahmed, Aisha Hassan Abdallah Hashim, Othman Omran Khalifa, Rashid Abdelhaleem Saeed and Raed Ali Alsaqour.</i></p> <p>Connectivity Framework for Rendezvous and Mobile Producer Nodes Using NDN Interest Flooding</p>
3:00 pm - 3:15 pm	<p><i>Jumana Abed and Mohammed Moreb.</i></p> <p>DETECTING MALICIOUS URL USING NEURAL NETWORK</p>
3:15 pm - 3:30 pm	<p><i>Omar Aloufi, Karim Djemame, Faisal Saeed and Fahad Ghaban.</i></p> <p>A survey on predicting workloads and optimising QoS in the cloud computing</p>
3:30 pm - 3:45 pm	<p><i>Abdulfattah Ba Alawi and Asma Mudhsh Qasem</i></p> <p>Lightweight CNN-based Models for Masked Face Recognition</p>
3:45 pm – 4:00 pm	Break
4:00pm-4:15pm	Closing Ceremony

ICOEEE Presentation Schedule

Day 1: Sunday, 4 th July, 2021	
Time	: 9:10am – 12:00 pm (Yemen/Mecca Time (GMT time + 3))
Zoom link	: https://us02web.zoom.us/j/86170289022?pwd=MGJU2xxUUU1eUxWZlpmS0hsTWxtZz09
Meeting ID	: 861 7028 9022
Passcode	: ICOTEN2021
Session 2: Keynote Speeches	
Room 2	
9:10am – 9:50 am	Keynote Speaker I: Prof. Dr. Haitham Abu-Rub IEEE Fellow, Texas A&M University, Qatar Keynote title: <i>Renewable Energy Dominated Grid – Opportunities and Challenges</i>
9:50am – 10:30 am	Keynote Speaker II: Prof. Dr. Marwan Dhamrin Specially Appointed Professor at Osaka University and Senior Specialist Executive at Toyo Aluminium K.K, Japan Keynote title: <i>Photovoltaics and World Energy Transition Outlook: Research and Development Opportunities</i>
10:30 am – 10:40 am	Break
10: 40 am – 11:20 am	Keynote Speaker III: Assoc. Prof. Dr. Muhammad Ramlee Kamarudin Universiti Tun Hussein Onn Malaysia (UTHM), Malaysia Keynote title: <i>Overview on 6G</i>
12:00 pm – 1:00 pm	Break

ICOEEE Presentation Schedule

Day 1: Sunday, 4 th July, 2021	
Session 3: Paper Presentations	
Room 2	
1:00 pm - 1:15 pm	<i>Anas Binshitwan, Seraj Keskeso, Abdulmunem Alquzayzi and Ahmed Elbarsha</i> 38GHz Rectangular Microstrip Antenna with DGS for 5G Applications.
1:15 pm - 1:30 pm	<i>Mamunur Rashid, Nasir Algeelani, Samir A. Al-Gailani and No-haidda Binti Sariff</i> Indoor Electrical Installation Design Layout Using IOT
1:30 pm - 1:45 pm	<i>Alhusayn Yousuf, Seraj Elshwehdi and Ahmed Elbarsha</i> Analysis and Design Rectangular Microstrip Patch Antenna for LTE Terminals at 2.6 GHz
1:45 pm - 2:00 pm	<i>Hamid Mohammed Qasem Rasheda and Qazwan Abdullah Tarbosh</i> Design of UWB Antenna for Microwave Imaging using Modified Fractal Structure
2:00 pm - 2:15 pm	<i>Muniru Okelola, Sunday Salimon, Oluwale Adegbola, Emmanuel Ogunwole, Samson Ayanlade and Baruwa Aderemi</i> Optimal Siting and Sizing of D-STATCOM in Distribution System using New Voltage Stability Index and Bat Algorithm
2:15 pm - 2:30 pm	<i>Abdulrahman Th. Mohammad, Zuhair S. Al-Sagar, Ali Nasser Hussain and Majid Khudair Abbas Al-Tamimi</i> Performance Analysis of 4.68 kWh Proposed Grid-Connected PV System in Iraq

ICOEEE Presentation Schedule

Day 1: Sunday, 4 th July, 2021	
2:30 pm - 2:45 pm	<i>Meryem Benakcha, Abdelhamid Benakcha, Salah Eddine Zouzou and Abdelkarim Ammar</i> Experimental study of a real-time control by backstepping technique of an induction motor drive
2:45 pm - 3:00 pm	<i>Abdulrahman Baboraik, Sameh Kassem, Abdulla Ebrahim and Alexandar Usachev</i> NEW ALGORITHM FOR ELIMINATION OF INDUCTION EFFECT ON THE MAGNITUDE OF PARTIAL DISCHARGE CURRENT PULSE
3:00 pm – 3:30 pm	Break
3:30 pm – 3:45 pm	<i>Abdulrahman Baboraik, Abdulla Ebrahim, Sameh Kassem and Alexandar Usachev</i> INVESTIGATION THE IMPACT OF PARTIAL DISCHARGES POLARITY ON RELIABILITY ASSESSMENT OF INSULATION CONDITION IN HIGH VOLTAGE EQUIPMENT
3:45 pm – 4:00 pm	<i>Hamid Rasheda and Qazwan Abdullah Tarbosh</i> An Optimization of Fractal Microstrip Patch Antenna with Partial Ground using Genetic Algorithm Method
4:00 pm – 4:15 pm	<i>Mohamed Lotfi Cherrad, Hocine Bendjama and Tarek Fortaki</i> Vibration analysis for defective bearings by blind source separation
4:15 pm – 4:30 pm	<i>Aymen Mohammed Khodayer Al-Dulaimi, Mohammed Khodayer Hassan Al-Dulaimi and Omer Mohammed Khodayer Al-Dulaimi</i> Construction and Analysis of Dynamic Distribution for Resource Blocks of Real-Time and Data Elastic Traffic in IMS/LTE Networks
4:30 pm – 4:45 pm	Break

ICOEEE Presentation Schedule

Day 1: Sunday, 4 th July, 2021	
4:45 pm – 5:00 pm	<i>Yaser Awadh, Shakir Saat and Izadora Mustaffa</i> State Feedback Controller Design for Capacitive Power Transfer System
5:00 pm – 5:15 pm	<i>Evizal Abdul Kadir, Raed Shubair, Sharul Kamal Abdul Rahim, Mohamed Himdi and Muhammad Ramlee Kamarudin</i> B5G and 6G: Next Generation Wireless Communications Technologies Demand and Challenges
5:15 pm – 5:30 pm	<i>Nawfan Al-Fakih, Salem Bagaber and Salman Al Abd</i> IMPROVEMENT OF WIND TURBINE LIGHTNING RECEPTOR

ICOEEE Presentation Schedule

Day 2: Monday, 5 th July, 2021	
Time	: 9:00 am – 12:00 pm (Yemen/Mecca Time (GMT time + 3))
Zoom link	: https://us02web.zoom.us/j/89938511298?pwd=T0xyWk8xTHdqVW-FidC8yUnRUaDdidz09
Meeting ID	: 899 3851 1298
Passcode	: ICOTEN2021
Main Room: Keynote Speech	
8:00 am - 8:40am	Keynote Speaker IV: Prof. Dr. Mohamed Benbouzid IEEE Fellow, University of Brest, France Keynote title: <i>Marine Renewables Energies Grid Connection: Issues and Challenges.</i>
8:40 am – 9:00 am	Break
Session I: Paper Presentations	
Room 2	
9:00 am – 9:15 am	<i>Yunes Sh. Alqudsi, Abdulahmeed S. Alsharafi and Abdulwahid Mohamed</i> A Review of Airborne Landmine Detection Technologies: Unmanned Aerial Vehicle-Based Approach
9:15 am - 9:30 am	<i>Othman Khalifa, Ayub Ahmed Omar, Muhammed Zaharadeen Ahmed, Aisha Aisha Hassan Abdallah Hashim, Rashid Abdelhaleem Saeed and Abdelrahim Esgiar</i> Automatic Facial Age Progression Estimation System
9:30 am - 9:45 am	<i>Akram H. Saber and Mohd Ayyub Khan</i> Detection of digital image forgery Utilizing combined feature extraction technique

ICOEEE Presentation Schedule

Day 2: Monday, 5th July, 2021	
9:45 am - 10:00 am	<i>Hamza Abbas Kiani, Babar Ali Channa, Syed Yaseen Shah, Syed Jehad Ali Shah, Syed Ikram Shah and Syed Aziz Shah</i> Performance Enhancement and Size Reduction of Vivaldi Antenna Using Defected Ground Structure for Active Phased Array Radar Applications
10:00 am - 10:15 am	<i>Muhammad Hashsham Chishti, Babar Ali Channa, Syed Yaseen Shah, Umar Anjum, Umer Afzal and Syed Aziz Shah</i> Design of High-Performance X-Band Monopulse Comparator for Active Phased Array Radar Applications
10:15 am - 10:30 am	Break
10:30 am - 10:45 am	<i>Umar Anjum, Babar Ali Channa, Ahmed Hussain, Shahzad Arshad, Syed Yaseen Shah and Syed Aziz Shah</i> An X-Band Coupled Lined Based Channel Failure Detection Mechanism For Active Phased Arrays
10:45 am - 11:00 am	<i>Babar Ali Channa, Syed Yaseen Shah, Muhammad Bilal Khan, Abdul Haseeb Khan, Kawish Parvaiz and Syed Aziz Shah</i> High Efficiency High Gain DC-DC Boost Converter Using PID Controller for Photovoltaic Applications
11:00 am - 11:15 am	<i>Kamran Arif, Azhar Hassan, Umer Afzal, Babar Ali Channa, Syed Yaseen Shah and Syed Aziz Shah</i> Antenna Installation and Location Qualification on Aircraft using Computational Electromagnetic Tools
11:15 am - 11:30 am	<i>Babar Ali Channa, Syed Yaseen Shah, Muhammad Hashsham Chishti, Umar Anjum, Ahmed Hussain, Shahzad Arshad and Syed Aziz Shah</i> Design of 15W X-Band GaN Based Transmit / Receive Module for Airborne Active Phased Array Radar Applications

ICOEEE Presentation Schedule

Day 2: Monday, 5 th July, 2021	
11:30 am – 11:45 am	<i>Rashidah Che Yob, Nur Hidayah Ramli, Norfatihah Bahari and Liyana Zahid</i> Stability Elements and Matching Components of Microwave Amplifier at C-band Frequency: Simulation Study
11:45 am – 12:00 am	<i>Mimouna Abid, Souad Saadi Laribi, Zuhair S. Al-Sagar and M'hamed Larbi</i> Performance Analysis of Artificial Neural Network in Detecting Short-Circuit Faults of a Three-Phase Inverter
12:00 pm – 1:00 pm	Break
Session II: Paper Presentations	
Room 2	
1:00 pm – 1:15 pm	<i>Lamyae Et-Taaj, Zakaria Boulghasoul, Abdelhadi Elbacha and Abdellah El Kharki</i> Robust Sensorless Induction Motor Drive based on Extended Kalman Filter Observer
1:15 pm – 1:30 pm	<i>Daw Saleh Sasi Mohammed, Abdulrahman A.A.Emhemed, Hawa Ayad Alsanousi, Abusaif S.Abdulalli and Mohd Wazir Mustafa</i> A systematic approach for evaluating the accuracy of overhead line fault location using the traveling wave method
1:30 pm – 1:45 pm	<i>Yaseen Alwesabi, Nabil Mohammed, Ala Al-Shargabi and Yong Wang</i> Energy Demand Estimation of Battery Electric Buses Considering Dynamic Wireless Charging Technology

ICOMET Presentation Schedule

Day 1: Sunday: July 4, 2021	
Time :	9:10am – 12:00 pm (Yemen/Mecca Time (GMT time + 3))
Zoom link :	https://us02web.zoom.us/j/86170289022?pwd=MGJUU2xxUUU1eUxWZlpmS0hsTWxtZz09
Meeting ID :	861 7028 9022
Passcode :	ICOTEN2021
8:10am – 9:00am	Session I: Opening Ceremony
9:00am-9:10am	Break
Session II: Keynote Speeches	
Room 6	
9:10am – 9:50 am	Keynote Speaker I: Prof. Dr. Dawood Al-Hidabi International Islamic University Malaysia, Malaysia Keynote title: <i>The university Governance and Performance</i>
9:50am – 10:30 am	Keynote Speaker II: Dr. Ibrahim Al-Jubari Management and Science University, Malaysia Keynote title: <i>Entrepreneurship and MSMEs at the time of the COVID-19 Pandemic: Resilience and Recovery</i>
10:30 am – 10:40 am	Break

ICOMET Presentation Schedule

Day 1: Sunday: July 4, 2021	
10: 40 am – 11:20 am	<p>Keynote Speaker III: Dr. Adnan Aldholay Management and Science University, Malaysia Keynote title: <i>The Rise of Big Data in The Scientific Research Process: Prospect Ahead</i></p>
12:00 pm – 1:00 pm	Break
Session III: Paper Presentations	
Room 6	
1:00 pm – 1:15 pm	<p><i>Fitra Lestari, Rozar Rayendra, Orie Harasakito and Rahmad Kurniaw</i> LEAN HOSPITAL USING WASTE RELATIONSHIP MATRIX.</p>
1:15 pm – 1:30 pm	<p><i>Muhammad Rizki, Farhan Dio Pahlevi, Muhammad Isnaini Hadiyul Umam, Muhammad Luthfi Hamzah and Sutoyo Sutoyo</i> Comparison Four Methods of Time Series Forecasting for Coal Material Supplies (Case Study: PT. PJB UBJ O&M Tenayan)</p>
1:30 pm - 1:45 pm	<p><i>Abdelkader Laallam and Salina Kassim</i> Knowledge Management Awareness and Application in Waqf Institutions: The Perception of Waqf Employees in Algeria</p>
1:45 pm - 2:00 pm	<p><i>Nabil Hussein Al-Fahim, Rawad Abdulgafor and Edres Hamood Qaid</i> Determinants of Banks' Customer's Intention to adopt Internet Banking Services in Yemen: Using the Unified Theory of Acceptance and Use of Technology (UTAUT)</p>

ICOMET Presentation Schedule

Day 1: Sunday: July 4, 2021	
2:00 pm - 2:15 pm	<i>Abdu Saif, Ali Alashwal, Ali Ameen, Saeed Alsamhi, Adeeb Salh and Qazwan Abdullah</i> Infrastructure Sharing and Quality of Service for Telecommunication Companies in Yemen
2:15 pm - 2:30 pm	<i>Behzad Nazari, Ab Razak Che Hussin and Naghmeh Niknejad</i> Connectivism: Panacea for the E-Learning Systems Success
2:30 pm - 2:45 pm	<i>Zubaidah Sadeq Alsaeedi, Nurizah Binti Md. Ngadiran, Zulida Abdul Kadir and Wahid Ali Hamood Altowayti</i> Reading Habits and Attitudes Among University Students: A Review
2:45 pm - 3:00 pm	<i>Ahmad Najmi Amerhaider Nuar, Mohd Zaidi Abd Rozan and Mahadi Bahari</i> Computational Thinking Work System Method: A problem-solving method for small and medium enterprises
3:00 pm - 3:30 pm	Break
3:30 pm - 3:45 pm	<i>Muhammad Saqib Iqbal and Zulhasni Abdul Rahim</i> COVID-19 PARADIGM SHIFT: EXPLORING EFFECTS ON ENTREPRENEURIAL PHASE VENTURES

ICOBBE Presentation Schedule

Day 1: Sunday: July 4, 2021	
Time :	9:10am – 12:00 pm (Yemen/Mecca Time (GMT time + 3))
Zoom link :	https://us02web.zoom.us/j/86170289022?pwd=MGJUU2xxUUU1eUxWZlpmS0hsTWxtZz09
Meeting ID :	861 7028 9022
Passcode :	ICOTEN2021
8:10am – 9:00am	Session I: Opening Ceremony
9:00am-9:10am	Break
Session II: Keynote Speeches	
Room 4	
9:10am – 9:50 am	Keynote Speaker I: Prof. Dr. Khiralah Alghazali Yemen international Hospital (YIH), Yemen Keynote title: <i>Roles of Molecular Diagnostics for the diagnosis of Dengue fever in Taiz-Yemen During war</i>
9:50am – 10:30 am	Keynote Speaker II: Assoc. Prof. Dr. Shafinaz Binti Shahir Universiti Teknologi Malaysia, Malaysia Keynote title: <i>Beneficial Microbes in Environmental Bio-technology : UTM's Experience</i>
10:30 am – 10:40 am	Break

ICOBBE Presentation Schedule

Day 1: Sunday: July 4, 2021	
10:40 am – 11:20 am	<p>Keynote Speaker III: Dr. M. Abu Naser Charles River Laboratory, Chesterford Research Park, Saffron Walden, Cambridge, United Kingdom Keynote title: <i>Biomolecular Modelling and Simulation: A Cheaper of Way of Doing Biology</i></p>
11:20 am – 1:00 pm	Break
Session III: Paper Presentations	
Room 4	
1:00 pm – 1:15 pm	<p><i>Farrah Anuar, Norzila Othman and Wahid Ali Hamood Altowayti</i> Study on ambient concentrations of sulphur dioxide (SO₂) in Universiti Tun Hussein Onn Malaysia (UTHM) Campus Area</p>
1:15 pm – 1:30 pm	<p><i>Asem Abdulqawi Alsofiany and Mohamad Faiz Mukhtar Gunam Resul</i> Epoxidation of Waste Cooking Palm Oil with Peracetic Acid Catalyzed by Sulfuric Acid</p>
1:30 pm - 1:45 pm	<p><i>Mahmood Aldobali and Kirti Pal</i> Bioelectrical Impedance Analysis for Evaluation of Body Composition: A Review</p>
1:45 pm - 2:00 pm	<p><i>Siti Zulaiha Ghazali, Saiyidah Nafisah Hashim, Nur Nadirah Rodzali, Siti Nur Azmu'l Abdullah, Noor Amira Muhammad, Tay Chia Chay and Norrizah Jaafar Sidik</i> Optimization of Plant Hormone and Light Factor in Callus Culture of <i>Clinacanthus nutans</i></p>

ICOBBE Presentation Schedule

Day 1: Sunday: July 4, 2021	
2:00 pm - 2:15 pm	<p><i>Intan Shafinaz Mohamad Jamal, Nurul Syuhada Sahari, Siti Halimah Hasmoni, Zaharah Ibrahim, Nik Ahmad Nizam Nik Malek and Shafinaz Shahir</i></p> <p>Characterization of Bionanocellulose Producing Bacteria Isolated from Tapioca Wastewater</p>
2:15 pm – 2:30 pm	<p><i>Noura Abulail, Mohammed Moreb and Shahrenaz Najjar</i></p> <p>REASONS FOR INCREASING OF IVF TREATMENT IN PALESTINE: CROSS-SECTIONAL STUDY DESIGN</p>

ICOAPS Presentation Schedule

Day 1: Sunday: July 4, 2021	
Time	: 9:10am – 12:00 pm (Yemen/Mecca Time (GMT time + 3))
Zoom link	: https://us02web.zoom.us/j/86170289022?pwd=MGJU2xxUUU1eUxWZlpmS0hsTWxtZz09
Meeting ID	: 861 7028 9022
Passcode	: ICOTEN2021
8:10am – 9:00am	Session I: Opening Ceremony
9:00am-9:10am	Break
Session II: Keynote Speeches	
Room 5	
9:10am – 9:50 am	Keynote Speaker I: Prof. Dr. Rashad Asharabi Najran University, Saudi Arabia Keynote title: <i>Accelerating the Convergence of Various Sampling Series Using a Gaussian Multiplier</i>
9:50am – 10:30 am	Keynote Speaker II: Prof. Dr. Mohamed Nasser Qatar University, Qatar Keynote title: <i>Computation of conformal capacity</i>
10:30 am – 10:40 am	Break
10:40 am – 11:20 am	Keynote Speaker III: Assoc. Prof. Dr. Zaiton Abdul Majid Universiti Teknologi Malaysia, Malaysia Keynote title: <i>Graphene Cellulose Marriage in Wastewater Remediation</i>
11:20 am – 1:00 pm	Break

ICOAPS Presentation Schedule

Day 1: Sunday: July 4, 2021	
Session III: Paper Presentations	
Room 5	
1:00 pm – 1:15 pm	<i>Adnan Alshaer, Ainun Rahmahwati and Badiea Babaqi</i> Biosynthesis of Zinc Oxide Microparticles By Using Palm Oil Leaves Extract
1:15 pm – 1:30 pm	<i>Khairil Azman Masri, Muhammad Faris Mohd Rizam, Ahmad Kamil Arshad, Mohamad Izuddin Saikhon, Shoaib Md Shahnewaz and Rashida Ferdaus</i> Assessing Surface Defects of Flexible Pavement at Parking Lot due to Undesired Utilities of Commercial Vehicles
1:30 pm - 1:45 pm	<i>Khairil Azman Masri, Mohamad Izuddin Saikhon, Ahmad Kamil Arshad, Muhammad Faris Mohd Rizam, Shoaib Md Shahnewaz and Rashida Ferdaus</i> Evaluation of Flexible Pavement Distresses due to Undesirable Commercial Vehicles Activity
1:45 pm - 2:00 pm	<i>Abu Shadate Faisal Mahamude, Wan Saruzi Wan Harun, Kumaran Kadirgama, Kaniz Farhana and Devaranjan Ramasamy</i> Numerical Studies of Graphene Hybrid Nanofluids in Flat Plate Solar Collector
2:00 pm - 2:15 pm	<i>Hamzah Gamal Allozy and Khairil Juhanni Abd Karim</i> Optimization of Synthesis of Poly (vinylbenzyl chloride) by RAFT Polymerisation
2:15 pm – 2:30 pm	<i>Nurin Syazwina Mohd Haniff, Muhammad Khalis Abdul Karim, Nur Syafina Ali and Mohd Amir Abdul Rahman</i> Magnetic Resonance Imaging Radiomics Analysis for Predicting Hepatocellular Carcinoma

ICOAPS Presentation Schedule

Day 1: Sunday: July 4, 2021	
2:30 pm - 2:45 pm	<p><i>Muhammad Khalis Abdul Karim, Siti Fairuz Mohd Radzi, Kamal Izdihar, Hairil Rashmizal Abdul Razak, Nurul Natasya Aresli and Mohd Amiruddin Abdul Rahman</i></p> <p>Detection of Novel Coronavirus From Chest X-Ray Radiograph Images Via Automated Machine Learning and CAD4COVID</p>

ICOSEE Presentation Schedule

Day 1: Sunday: July 4, 2021	
Time :	9:10am – 12:00 pm (Yemen/Mecca Time (GMT time + 3))
Zoom link :	https://us02web.zoom.us/j/86170289022?pwd=MGJUU2xxUUU1eUxWZlpmS0hsTWxtZz09
Meeting ID :	861 7028 9022
Passcode :	ICOTEN2021
8:10am – 9:00am	Session I: Opening Ceremony
9:00am-9:10am	Break
Session II: Keynote Speeches	
Room 3	
9:10am – 9:50 am	Keynote Speaker I: Assoc. Prof. Dr. Mohd Faris Khamidi Qatar University, Qatar Keynote title: <i>The ABCD of Emerging Technology: Intelligent Solution to achieve Sustainable Development Goals</i>
9:50am – 10:30 am	Keynote Speaker II: Assoc. Prof. Dr. Dilshan Remaz Ossen Kingdom University, Bahrain Keynote title: <i>Global Warming? A shift toward a Regenerative Paradigm</i>
10:30 pm – 1:00 pm	Break

ICOSEE Presentation Schedule

Day 1: Sunday: July 4, 2021	
Session III: Paper Presentations	
Room 3	
1:00 pm - 1:15 pm	<i>Salem Mahfoudh Salem Bamatraf and Muhammad Abbas Ahmad Zaini</i> Optimization in a Two-Stage Sorption of Malachite Green by Date Palm Residue Carbon
1:15 pm - 1:30 pm	<i>Abeer Jameel, Ahmed Al-Bdairi and Atheer Al-Nuaimi</i> Improving the geometric characteristics of road infrastructure to reduce the rate of Run-off and Head-on crashes
1:30 pm - 1:45 pm	<i>Tareq Al-Bahr, Othman Che Puan and Sitti Asmah Hassan</i> Statistical Evaluation of Moving Observer Method Accuracy for Measuring Traffic Flow Variables on Urban Roads
1:45 pm - 2:00 pm	<i>Abu Shadate Faisal Mahamude, Wan Saruzi Wan Harun, Kumar Kadirgama, Kaniz Farhana and Devarajan Ramasamy</i> A Short Review of Nano-Cellulose Preparation from Textile Spinning Waste Cotton
2:00 pm - 2:15 pm	<i>Anmol Sachan</i> Proposed contemplations to make current modern cities normally more eco-friendly and sustainable
2:15 pm - 2:30 pm	<i>Narendra Kumar Maurya and Prakash Singh Tanwar</i> Comparative Study of Soil Erosion Factors According to Major Landforms Classification: A Review
2:30 pm - 2:45 pm	<i>Nur Amirah Mhd Noh, Diana Mohamad and Ahmad Hilmy Abdul Hamid</i> Acceptable walking distance accessible to the nearest bus stop considering the service coverage

ICOSEE Presentation Schedule

Day 1: Sunday: July 4, 2021	
2:45 pm - 3:00 pm	<p><i>Anwar Ameen Hezam Saeed, Noorfidza Yub Harun, Suriati Sufian, Aiban Abdulhakim Saeed Ghaleb and Ahmad Hussaini Jagaba</i></p> <p>Removal of Cadmium (II) from Aqueous Solution by Rice Husk Waste</p>



Table of Contents

Organizing Committee	iii
Technical Committee	v
Messages	viii
Keynote Speakers	xii
Conference Program	xxxii
Session Schedule	xxxiv
The International Conference of Intelligent Computing and Informatics (ICOICS 2021)	1
Optimized Non-linear Multivariable Grey Model for Carbon Dioxide Emissions in Malaysia	2
Investigating the Information Security Awareness at Taibah University (TU)	3
Predicting Fall in Elderly People Using Machine Learning	4
Facial Age Estimation using Deep Learning Pre-trained Models	5
Solid Waste Classification Using Deep Learning Techniques	6
Deep Residual Networks Model for Star-Galaxy Classification	7
Lightweight CNN-based Models for Masked Face Recognition	8
Covid-19 Diagnosis Model Using Deep Learning with Focal Loss Technique	9
Software Process Improvement During the Last Decade: A Theoretical Mapping and Future Avenues	10
Emotional behavior analysis based on EEG signal processing using Machine Learning : Case study	11

Table of Contents

Toward Home Automation: An IoT Based Home Automation System Control and Security	12
Wireless Remote Control-Security System for Entrances (WRC-SSE)	13
Detecting Malicious Url Using Neural Network	14
A survey on predicting workloads and optimising QoS in the cloud computing	15
Design of Smart Device for Foot of Diabetic Patient in Malaysia	16
Cloud Computing Security Model Adoption for SMEs in Libya	17
Empathy Map Instrument for Analyzing Human-Computer Interaction in Using Web Search UI by Elderly Users	18
Futuristic Hybrid Image Enhancement Using Fuzzy and Cubic Interpolation Methods	19
Levenberg-Marquardt Backpropagation Neural Network with Tchebychev Moments for Face Detection	20
The Prediction of E-Money Circulation: Backpropagation with Genetic Algorithm Adoption	21
ST-MLR: A Spatio-temporal Multiple Linear Regression Missing Data Reconstruction Approach for Improving WSN Data Reliability	22
Lexicon-Based Sentiment Analysis of Indonesian Language on Islamic Preacher's YouTube Videos	23
A Conceptual Framework for Mixed-language Question Answering System	24
Queuing Theory Approach for NDN Mobile Producer's Rate of Transmission Using Network Coding	25

Table of Contents

Color Matching Based Approach for Robotic Grasping	26
Smart Sensor System for Detection and Forecasting Forest Fire Hotspot in Riau Province Indonesia	27
Authentication of IoT Device and IoT Server Using Security Key	28
An Ensemble Machine Learning Model to Investigate the Screen System for the Identification of Potential COVID-19 Patients in Sudan	29
Brain Tumor Classification using Deep Learning with Residual Attention Network	30
Awareness to Deepfake: A resistance mechanism to Deepfake	31
The Efficiency of mobile E-Wallet in Palestine – Case Study	32
A GIS-based Mobile Application to Improve Tourism Experience: A Case Study of Terengganu, Malaysia	33
Connectivity Framework for Rendezvous and Mobile Producer Nodes Using NDN Interest Flooding	34
Deep learning guided by an ontology for medical images classification using a multimodal fusion	35
Privacy Concerns, IoT Devices and Attacks in Smart Cities	36
A proposed Integrated Medicine Management System Tool based on System, Utilization and Evidence Based Theory for Malaysian Health Information System Optimization	37
Comparison of DBSCAN and PCA-DBSCAN Algorithm for Grouping Earthquake Area	38
Resnet-50 for Classifying Indonesian Batik with Data Augmentation	39
COVID-19 Classification from Chest X-Ray Images using Deep Learning and Resnet-101	40

Table of Contents

Towards a Tunisian earth observation data cube for environmental applications	41
Experiment on Electricity Consumption Prediction using Long Short-Term Memory Architecture on Residential Electrical Consumer	42
An open-source platform to estimate Soil Moisture using Machine Learning Methods based on Eo-learn library	43
Gamification Elements in E-commerce – A Review	44
Big data-based architecture for drought forecasting using LSTM, ARIMA, and Prophet: Case study of the Jiangsu Province, China	45
Hyperspectral Image Processing Between Conventional and Parallel Methods Based GPU	46
The Implementation of Hardware Security Based Zymkey 4i in HDVA	47
Intelligent Methods for Rainfall forecasting in Wadi Al Wala, Jordan	48
JPEG Image Compression Using Multiple Core Strategy in FPGA achieving High Peak Signal to Noise Ratios	49
Cloud Motion Estimation with ANN for Solar Radiation Forecasting	50
Sun Closeness/Clearance Estimation for 3 Different Days	51
A Survey of Prediction-based Routing Protocols for Vehicular Ad-hoc Networks	52
IoT-based Cardiac Healthcare System for Ubiquitous Healthcare Service	53
Intrusion Detection using Machine Learning Techniques: An Experimental Comparison	54

Table of Contents

A Review on Emotional Recognition System Based E-learning: Technology and Challenges	55
Text Mining Life Cycle for a Spatial Reading of Viet Thanh Nguyen's The Refugees (2017)	56
Machine Learning Algorithm Model for Improving Business Decisions Making in Upstream Oil & Gas	57
A New Feature Hashing Approach Based on Term Weight for Dimensional Reduction	58
Sentiment Analysis using Effective Keyword Extraction Algorithm of Twitter Posts on Subject #solatjumaat During MCO in Malaysia	59
Semi-supervised Classification of Hyperspectral Image through Deep Encoder-Decoder and Graph Neural Networks	60
Management of Uncertain Spatial Information	61
Computer Aided Diagnosis System for Early Prediction of Atherosclerosis using ML and K-fold cross-validation	62
Functional and architectural solution of a software package for the analysis of educational data	63
Sentiment Analysis of Arabic Tweets Related to COVID-19 Using Deep Neural Network	64
Diet & Exercise Data Classification using Machine Learning for the Prediction of Obese Patient's Weight Loss	65
Employee Awareness Model to Enhance Awareness of Social Engineering Threats in the Saudi Public Sector	66
A Blockchain Based Secure IoT Solution for Water Quality Management	67
Malaysian Politicians' Connection Pattern on Twitter using SNA: A Case of Najib Razak	68

Table of Contents

Multi-Objective Algorithms for Virtual Machine Selection and Placement in cloud Data Center	69
Improving enterprise performance using agent-based modelling and simulation system driven price optimization	70
Using BGP Features Towards Identifying Type of BGP Anomaly	71
Industry 4.0 Revolution and Challenges in Developing Countries: A Case Study on Pakistan	72
Improving the Performance of Intrusion Detection System through Finding the Most Effective Features	73
Conceptual Paper: Behavioural Intention to Use MOOCs the Moderating Effect of Perceived Openness and Facilitating Condition	74
Implementation of New Message Encryption using Elliptic Curve Cryptography Over Finite Fields	75
New Database of French Computer Science Words Handwritten Vocabulary	76
Voice-Based Deep Learning Medical System for Parkinson's Disease Classification	77
Software Defined Networking based Information Centric Networking: An Overview of Approaches and Challenges	78
Cloud service adoption model in the Libyan e-government implementation	79
A case study in the use of attack graphs for predicting the security of cyber-physical systems	80
The Influence of Sentiments in Digital Currency Prediction Using Hybrid Sentiment-based Support Vector Machine with Whale Optimization Algorithm (Hy-Senti-based SVMWOA)	81

Table of Contents

GuideMe: An Approach based on Global Positioning System and Object Recognition Towards a Smart Tourist Guide	82
Evolution of Target Localization in Wireless Sensor Network (WSN)	83
The International Conference of Advances in Electrical and Electronic Engineering (ICOEEE 2021)	84
38GHz Rectangular Microstrip Antenna with DGS for 5G Applications.	85
Indoor Electrical Installation Design Layout Using IOT	86
Analysis and Design Rectangular Microstrip Patch Antenna for LTE Terminals at 2.6 GHz	87
Design of UWB Antenna for Microwave Imaging using Modified Fractal Structure	88
Optimal Siting and Sizing of D-STATCOM in Distribution System using New Voltage Stability Index and Bat Algorithm	89
Performance Analysis of 4.68 kWh Proposed Grid-Connected PV System in Iraq	90
Experimental study of a real-time control by backstepping technique of an induction motor drive	91
New Algorithm for Elimination of Induction Effect on The Magnitude Of Partial Discharge Current Pulse	92
Investigation The Impact of Partial Discharges Polarity on Reliability Assessment of Insulation Condition in High Voltage Equipment	93
An Optimization of Fractal Microstrip Patch Antenna with Partial Ground using Genetic Algorithm Method	94
Vibration analysis for defective bearings by blind source separation	95

Table of Contents

Construction and Analysis of Dynamic Distribution for Resource Blocks of Real-Time and Data Elastic Traffic in IMS/LTE Networks	96
State Feedback Controller Design for Capacitive Power Transfer System	97
B5G and 6G: Next Generation Wireless Communications Technologies Demand and Challenges	98
IMPROVEMENT OF WIND TURBINE LIGHTNING RECEPTOR	99
A Review of Airborne Landmine Detection Technologies: Unmanned Aerial Vehicle-Based Approach	100
Automatic Facial Age Progression Estimation System	101
Detection of digital image forgery Utilizing combined feature extraction technique	102
Performance Enhancement and Size Reduction of Vivaldi Antenna Using Defected Ground Structure for Active Phased Array Radar Applications	103
Design of High-Performance X-Band Monopulse Comparator for Active Phased Array Radar Applications	104
An X-Band Coupled Lined Based Channel Failure Detection Mechanism for Active Phased Arrays	105
High Efficiency High Gain DC-DC Boost Converter Using PID Controller for Photovoltaic Applications	106
Antenna Installation and Location Qualification on Aircraft using Computational Electromagnetic Tools	107
Design of 15W X-Band GaN Based Transmit / Receive Module for Airborne Active Phased Array Radar Applications	108
Stability Elements and Matching Components of Microwave Amplifier at C-band Frequency: Simulation Study	109

Table of Contents

Performance Analysis of Artificial Neural Network In Detecting Short-Circuit Faults of a Three-Phase Inverter	110
Robust Sensorless Induction Motor Drive based on Extended Kalman Filter Observer	111
A systematic approach for evaluating the accuracy of overhead line fault location using the traveling wave method	112
The International Conference of Advances in Bioscience and Biomedical Engineering (ICOBBE 2021)	113
Study on ambient concentrations of sulphur dioxide (SO₂) in Universiti Tun Hussein Onn Malaysia (UTHM) Campus Area	114
Epoxidation of Waste Cooking Palm Oil with Peracetic Acid Catalyzed by Sulfuric Acid	115
Reasons For Increasing of Ivf Treatment in Palestine: Cross-Sectional Study Design	116
Bioelectrical Impedance Analysis for Evaluation of Body Composition: A Review	117
Optimization of Plant Hormone and Light Factor in Callus Culture of Clinacanthus nutans	118
Characterization of Bionanocellulose Producing Bacteria Isolated from Tapioca Wastewater	119
The International Conference of Advances in Sustainable Environmental Engineering (ICOSEE 2021)	120
Optimization in a Two-Stage Sorption of Malachite Green by Date Palm Residue Carbon	121
Improving the geometric characteristics of road infrastructure to reduce the rate of Run-off and Head-on crashes	122
Statistical Evaluation of Moving Observer Method Accuracy for Measuring Traffic Flow Variables on Urban Roads	123

Table of Contents

A Short Review of Nano-Cellulose Preparation from Textile Spinning Waste Cotton	124
Energy Demand Estimation of Battery Electric Buses Considering Dynamic Wireless Charging Technology	125
Proposed contemplations to make current modern cities normally more eco-friendly and sustainable	126
Comparative Study of Soil Erosion Factors According to Major Landforms Classification: A Review	127
Acceptable walking distance accessible to the nearest bus stop considering the service coverage	128
Removal of Cadmium (II) from Aqueous Solution by Rice Husk Waste	129
The International Conference of Advances in Applied Sciences (ICOAPS 2021)	130
Biosynthesis of Zinc Oxide Microparticles By Using Palm Oil Leaves Extract	131
Assessing Surface Defects of Flexible Pavement at Parking Lot due to Undesired Utilities of Commercial Vehicles	132
Evaluation of Flexible Pavement Distresses due to Undesirable Commercial Vehicles Activity	133
Numerical Studies of Graphene Hybrid Nanofluids in Flat Plate Solar Collector	134
Optimization of Synthesis of Poly (vinylbenzyl chloride) by RAFT Polymerisation	135
Magnetic Resonance Imaging Radiomics Analysis for Predicting Hepatocellular Carcinoma	136
Detection of Novel Coronavirus from Chest X-Ray Radiograph Images Via Automated Machine Learning and CAD4COVID	137



Table of Contents

The International Conference of Advances in Management and Education Technology (ICOMET)	138
LEAN HOSPITAL USING WASTE RELATIONSHIP MATRIX	139
Comparison Four Methods of Time Series Forecasting for Coal Material Supplies (Case Study: PT. PJB UBJ O&M Tenayan)	140
Knowledge Management Awareness and Application in Waqf Institutions: The Perception of Waqf Employees in Algeria	141
Infrastructure Sharing and Quality of Service for Telecommunication Companies In Yemen	142
Connectivism: Panacea for the E-Learning Systems Success	143
An Overview of Reading Habits and Medium Preference Among University Students	144
Computational Thinking Work System Method: A problem-solving method for small and medium enterprises	145
Covid-19 Paradigm Shift: Exploring Effects on Entrepreneurial Phase Ventures	146
Determinants of Banks' Customer's Intention to adopt Internet Banking Services in Yemen: Using the Unified Theory of Acceptance and Use of Technology (UTAUT)	147



The International Conference of Intelligent Computing and Informatics

(ICOICS 2021)

Optimized Non-linear Multivariable Grey Model for Carbon Dioxide Emissions in Malaysia

Assif Shamim Bin Mustaffa @ Sulaiman, Ani Bin Shabri

Department of Mathematical Science, Universiti Teknologi Malaysia, Skudai, Malaysia

assifshamim@graduate.utm.my, ani@utm.my

Abstract. This paper analyses the relationship between carbon dioxide emissions with the energy consumption from the year 2005 to 2014 in Malaysia by introducing an optimized non-linear multivariable grey, NGM(1,N) model by establishing a power exponent term for its subsequent relevant factors. The aim of this research is to improve the existing NGM(1,N) model by solving the effect of non-linear properties which is able to correlate among the consequent factors based on the selection of power exponent optimization. This paper will also introduce the transformed NGM(1,N) known as TNGM(1,N) model that produces a more accurate result compared to NGM(1,N) model that prompted simulated output. The power exponent term value was determined using the generalized reduced gradient (GRG) method in Microsoft Excel Solver. It is proven that the TNGM(1,N) model performs the best and hence it serves as vital information for the government's environmental-related agencies and policymakers to focus on the effort to promote green efficient technology to society at large by reducing the releases of carbon dioxide emissions to the environment..

Keywords: carbon dioxide emissions, energy consumption, optimized non-linear multivariable grey model, grey forecasting

Investigating the Information Security Awareness at Taibah University (TU)

Daniah Anwar Hasan, Linah Faisal Tasji

Information System Department, Computer Science and Engineering College, Taibah University
Medina, Saudi Arabia

Department of Mechatronics and Robotics Engineering, Taiz University, Yemen.
tu4160222@taibahu.edu.sa, tu4160220@taibahu.edu.sa

Abstract. Information is one of the critical assets in every organization. Maintaining these assets and ensuring their security is a challenge, since it is a responsibility for every organization member. One of these challenges is employee, faculty, and student lack of security awareness that could affect the organization's assets. Therefore, this research paper investigates and examines the information security policy awareness in Taibah University's committee and their overall security understanding. A qualitatively method is used to get depth data about TU committee's awareness. An online survey was conducted to measure students, faculty, and other employees' awareness in three topics including, Taibah University security policies, information security crimes, and basic security actions. The findings of the survey show lack of security awareness and mostly between bachelor's students. Therefore, TU institute should improve security education and provide training courses, workshops, and online libraries to raise students' awareness of security. A list of recommendations are proposed to enhance the awareness. This survey will help practitioners understand security awareness challenges and explore new and promising research opportunities in this field. To the best of our knowledge, this paper constitutes the first survey focusing on security policies awareness in TU.

Keywords: Security, Policy, Information Security, Security Awareness, Information Security Policies, ISP, Saudi Arabia.

ABSTRACTS

Predicting Fall in Elderly People Using Machine Learning

Mogeeb A. Saeed, Mohammed Hashem Almourish, Yasmeen Ali Alqady, Hanadi Alsharabi, Haleema Alkhorasani, Samah Alsorori, Ahmed Y. A. Saeed

Faculty of Engineering & IT, Taiz University, Taiz, Yemen

mogeeb1982@gmail.com, mohmedalmourish@gmail.com, yasmeenalqady117@gmail.com,
hanadiqasem12@gmail.com, engsunshine183@gmail.com, samahalsorory719@gmail.com,
ahmed12.12f@gmail.com

Abstract. Fall is a serious health problem, it may threaten the life of many people in general and the life of the elderly in particular. That is why we tried very hard to develop a system to notify the mechanisms of their fall from the lane by monitoring their movement by means of wearable sensors in certain places on their bodies. This paper presents five supervised machine learning algorithms (SVM, Neural Network, Decision Tree, Random Forest, and Naïve Bayes) to predict fifteen falls in the elderly. We compared the five models in terms of performance measures (accuracy, precision and recall), and the Random Forest model achieved the best result with an accuracy of 95.91%. In the future, we plan to improve the results by pre-processing the data for better features and then classifying and predicting them using advanced algorithms in digital image processing and artificial intelligence techniques to build a system that will be able to predict with high speed and accuracy.

Keywords: Acceleration principle, Wearable devices, Machine learning, Elderly People, The fall, Daily activities.

Facial Age Estimation Using Convolution Neural Networks

Abdulfattah E. Ba Alawi, Ahmed Y. A. Saeed

Faculty of Engineering & IT, Taiz University, Taiz, Yemen

baalawi.abdulfattah@gmail.com, ahmed12.12f@gmail.com

Abstract. The techniques of facial age prediction and classification are commonly used in the recent years for vitality applications but are time-consuming. The deep algorithms demonstrated superior efficiency compared to other approaches in order to solve the problem of age estimation. An age classification model is proposed using the mechanisms of deep age estimation in this article. This work introduces an age recognition system that help to classify person image into the suitable aging groups. The proposed model achieved better results in the prediction process with an accuracy reached 85.7%. The main difference between this work and the relevant related works is that this work focuses on highlighting the performance of four pre-trained models three of them have different architectures; ResNet50, ResNet101, Sequeeze1_0, and InceptionV4. In deep age evaluation schemes, we look at previous study initiatives and current common data sets. The parameters for results generally used in the judgment are indicated.

Keywords: Age estimation, Prediction, age grouping, facial aging, CNN.

ABSTRACTS

Solid Waste Classification Using Deep Learning Techniques

Abdulfattah E. Ba Alawi, Ahmed Y. A. Saeed, Ahmed N. Hassan, Fatima Almashhoor, Reem Al-Shathely

Faculty of Engineering & IT, Taiz University Taiz, Yemen

baalawi.abdulfattah@gmail.com, ahmed12.12f@gmail.com ahmedalhassany1@gmail.com,
fatima.almashhoor@gmail.com, reem250130@gmail.com

Abstract. The management of waste is one of the challenging processes that involve different parameters, including environmental, climatic, technical, socio-economic parameters. Such complex problems are highly required to classify waste and optimize traditional methods. Recently, the advance of artificial intelligence (AI) and image processing have led to effective alternative computational approaches for addressing solid waste challenges. Although significant researches have been carried out in this domain, few studies have used deep learning methods to solve diverse solid waste problems. This study proposes an intelligent model to categorize waste with the use of convolutional neural networks. AlexNet, DenseNet121, and SqueezeNet have been implemented for performing the classification tasks. The obtained results showed great success in the classification process. DenseNet121 achieved the best performance with a value of 0.9415 in terms of accuracy

Keywords: Waste Management, Classification, Deep Learning, Solid Waste.

Deep Residual Networks Model for Star-Galaxy Classification

Abdulfattah E. Ba Alawi, Ali A. Al-Roainy

Faculty of Engineering & IT, Taiz University Taiz, Yemen

baalawi.abdulfattah@gmail.com, eng.alialroainy@gmail.com

Abstract. The identification of star-galaxy is one of the primary processing activities for survey astronomy and a basic starting point for scientific study. Due to the importance of astronomy in real-life and the difficulties of identifying stars-galaxy especially with the strong similarities between their lights. In this paper, a CNN-based model is designed to differentiate between stars and galaxies using images. Four residual neural networks model have been used because of the great success of ResNets in image classification tasks. Precisely, four versions of residual convolution neural networks are implemented to evaluate the performance of the proposed model (i.e. ResNet-18, ResNet34, ResNet50, and ResNet152). The obtained accuracy is encouraging with more than 90%. The contribution of this paper mainly relies on evaluating the performance of deep residual networks on classifying star-galaxy and discussing the impact of increasing residual layers on the classification of galaxy-stars.

Keywords: Star, Galaxy, Deep Learning, CNN, ResNet, Astronomy.

Lightweight CNN-based Models for Masked Face Recognition

Abdulfattah E. Ba Alawi¹, Asma Mudhsh Qasem²

¹Software Engineering Departement, Taiz University, Taiz Yemen

²Information Technology Departement, Taiz University, Taiz Yemen

baalawi.abdulfattah@gmail.com, simydlv@gmail.com

Abstract. Covid-19 has become one of the most threatening diseases in the world. Therefore, governments and health organizations asked people to wear masks in order to control the spread of such threatening diseases. During this epidemic, people must obey the rules of wearing masks that play a vital role in controlling the Covid-19 outbreak. In order to identify the persons who do not wear the mask, an automated recognition system is discussed in this paper. This model automatically detects masked faces using deep learning techniques; TensorFlow, and Keras. The proposed method effectively differentiates between masked faces and unmasked faces to help governments, companies, and organizations monitoring and detecting who broke the rule of wearing masks. The implementation of this model is based on three pre-trained models; MobileNetV2, DenseNet, and NASNetMobile. In terms of accuracy, MobilenetV2 reached 0.9859, while DenseNets and NASNetMobile reached 0.9852 and 0.9758 respectively. The main contribution of this paper is to present the feasibility of using a lightweight model (i.e. NasNetMobile) that can be implemented even on low resource devices (i.e. mobile) to recognize masked faces efficiently.

Keywords: Masked face detection, Covid-19, Artificial Intelligence, Pandemic's technical solution, Deep Learning, CNN, NASNetMobile

Covid-19 Diagnosis Model Using Deep Learning with Focal Loss Technique

Ahmed Y. A. Saeed, Abdulfattah E. Ba Alawi

Faculty of Engineering & IT, Taiz University Taiz, Yemen

ahmed12.12f@gmail.com, baalawi.abdulfattah@gmail.com

Abstract. Coronavirus is an extreme virus, which spreads by human contact, now affects more than two hundred countries across the world. In comparison, new coronavirus signs are very close to the general seasonal influenza. The screening of infected people in the war against COVID-19 is seen as a crucial move. Since the positive case prediction tools of COVID-19 are not widely usable, the need for diagnostic support tools has increased. It is also of high priority that promising cases are identified earlier as possible to guarantee that this disease does not spread further. In this study, a deep learning model has been designed to diagnose Covid-19 with focal loss technique to overcome the imbalanced dataset. The results of these models have been evaluated using accuracy, recall, precision, and F1 score. The best performance achieved using the focal loss technique reached an accuracy of 89.41%, a recall of 92.6%, and a precision of 86.62%.

Keywords: Covid-19 Screening, AI, Deep Learning, Diagnosis.

ABSTRACTS

Software Process Improvement During the Last Decade: A Theoretical Mapping and Future Avenues

Ammar Al-Ashmori, P.D.D Dominic, Shuib Basri, Amgad Muneer, Ebrahim Ghaleb and Qasem Al-Tashi

Department of Computer & Information Sciences, Universiti Teknologi PETRONAS, Seri Iskandar, Malaysia

ammam_18003398@utp.edu.my, dhanapal_d@utp.edu.my, shuib_basri@utp.edu.my, qasem_17004490@utp.edu.my, muneeramgad@gmail.com, ebrahim_18003342@utp.edu.my,

Abstract. Studies have been conducted in Software process improvement (SPI) for decades. These studies discussed different aspects related to SPI like small and medium enterprise (SME), critical success factors, and gamification. Some researchers conjectured that typical SPI is progressively put into the backdrop. Nevertheless, no methodical study was found utilizing bibliometric analysis of the SPI studies to further explore the related research in this domain. This paper presents a summary of the SPI recent studies collected from “Web of Science” database. VOSviewer was used with bibliometric analysis technique to visualize the literature contained in our study scope. As a result, six clusters were found converged on these fundamental thematic sections: SME, Capability Maturity Model Integration (CMMI), critical success factors, Agile, gamification, and knowledge management. Recommendations are provided in this paper for future research on SPI based on the present gaps. Serving as R&D guidance to the SPI research community.

Keywords: Software process improvement, bibliometric analysis, Web of Science, VOSviewer

Emotional behavior analysis based on EEG signal processing using Machine Learning : Case study

Salim Klibi, Makram Mestiri and Imed Riadh Farah

RIADI Laboratory, University of Manouba, Tunisia

salim.klibi@ensi-uma.tn, mmestiri@gmail.com, riadh.farah@ensi.rnu.tn

Abstract. Based on a well-known benchmark, a comparison between the present study and the literature was carried out. This paper investigates a variety of Machine Learning (ML) and Deep Learning (DL) algorithms for classifying emotional events using EEG brainwave data. The contribution of this paper occurs in the data processing phase more precisely at the classification level to predict human emotions either positive, neutral, or negative from EEG signals after applying several algorithms and techniques. According to Bird's findings, RF augmenting with InfoGain information outperforms Adaptive Boosted LSTM, Adaboosted MLP, and nonboosted DEvo MLP. During the classification phase, we used different classifiers such Random Forest (RF), XgBOOST, NaiveBayes (NB), Decision Tree (DT), Linear RegressionCV (LRCV), Support Vector Machine (SVM), Linear Regression (LR), and Convolutional Neural Networks (CNN) to improve classification performance. They attained an overall accuracy of around 96,88%, 96,41%, 95,47%, 94,06%, 90,00%, 89,06%, 88,91%, and 52,66% respectively. As a result, we find that InfoGain consistently improves RF's performance in dealing with data and outperforms other classifiers. On the other hand, the inefficiency of CNN can be explained by the lack of a big amount of data.

Keywords: Emotional behavior state recognition and classification, Artificial intelligence, Cognitive neuroscience, Brain- Computer Interface BCI, EEG signal processing

ABSTRACTS

Toward Home Automation: An IoT Based Home Automation System Control and Security

Faris Alsuhaym¹, Tawfik Al-Hadhrani², Faisal Saeed³ and Kenny Awuson-David⁴

¹Electronics Engineering, Technical and Vocational Training Corporation, Samtah Technical College, Samtah, Saudi Arabia

²School of Science and Technology, Nottingham Trent University, Nottingham, UK

³College of Computer Science and Engineering, Taibah University, Medina, Saudi Arabia

⁴The Office of Gas and Electricity Markets (Ofgem), London, United Kingdom

f.alsuhaym@tvrtc.gov.sa, tawfik.al-hadhrani@ntu.ac.uk, fsaeed@taibahu.edu.sa,
kenny.awuson-david@ofgem.gov.uk

Abstract. Smart home systems using smart devices are designed to improve users' lives, making homes' security and safety more automated, and adding extra features such as remote home surveillance and environmental control. This paper introduces a smart home framework using the Internet of Things (IoT) platform. Controls for on/off state of lamps, fans, and irrigation pumps in the smart house have been implemented, together with a remote monitoring system for temperature and humidity. An IoT platform (ThingSpeak) with Blynk Application has been used for remote monitoring of appliances in a home and to interact with these appliances in the case of certain conditions being met, together with a mobile application. Home security and fire systems have also been involved in this work. Several scenarios have been implemented for testing and evaluating the IoT smart home system. The findings show a high performance for the designed system.

Keywords: Home Automation, Security, IoT, ThingSpeak, Blynk App

Wireless Remote Control-Security System for Entrances (WRC-SSE)

Abdullah Alanazi, Tawfik Al-Hadhrami, Faisal Saeed and Kenny Awuson-David

¹Department of Electronic Engineering, Hafar Al-Batin College, Technical and Vocational Training Corporation (TVTC), Riyadh, Saudi Arabia

²School of Science and Technology, Nottingham Trent University, Nottingham, UK

³College of Computer Science and Engineering, Taibah University, Medina, Saudi Arabia

⁴The Office of Gas and Electricity Markets (Ofgem), London, United Kingdom

a.alenezil@tvtc.gov.sa, tawfik.al-hadhrami@ntu.ac.uk, fsaeed@taibahu.edu.sa,
david@ofgem.gov.uk

Abstract. A Wireless Remote-Control Security System for Entrances (WRC-SSE) has been designed based on face recognition and a microprocessor built-in GSM unit's core concept, a safety device which recognizes and enables face recognition for entering an organisation or multi-structure building has been involved to supply and store this database during fires and serious incidents, also containing the GSM with strong covering network infrastructure. Zigbee and the Internet of Things (IoT) have been used in this work. The WRC-SSE is designed to provide access to a remote user from anywhere in the world through a GSM network. The concepts are based on facial recognition systems and the theory of biometric applications. Roborealm software has been used and made sophisticated enough to detect and alert the client of any violation of safety in their territory. This system observes, the MX20 Microprocessor Board, if any of an important component of the Global Mobile Communications System (GSM), was conceived. An automatic live door for contact -free home protection has been achieved through this work.

Keywords: Control-Security System for Entrances, MX20, IoT, GSM, Zigbee, Face Recognition

Detecting Malicious URI Using Neural Network

Jumana H. Ateeq and Mohammed Moreb

Computer Science, Arab American University Palestine (AAUP), Ramallah, Palestine

jumanaabed@gmail.com, moreb.mohammad@gmail.com

Abstract. The increasing usage of internet, the network is facing different dangerous attacks. Phishing attacks represent a threat for internet user because attackers are tending to design web pages very easily, attacks are done by inserting executables or SQL injections to steal user's sensitive information. In this research, we demonstrated how digital signature can improve URL detection. Also, we showed an effective steps organization can do to enhance their security over user's usage and data. Therefore, it's very important to develop new approaches for URL detection. Our paper presents the Malicious URL cyber-attacks by introducing a method for Malicious detection of URLs using Neural Network to classify the URLs according to its type, either normal or malicious. The use of neural network to detect malicious attacks is used by using feed-forward network and apply CICANDMAL2017 to it.

Keywords: Malicious attacks, URL, Neural Network, Cyber Attack

ABSTRACTS

A survey on predicting workloads and optimising QoS in the cloud computing

Omar Aloufi¹, Karim Djemame², Faisal Saeed¹ and Fahad Ghaban¹

¹Information Systems department, College of Computer Science and Engineering at Taibah University, Medina, Saudi Arabia

²School of Computing, University of Leeds, Leeds, United Kingdom

oofi@taibahu.edu.sa K.Djemame@leeds.ac.uk fsaeed@taibahu.edu.sa
fghaban@taibahu.edu.sa

Abstract. This paper presents the concept and characteristics of cloud computing, and it addresses how cloud computing delivers quality of service (QoS) to the end-user. Next, it discusses how to schedule one's workload in the infrastructure using technologies that have recently emerged such as Machine Learning (ML). That is followed by an overview of how ML can be used for resource management. Then, this paper aims to outline the benefits of using ML to schedule upcoming demands to achieve QoS and conserve energy. In addition, we reviewed the research related to ML methods for predicting workloads in cloud computing. It also provides information on the approaches to elasticity, while another section discusses the methods of prediction used in previous studies.

Keywords: Cloud Computing; Optimising Quality of Service (QoS); Resource management

ABSTRACTS

Design of Smart Device for Foot of Diabetic Patient in Malaysia

Ahmad Baihaqi Ghazali, Yi Ming Chong and Mohamad Tarmizi Abu Seman

School of Electrical and Electronic Engineering, University Science of Malaysia Engineering Campus, Nibong
Tebal, Penang, Malaysia

Abaihaqi6329@gmail.com, choongyiming@gmail.com, mohdtarmizi@usm.my

Abstract. A diabetic smart device is a smart insole that is exclusively developed for diabetic patients in Malaysia. This device focuses on displaying the foot plantar pressure of its user and the temperature of the foot through smartphone. Diabetic foot wounds are caused by uncontrolled activity and repetitive stress to the foot that can cause some damage to the skin. Hence, this device aims to limit its user in certain amount of pressure while they are doing other activities. User can download Blynk application in their smartphone and connect it with the device via Bluetooth. The system provides the wearer with real-time warning message that allows them to take actions immediately in keeping their feet healthy as well as preventing from diabetic foot ulceration. In this work, the pressure with temperature data from foot plantar has been displayed via smartphone and the feedback system that can warn the user has been completed. In conclusion, the smart insole system has gone through several testing and it needs some improvement in ensuring good stability and accuracy of the hardware used in future works.

Keywords: diabetic smart device, pressure, temperature, diabetic foot ulceration

ABSTRACTS

Successful Adoption of Cloud Computing Security Model for SMEs in Libya

Abdulhafid Bughari Abdulkarim, Abdullah Khalifa Mohamed Hamad and Mansour Khalifa Hamad Mohamed

Bright Star University Albrega, Libya

hafid.huson@bsu.edu.ly, abduallahkshareef@gmail.com, Nashshad11@gmail.com

Abstract. Cloud computing system facilitates the promotion of the convenient on demand networks that include application services, servers, networks, and storage devices. It is becoming significant to have the cloud computing security system as the issues related to the security still appear to be unsolved. Therefore, the utilization of the technological advances is essential for the organizations in Libya. The key purpose of this paper is to incorporate cost effectiveness, IT compliance, and security effectiveness for the successful adoption of the Cloud Computing security system in Libyan companies. At the moment, there is a shortage of the guidelines for the adoption of the Cloud Computing and building the trust. Thus, this study focuses on the examining different theories and identifying the new integrated theoretical framework accordingly for the adoption of the Cloud Computing in general, specifically in Small and Medium Enterprises (SMEs) in Libya.

Keywords: Cloud computing, IS adoption, SMEs

Empathy Map Instrument for Analyzing Human-Computer Interaction in Using Web Search UI by Elderly Users

Khalid Krayz Allah¹, Nor Azman Ismail¹ and Hisham Elrobaa²

¹School of Computing, Faculty of Engineering, Universiti Teknologi Malaysia (UTM), Malaysia, Johor Bahru, Malaysia

²Data Analysis Department, College of Accountancy, University of Gharyan, Gharyan, Libya

Allah.khalid@graduate, utm.my azman@utm.my, hisham_elrobaa@gu.Edu.Ly

Abstract. Since elderly users lack intellectual ability, which becomes less due to age factor their interactions with computer interfaces exhibit limitations essentially arising from problems inherent to their age. This is due to the minimal cognitive flow, physical impairments, and lack of knowledge about computers and technologies. All these factors are often analyzed by employing qualitative and quantitative research methods. The empathy map tool was used as the qualitative analysis method in this research study. To address this study objective, the study target group was elderly people 60 years and above, and the group consists of 15 volunteers, with seven females and eight males. Age is the only factor in this study. The test used in this study is the usability test to do seven search tasks by using Google engine and seven different search tasks with Bing engine individually by each volunteer. The observation method and note-taking are used in this study to collect data. Also, a SUS questionnaire was used to be a validation method to prove the results obtained by the empathy map instrument. The result of the empathy map tool enables to explore, understand, and empathize, from the perspective of the elderly user and their interaction with search engines; more specifically, with the Google and Bing interface. The results of the empathy mapping method show that the elderly are dissatisfied with the usability of search interfaces, which is consistent with the findings of the SUS questionnaire.

Keywords: Human-Computer Interaction; Elderly; Empathy Mapping; Google Engine; Bing Engine; Web Search Interface

Futuristic Hybrid Image Enhancement Using Fuzzy and Cubic Interpolation Methods

Mukesh Pandey

Computer Science and Engineering, Chandigarh University, Punjab, India

sitmukesh@gmail.com

Abstract. Contrast enhancement is a significant image processing operation to improve the images taken with a poor camera or poor environmental conditions. Contrast enhancement can be completed through a spatial domain by mapping the original intensity level to an enhanced intensity level. However, most methods are based on applying complex mathematical interpolation to find the enhanced intensity level. We propose a hybrid fuzzy logic-based intensity mapping along with cubic interpolation method to find the best intensity level mapping. The fuzzy interpolation reduces complexity and enhances image intensity as a local optimization method, while cubic interpolation smooths the image as a global optimization method. We run several experiments using a benchmark dataset, and we show an enhancement of our integrated model with more than 52% over spline interpolation and 8% over fuzzy interpolation.

Keywords: Color contrast enhancement, Fuzzy logic, Image processing, integrated solution

Face Recognition – Extensive Survey and Recommendations

Ali Nadhim Razzaq¹, Rozaida Ghazali¹, and Nidhal Khedhair El Abbadi²

¹Faculty of Computer Science and Information Technology, Universiti Tun Hussein Onn Malaysia, Malaysia.

²University of Kufa, Education College, Department of Computer Science, Iraq

gi180013@siswa.uthm.edu.my, rozaida@uthm.edu.my, nidhal.elabbadi@uokufa.edu.iq

Abstract. Nowadays, the digital environment is a fast-growing and potential realm of the world. Human verification and identification can be done online. Face recognition is the competitive method and best biometric modality for human identification and recognition in comparison to voice, iris, thumb, ear, hand, and retina scans. This is a potential emerging area that required sophisticated research in both academics and industry to think of a few powerful face detection strategies making it quite possible in computer vision. Also, it's a very challenging research area because of unconstrained environments. Though most of the existing research has provided promising solutions, some of the algorithms find it difficult to yield results under different unconstrained conditions such as lighting, expression, illuminate, pose variation, low resolution, and occlusion. This paper provides a detailed review of the past as well as current research techniques and highlights the drawbacks. Especially the model, pattern, manual, and automated feature extraction techniques have been reviewed extensively and their drawbacks are highlighted. Additionally, the performances of face recognition on the standard datasets are analyzed. Finally, recommendations are provided to overcome the existing problem faced during the time of face recognition, which will help to improve the research in the future.

Keywords: Support vector machine, Face recognition, Deep learning, convolutional neural network, Features, Classification

The Prediction of E-Money Circulation: Backpropagation with Genetic Algorithm Adoption

Elvia Budianita, Okfalisa Okfalisa and Muhammad Rizki Assiddiki

Department of Informatics Engineering Universitas Islam Negeri Sultan Syarif Kasim Riau, Pekanbaru,
Indonesia

ahmed12.12f@gmail.com, baalawi.abdulfattah@gmail.com

Abstract. Digital transformation forces the utilization of e-money during the economic transaction. Behind its advantages, e-money has been influenced by the inflation rate, thus accelerating the country's money circulation. Moreover, the fragile Covid-19 economy triggers each country's need to anticipate the circulation of e-money to deter future inflation. Therefore, this paper deployed the Backpropagation approach integrated with the Genetic Algorithm to forecast the dissemination of e-money in Indonesia by exploiting time-series Bank Indonesia (BI) data from January 2009 to December 2019. Here, 120 data with 12 variables are considered to thoroughly predict the Year 2020 circulation focusing on the previous 12 months. This study reveals that e-money circulation in Indonesia is increasing monthly in 2020. The testing result shows that the lowest mean square error (MSE) is found at 0.000035 for data training division at 90%:10%, learning rate parameter at 0.8, the combination of crossover probability and mutation at 0.4:0.6, and the total generation and population at 350 and 200, respectively. In a nutshell, Backpropagation with a Genetic Algorithm has been expected to a successful outcome for e-money circulation and provides large values compared with actual data and original BPNN.

Keywords: Backpropagation, genetic algorithm, e-money circulation forecast, prediction, artificial neural network

ST-MLR: A Spatio-temporal Multiple Linear Regression Missing Data Reconstruction Approach for Improving WSN Data Reliability

Yemeni Zaid, Bo Zhang, Waleed Ismael, Yingjuan Xie, Ammar Zahary and Haibin Wang

Collage of IoT Engineering, Hohai university, Changzhou, China

yemenizaid@hhu.edu.cn, 1172148370@qq.com, wlaeed.m@hhu.edu.cn, yjxie@hhu.edu.cn,
aalzahary@gmail.com wanghaibin@hhuc.edu.cn

Abstract. Missing data is one of the unavoidable issues in Wireless Sensor Networks (WSNs) due to various reasons, including communication failure, unreliable communication links, unexpected damage, etc. WSNs are the base of many critical and non-critical applications, such as nuclear applications, medical applications, weather forecasting, etc. Therefore missing data reconstruction before their application or further analysis plays a vital role in data reliability. This paper proposed a missing data reconstruction approach based on the Multiple Linear Regression model (MLR) using Spatio-temporal correlation. The experimental results reveal that the proposed approach is effective and efficient in reconstructing missing data of different scales..

Keywords: Data Reconstruction, Missing data, Multiple Linear Regression (MLR), Spatio-temporal correlation, Data Reliability

Indonesian Lexicon-Based Sentiment Analysis of Online Religious Lectures Review

Rahmad Kurniawan¹, Fitra Lestari¹, Abdul Somad Batubara², Mohd Zakree Ahmad Nazri³,
Khairunnas Rajab⁴ and Rinaldi Munir⁵

¹Department of Informatics Engineering, Faculty of Science and Technology, Universitas Islam Negeri,
Pekanbaru, Indonesia

²Sultan Syarif Kasim Riau, Visiting Professor, Universiti Islam Sultan Sharif Ali, Bandar Seri Begawan, Brunei
Darussalam

³Center for Artificial Intelligence Technology (CAIT), Faculty of Information Science and Technology,
Universiti Kebangsaan Malaysia, Bangi, Selangor, Malaysia

⁴Faculty of Psychology, Universitas Islam Negeri Sultan Syarif Kasim Riau, Pekanbaru, Indonesia

⁵School of Electrical Engineering & Informatics, Institut Teknologi Bandung, Bandung, Jawa Barat,
Indonesia

Abstract. Online videos platforms such as YouTube is the most popular social media platform in terms of user numbers in Indonesia. YouTube is also one of the most popular online platforms for accessing religious lectures. Users can provide feedback on the videos through comments, likes, and shares. On the other hand, sentiment analysis in the Indonesian language is getting popular, but few have tapped the vast unstructured data source on YouTube. Comments and reviews from viewers are valuable feedbacks for improvements. The review on YouTube is an essential resource to be analyzed by a preacher. However, manual analysis of YouTube reviews is complicated due to a large amount of review data. Therefore, this study aims to analyze sentiment on YouTube video reviews. In this paper, we employed the Lexicon and Latent Dirichlet Allocation (LDA) to analyze a total of 2575 review data. In this case study, we mined YouTube user's review to understand the netizen's opinion on a famous Islamic Preacher in South East Asia, namely Ustadz Abdul Somad (UAS). We employed the Google Apps Script (GAS) with Javascript coding language to crawl YouTube review data. Based on the results, the lexicon method successfully analyzed sentiments with an accuracy of 70%. Furthermore, 98% of YouTube users gave positive reviews on the UAS videos lecture. This study is a stepping stone for more complex sentiment analysis regarding text pre-processing and algorithm robustness.

Keywords: Lexicon-based, Latent Dirichlet Allocation, sentiment analysis, Ustadz Abdul Somad, Natural Language Processing, Islamic preacher

A Conceptual Framework for Mixed-language Question Answering System

Hui Ting Lim, Sharin Hazlin Huspi and Roliana Ibrahim

School of Computing, Faculty of Engineering, Universiti Teknologi Malaysia, Johor, Malaysia

htlim4@graduate.utm.my, sharin@utm.my, roliana@utm.my

Abstract. Mixed language has turned into a current trend of language which refers to combining two or more languages either in spoken or written form. It has been widely used in social media forums to improve communication and for a greater range of expression. The current question answering (QA) system only supports monolingual queries, which restricts the capability of multilingual users to have a natural interaction with the system. In recent years, there has been a rise of interest in multilingual QA systems where translation models merged with machine learning algorithms in question classification are the commonly used solution. However, using words from other languages in a single sentence has led to the problem of the inability to identify code-switch from the monolingual sentence; this has also caused the problem of limited captured language context from machine translation processed mistranslated questions. The informal mixed-language representation that disobeys the natural linguistic rule in particular languages provides a challenge for automated QA systems, as the systems would need to translate and extract answers for the given questions. Additionally, lack of public resources such as Chunker, POS Tagger, and WordNet for mixed-language, especially for Malay-English, leads to low performance of the translation and classification model. Furthermore, the use of machine learning algorithms in question classification requires a large number of structured training data to ensure performance. This is impracticable in the Malay-English mixed-language domain since the availability of the mixed-language dataset is still an issue. To solve these problems, we aim to propose a framework consisting of the combination of enhanced translation models with deep learning; by using Convolutional Neural Networks (CNN) to address the Malay-English mixed-language question classification to generate the best answer. The first part will study the machine translation model, where word-level language identification and text normalization towards Malay-English mixed-language questions will be developed. The second part will focus on the deep learning algorithm, where we will explore CNN as the classification model to assist in the translated questions to provide the best answer. Thus, in this paper, a framework consisting of an enhanced translation model for Malay-English, and also an end-to-end mixed-language question answering system for the Malay-English Q&A system, is presented. This research will provide a significant contribution to a multilingual forum platform and also to intelligent Q&A systems (chatbots)

Keywords: Text Analytics, Code-Switching, Malay-English Translation, Text Normalization, Deep Learning, Question-Answering System

Queuing Theory Approach for NDN Mobile Producer's Rate of Transmission Using Network Coding

Muhammed Zaharadeen Ahmed¹, Aisha Hassan Abdallah Hashim¹, Othman Omran Khalifa¹, Raed Ali Alsaqour², Rashid Abdelhaleem Saeed³ and Abdulkadir Hamidu Alkali⁴

¹Dept. of Electric and Computer Engineering, International Islamic University Malaysia, Kuala Lumpur, Malaysia

²College of Computing and Informatics Saudi Electronic University, Riyadh Branch, Kingdom of Saudi Arabia

³Computer Engineering, Computers and Information Technology (CIT), Taif University (TU), Al Huwaya, Taif 26571, Saudi Arabia

⁴Department of Computer Engineering, University of Maiduguri, Maiduguri, Nigeria

zaharadeen22@unimaid.edu.ng, aisha@iiu.edu.my, khalifa@iiu.edu.my,
raed.ftsm@gmail.com, eng_rashid@hotmail.com, ahalkali@unimaid.edu.ng,

Abstract. — Nowadays, Internet has become a crucial part of everyday life in areas of academic research, healthcare, military, commercial industries, transportation, and entertainment. The Internet-work was not invented for its present-day state of operation. Numerous limitations are currently emerging in terms of Internet performance, mobility, scalability, dependability, security, and service quality. In this paper we consider real time network application for voice and video, both having variable bitrate sources. A mobile producer is solely responsible to direct the traffic to a specified destination, either in one network or different. For voice traffic, a constant bitrate (CBR) is generated in real time during a talkspurt. During this generation interval, a small amount of traffic is transmitted in a period of silent pause. For video traffic, the bitrate is changed because video coding form is altering due to time interval. Also, the visible image in the proposed video application varies due to network coding application. In the results, performance analysis is measured due to amount of time spend in each cell residence and signalling cost between mobile producer and rendezvous node as a definite destination. We conducted simulation coding in ndnSIM 2.1 and performance analysis using Python. Simulation output present better results compared with other benchmarked research.

Keywords: Bitrate, Coding, Node Python, Talkspurt, Rendezvous and Signaling

Color Matching Based Approach for Robotic Grasping

Marwan Qaid Mohammed, Lee Chung Kwek, Shing Chyi Chua and Esmail Ai Alandoli

Faculty of Engineering and Technology, Multimedia University (MMU), Melaka, Malaysia

marwan.qaid.mohammed@gmail.com, lckwek@mmu.edu.my, scchua@mmu.edu.my,
alandolie@yahoo.com

Abstract. Object grasping is a basic but difficult task in robotic manipulation due to various object size, shapes and other properties. The problem becomes more challenging when the robot has to reach for and grasp a particular object in cluttered environments. To this end, the color of object can be one of the important features for identifying the target object to be picked up. In this paper, we investigate an approach of training a robot so that it is able to locate the target object by matching its color, and goes on to pick up the object in an unsupervised learning manner. The proposed approach is divided into two parts: 1) a semantic segmentation module that locates the target object by segmenting the color image and creates a mask on the predicted target object, 2) an object pose estimation module that predicts the optimal grasp position of target object based on a deep reinforcement learning framework. The proposed approach was evaluated with various testing scenarios of handling single and multiple colored target objects. The experimental simulation results indicate that the suggested approach achieves an overall success rate of 92% in the grasping task.

Keywords: Robotic Grasping; Semantic Segmentation; Reinforcement Learning; Color Detection

ABSTRACTS

Smart Sensor System for Detection and Forecasting Forest Fire Hotspot in Riau Province Indonesia

Evizal Abdul Kadir¹, Mahmod Othman² and Sri Listia Rosa¹

¹Department of Informatics Engineering, Universitas Islam Riau, Pekanbaru, 28284 Indonesia

²Fundamental Applied Science Dept., Universiti Teknologi Petronas, Seri Iskandar, Perak, 32610 Malaysia

evizal@eng.uir.ac.id, mahmod.othman@utp.edu.my, srilistiarosa@eng.uir.ac.id

Abstract. Indonesian is one of the countries in a tropical region, in the summer season normally high temperature and hot environmental then forest and forest fire happened. This is because most of the land in Indonesia is peatland and forestry area, especially in Sumatera and Kalimantan island. Worst when it has a huge impact on the local economy, environment, flora, fauna and human health. As reported, millions of people have suffered from respiratory problems, which some have died and in serious health conditions. This research aims to prevent more casualties, providing detection and forecasting as well as warning on fires as alert to the community and representative institution. Furthermore, the research discusses on developing a smart sensing system for the ground level to do monitoring and forecasting. Several types of sensor used based on fire basic parameters such as temperature, humidity, gasses and carbon sensor to measure value in the open environment. Arduino microcontroller and algorithm introduce to the system to achieve smart monitoring system and filtering noise data from the sensors. Mathematical model and analysis applied in this system to do forecasting for the future and estimate number of hotspots in the area of forest in Riau Province. The information based on sensing and analysis as well as forecast data forward to the respective institution or government agency for further action.

Keywords: Smart Sensing, Forest Fire, Detection, Forecasting, Riau Indonesia

Authentication of IoT Device and IoT Server Using Security Key

Wael Alnahari and Mohammad Tabrez Quasim

College of Computing & Information Technologies, University of Bisha, Bisha, Saudi Arabia

master@wjn.sa, tabrezquasim@gmail.com

Abstract. IoT is an emerging topic in the field of IT that has attracted the interest of researchers from different parts of the world. Authentication of IoT includes the establishment of a model for controlling access to IoT devices through the internet and other unsecured network platforms. Strong authentication of IoT is necessary for ensuring that machines and devices could be trusted when it comes to data sharing. The whole idea of authentication further prevents cybercriminals from using loopholes in IoT devices to access data that they are not allowed to access. Various authentication techniques could be used to secure IoT servers and devices. Establishing mutual authentication between IoT servers and IoT devices has attracted a lot of research interests because it helps enhance the effectiveness and overall security of data sharing. Therefore, this research provides the basis for analyzing the whole idea of using security keys to encrypt both IoT servers and IoT devices.

Keywords: Unsecured Network Platforms, Mutual Authentication, Security Key, Internet Of Things

An Ensemble Machine Learning Model to Investigate the Screen System for the Identification of Potential COVID-19 Patients in Sudan

Ali A. Adam¹, Nihad A. A. Elhag², Fakhreldeen Abbas Saeed¹, Mohamed Yagob³, Fayha Mohamed⁴, N. Eassa¹, Hanaa S. Abdalaziz¹, M. A. Ahmed⁵, and Sharief F. Babiker⁶

¹Al-Neelain University, Khartoum, Sudan

²University of Electronic Science and Technology of China (UESTC), Chengdu, China

³African Institute for Mathematical Sciences, Rwanda

⁴Heriot-Watt University, UK

⁵National Ribat University, Basic Sciences Department, Khartoum, Sudan

⁶Africa City of Technology, Khartoum, Sudan

aliabdallah@neelain.edu.sd, nihadabdelhameed@gmail.com, fasaheed@neelain.edu.sd,
mohamed.yagob@aims.ac.rw, fm98@hw.ac.uk, nash.eassa@gmail.com,
hanaasameeh@gmail.com, marmaroma@gmail.com, s.babikir@virgin.net

Abstract. This study aims at designing an ensemble Machine Learning Model to serve as a screening system to predict the potential of COVID-19 infection. according to specific parameters, it considers an online survey filled by 5966 participants from Khartoum City since Khartoum was under quarantine. Major statistical approaches were implemented as data cleaning, performing feature selection using Random Forest algorithm to elect the proper features, and finally, building the model on two parts: the first one used K-mode clustering algorithm whereas the second utilized Support Vector Classifier (SVC). The features included symptoms, age, underlying conditions, geographical location, the period of the symptoms, close contact with someone who has confirmed a case of coronavirus, and the number of deaths among the family members. The results indicated that the overall accuracy of the K-mode Part was 71 %; however, the sensitivity to predict cases as negative was 77%, while the accuracy of SVC Part was 76 %. The identity between predictions of the two Parts was 79%. The work concluded that the symptoms in the proposed Screen system – considering the highest weight- appeared as following: Fatigue, Headache, Fever, Gastrointestinal Disorders, Anosmia, Dry Cough, Short of Breath, and Chest Pain, respectively.

Keywords: COVID-19, K-mode Clustering, Machine Learning, Support Vector Classifier

ABSTRACTS

Brain Tumor Classification using Deep Learning with Residual Attention Network

Abdulrazak Yahya Saleh and Sashwini Thiagaraju

FSKPM Faculty, Universiti Malaysia Sarawak (UNIMAS), Kota Samarahan, Sarawak, Malaysia

ysahabdulrazak@unimas.my, sashuwini1997@gmail.com

Abstract. The main goal of this paper is to evaluate the performance of deep learning with Residual Attention Network (RAN) for brain tumour classification. Digitalised Magnetic Resonance Image (MRI) datasets obtained from Malaysian hospitals and other sources are utilised in this paper. The MRI datasets consist of information of those patients who are 20 years old and above, both male and female. The RAN algorithm is trained and tested using the MRI datasets. The algorithm performance is evaluated based on training accuracy, testing accuracy, validation accuracy, and validation loss metrics. Moreover, a comparative analysis is done with Residual Neural Network (ResNet) and Convolutional Neural Network (CNN) using the same datasets. The findings from this study prove that RAN provides the best performance among the three algorithms. ResNet has good performance, with an accuracy ranging from 67% to 87%. The standard CNN algorithm does not perform well, with a very inconsistent accuracy of between 57% and 71%. RAN produces the highest and most consistent accuracy, which is 94% and above. Further explanation is provided in this paper to prove the efficiency of RAN for the classification of brain tumours.

Keywords: Brain tumour, classification, deep learning with Residual Attention Network, MRI dataset

ABSTRACTS

Awareness to Deepfake: A resistance mechanism to Deepfake

Mohammad Faisal Bin Ahmed¹, M Saef Ullah Miah², Abhijit Bhowmik³ and Junaida Binti Sulaiman⁴

¹Department of Informatics Technical University of Munich Munich, Germany

²Faculty of Computing University Malaysia Pahang Pekan, Malaysia

³Faculty of Science and Technology American International University-Bangladesh

⁴Faculty of Computing University Malaysia Pahang Pekan, Malaysia

faisalbin@outlook.com, md.saefullah@gmail.com, abhijit@aiub.edu,
junaida@ump.edu.my

Abstract. The goal of this study is to find whether exposure to Deepfake videos makes people better at detecting Deepfake videos and whether it is a better strategy against fighting Deepfake. For this study a group of people from Bangladesh has volunteered. This group were exposed to a number of Deepfake videos and asked subsequent questions to verify improvement on their level of awareness and detection in context of Deepfake videos. This study has been performed in two phases, where second phase was performed to validate any generalization. The fake videos are tailored for the specific audience and where suited, are created from scratch. Finally, the results are analyzed, and the study's goals are inferred from the obtained data.

Keywords: Deepfake, Deepfake awareness, Artificial Intel- ligence, Cyber Crime, Deepfake study

The Efficiency of Mobile E-Wallet in Palestine – Case Study

Adnan I. Ibrahim¹, Osama Hamda², Mohammed Moreb³

¹Oversight of Payment System Unit, Palestine Monetary Authority, PMA, Ramallah, Palestine

²Information Technology Department, Safa Bank, ITD-SB, Ramallah, Palestine

³Department of Natural Engineering and Technology Sciences, Arab American University Palestine, Ramallah, Palestine

a.ibrahim7@student.aaup.edu , o.hamda@student.aaup.edu ,
moreb.mohammad@gmail.com

Abstract. The needs of consumers have changed in light of the rapid spread and use of the internet around the world, which led to the development of electronic payment methods in light of the global technological development that facilitated and accelerated payment procedures and the transfer of money between people, including the electronic wallet and mobile phone applications. electronic payment has become the backbone of the electronic commerce market because of its huge potential and positive effects in the commerce market, where the contemporary young generation of this technological development is the most important pioneer in the use of these means, despite the preference of many of the use of traditional payment methods because they believe that they are safer and their fear of losing money and not The ability to use it in all aspects of life. Despite the recent use of the electronic wallet in Palestine, the results of this paper show that we can rely on it as a means of payment in Palestine, but it needs more efforts to encourage people to use and more work to change the culture by focusing on the advantages of using the electronic wallet because of its The advantages and the ability to help manage the budget, reduce the costs of transportation and storage of cash used in the Palestinian market.

Keywords: E-Wallet, E-Payment, Technological globalization

A GIS-based Mobile Application to Improve Tourism Experience: A Case Study of Terengganu, Malaysia

Ashley Wang Sze Mei¹, Pee Ling Hong¹, Pantea Keikhosrokiani¹, Chong Hui Xin¹, Tan Xue Ying¹
and Narimah Samat²

¹School of Computer Sciences, Universiti Sains Malaysia, Minden 11800, Penang, Malaysia
School of Humanities

²Universiti Sains Malaysia, Minden 11800, Penang, Malaysia

ashleywangsm@student.usm.my

Abstract. Geographic Information Systems (GIS) is a system that gathers and analyzes data related to positions on Earth's surface. It can be used in different ways like mapping, navigation, tourism development, etc. The purpose of the study is to develop a GIS-based application to improve the tourism experience in Terengganu. A multi-step method was used to develop the GIS-based application in this study. The first step is planning the data field and selecting hardware and software. The next step is data acquisition which collects data for the area of interest and stores the data into a local database. Data validation is done to prevent system or result error. Then, the database is designed and analyzed to determine the most suitable database model and apply Dijkstra's algorithm in the system. Finally, GIS is developed, and the analyzed data is overlaid on the map to give the tourist a clear picture or information on the tourists' area of interest by displaying more detailed attributes.

Keywords: Geographic Information System, Mobile Application, Location-based Services, Tourism, Dijkstra's Algorithm

Connectivity Framework for Rendezvous and Mobile Producer Nodes Using NDN Interest Flooding

Muhammed Zaharadeen Ahmed¹, Aisha Hassan Abdallah Hashim¹, Othman Omran Khalifa¹, Rashid Abdelhaleem Saeed², Raed Ali Alsaqour³ and Abdulkadir Hamidu Alkali⁴

¹Dept. Of Electric and Computer Engineering, International Islamic University Malaysia, Kuala Lumpur, Malaysia

² Computer Engineering, Computers Information Technology (CIT), Taif University (TU), Al Huwaya, Taif 26571, Saudi Arabia

³College of Computing and Informatics, Saudi Electronic University, Riyadh Branch, Kingdom of Saudi Arabia

⁴Department of Computer Engineering, University of Maiduguri, Maiduguri, Nigeria

zaharadeen22@unimaidd.edu.ng, aisha@iiium.edu.my, khalifa@iiium.edu.my,
eng_rashid@hotmail.com, raed.ftsm@gmail.com, ahalkali@unimaidd.edu.ng

Abstract. Named Data Networking is a promising application of Information Concentric Networking. More research is required to improve NDN mobility especially when Interest and Data contents are flooded during transmission. In named data networking framework, data integrity and security are highly guaranteed due to its nature of operation. Although, Information Concentric Networks are to some extent vulnerable to some form of Denial of Service (DoS) attacks. these attacks are mostly Interest Flooding Attacks. In this paper, a scalable solution that is capable of moderating complex interest flooding framework for rendezvous and producer nodes mobile routes is implemented by simulation. The simulation involves mobile producer (MP) transmission between the two interfaces (in-out bound) on a network. We further adopt the use an efficient protocol known as the Listen First Broadcast Later for Interest content as they are transmitted by consumer in search for data between nodes of producer and rendezvous in motion. Our implementation ensures preventing attackers at both ends of the links without affecting non attacking consumers and producers. The protocol depends on the mobile producer's Data content reply and use a fix rate adaptation to initiate secured handoff. Simulation results in ndnSIM 2.1 and Wireshark present successful implementation of the producer to rendezvous scalable content delivery between the links.

Keywords: Connectivity, Interest, Data, Flooding consumers, producers, ndnSIM and Wireshark

Deep Learning Guided by an Ontology for Medical Images Classification Using a Multimodal Fusion

Hela Yahyaoui¹, Fethi Ghazouani² and Imed Riadh Farah¹

¹RIADI Laboratory, National School of Computer Science, Tunisia

²INSERM-LIMICS, Sorbonne University, Paris, France

yahyaoui.hela92@gmail.com, fethi.ghazouani@inserm.fr, riadh.farah@ensi.rnu.tn

Abstract. Brain tumor is regarded as one of the most perilous diseases, with Glioma being the most prevalent form of primary brain tumor. Brain tumor classification, by playing the part of a treatment guide, makes diagnosis easier by providing acquisition tools for medical imagery providing various modalities that are fused for brain tumor classification. Therefore, to perform this task, existing works fuse either 2D brain MRI image slices or 3D brain images. In this paper, we propose a novel semantic method for MRI brain tumor classification using a multimodal fusion of 2D and 3D MRI images. The proposed method raises two major challenges: the semantic classification and the fusion of 2D and 3D images. It consists of three levels: preprocessing, classification, and fusion. The preprocessing level has a considerable impact on the results. At the classification level, we used two deep learning models and two heterogeneous datasets. The DenseNet model is used to classify 2D brain images into three brain tumor categories (Glioma, Meningioma, and Pituitary tumor). The 3D-CNN model is designed for glioma grading (High/Low-grade glioma) using the 3D brain images. At the fusion level, we used specific-domain ontology to perform the fusion of the output classes. The evaluation of the proposed approach on the test set has shown good results and the classification accuracy rate reached 92.06% and 85% for DenseNet and 3D CNN models respectively and 100% at the fusion level.

Keywords: Brain tumor classification, Multimodal fusion, MRI modalities, Deep learning, 3D-CNN, Ontology

Privacy Concerns, IoT Devices and Attacks in Smart Cities

Wael Alnahari and Mohammad Tabrez Quasim

College of Computing & Information Technologies, University of Bisha, Bisha, Saudi Arabia

master@wjn.sa, tabrezquasim@gmail.com

Abstract. The advancement of technology and wide adoption of the Internet of Things (IoT) across the board will soon make the smart city a reality. Many governments are currently planning on rapidly transforming their cities into smart cities, while others are currently building new smart cities. These smart cities demand the installation of millions and in some cases billions of devices across the cities, homes and other institutions and different embedded systems and networks. Combined, these systems produce tons of data that can be used in different contexts. For the most part, proponents of smart cities reference the benefits of this implementation such as improved user experiences and security associated with improved monitoring capabilities. However, there have been concerns regarding privacy and how these capabilities can be misused by governments, private corporations, and malicious attackers. A potential solution to improve privacy while not infringing upon security is to implement blockchain technology which uses a combination of consensus and encryption algorithms. This paper will discuss the use of a fully homomorphic algorithm to encrypt data in such a way that maintains the user's privacy and allows them complete control over their data.

Keywords: Privacy, IoT Devices, Attacks, Smart Cities

ABSTRACTS

A proposed Integrated Medicine Management System Tool based on System, Utilization and Evidence Based Theory for Malaysian Health Information System Optimization

Rabbia Alamdar¹, Allan Mathews² and Sharanjit Kaur¹

¹Quest International University, Ipoh, Malaysia

²Faculty of Pharmacy, Quest International University, Ipoh, Malaysia

sf_rabbiaalamdar@qiup.edu.my, allan.mathews@qiup.edu.my,
sharanjit.kaur@qiup.edu.my

Abstract. A Health Information System (HIS) refers to a system designed to manage healthcare data. This includes systems that collect, store, manage and transmit a patient's Electronic Health Record (EHR), a hospital's operational management, or a system supporting healthcare policy decisions. Despite the significance of HIS, the espousal rate of HIS in Malaysian public hospitals is very low, and the current implemented HIS are not integrated and have different features. After analyzing the current HIS, an Integrated Medicine Management System (IMMS) in the form of the system tool is proposed to optimize the Malaysian HIS that covers the issues, provides the centralization of data. It is based on three theories namely system, utilization, and evidence-based theory to improve the health outcome for each patient. It can help to improve the performance of the practitioner as it shows an evidence-based alert on the prescriber's screen if there is an issue with the medicine.

Keywords: Integrated Medicine Management System, Malaysian Health Information System, System Theory, Evidence-Based Theory, Utilization Theory.

Comparison of DBSCAN and PCA-DBSCAN Algorithm for Grouping Earthquake Area

Mustakim¹, Emi Rahmi¹, Mediantiwi Rahmawita Mundzir¹, Said Thaufik Rizaldi¹, Okfalisa² and Idria Maita³

¹Departement of Information System, Puzzle Research Data Technology (Predatech), Universitas Islam Negeri Sultan Syarif Kasim Riau, Pekanbaru, Riau, Indonesia

²Departement of Informatic Engineering, Universitas Islam Negeri Sultan Syarif Kasim Riau, Pekanbaru, Riau, Indonesia

³Departement of Information System, Universitas Islam Negeri Sultan Syarif Kasim Riau, Pekanbaru, Riau, Indonesia

mustakim@uin-suska.ac.id, emi.rahmi@students.uin-suska.ac.id,
mediantiwi.rahmawita@uin-suska.ac.id, 11753101376@students.uin-suska.ac.id,
okfalisa@uin-suska.ac.id, idria@uin-suska.ac.id

Abstract. Geologically, the territory of Indonesia is where the three active tectonic plates meet which are always moving and colliding with each other, resulting in earthquakes, volcanic pathways, and faults. Earthquake is a natural disaster that cannot be avoided or prevented, but the consequences of earthquakes can be minimized. Based on data obtained from Meteorology, Climatology and Geophysics Agency (MCGA), earthquakes often occur in Indonesia. Data obtained from earthquakes can be grouped to map the area of earthquake occurrence and an analysis will be carried out to determine the characteristics of earthquake clustering areas. The clustering in this study is conducted with two experiments, first experiment is Density-Based Spatial Clustering of Applications with Noise (DBSCAN) without dimensional reduction and second experiment is DBSCAN clustering with dimensional reduction using Principal Component Analysis (PCA). The best cluster results can be found by calculating the value of Silhouette Index (SI) of each cluster. From the two experiments, the highest SI value was obtained in experiment using PCA, which was 0.4137. Then the second experiment was used as the best cluster results with the highest Dept and Magnitude features in clusters 19 and 17 which showed the 5 main regions where earthquakes often occur are Sumatra, Banda Sea, Moluccan Sea, Irian Jaya and Sulawesi.

Keywords: Climatology and Geophysics Agency, DBSCAN, DBSCAN-PCA, Earthquake Area, PCA.

ResNet-50 for Classifying Indonesian Batik with Data Augmentation

Benny Sukma Negara, Eki Satria, Suwanto Sanjaya and Dimas Reynaldi Dwi Santoso

Informatics engineering, State Islamic University of Sultan Syarif Kasim of Riau, Pekanbaru, Indonesia

bsnegara@uin-suska.ac.id, eki.satria@students.uin-suska.ac.id,
suwantosanjaya@uin-suska.ac.id, dimas.reynaldi.d.s@students.uin-suska.ac.id

Abstract. Batik is composed of various artistic images and patterns, which are called batik motifs. The diversity of batik motifs is influenced by the culture of a region which has a philosophical meaning. Indonesia as a country of cultural diversity has unique batik motifs in each region. Manual identification of batik motifs requires special knowledge and experiences from experts. Various methods are applied to classify images, among others is the Convolutional Neural Network (CNN) method. This study classifies batik images by applying deep learning using the Convolutional Neural Network (CNN) method with ResNet architecture. The number of original batik image dataset consists of 300 images with 50 classes. Augmentation process produce 1200 new image with the same number of classes. Testing scenario compare the accuracy between original data and augmented data with ratio 80:20 for data training and testing. The confusion matrices shows the model provides the highest accuracy performance at 96%.

Keywords: Batik, CNN, Data Augmentation, ResNet

COVID-19 Classification for Chest X-Ray Images using Deep Learning and Resnet-101

Dimas Reynaldi Dwi Santoso, Benny Sukma Negara, Suwanto Sanjaya and Eki Satria

Informatics engineering, State Islamic University of Sultan Syarif Kasim of Riau, Pekanbaru, Indonesia

`dimas.reynaldi.d.s@students.uin-suska.ac.id`, `bsnegara@uin-suska.ac.id`,
`suwantosanjaya@uin-suska.ac.id`, `eki.satria@students.uin-suska.ac.id`

Abstract. The catastrophic spread of the COVID-19 virus has begun in December 2019 which first originated in Wuhan, China and spread rapidly throughout the world. The way to break the chain of spread of the virus is by detecting it using a tool called swab and polymerase chain reaction (PCR), but the price of these tools is expensive and the waiting time is long relatively. This study uses Deep learning as an image recognition method with CNN architecture. X-ray images are used as material to identify infected patients with COVID-19 or normal. The total number of x-ray images is 2562 which is divided into 2 classes, positive and normal. The COVID-19 x-ray image will also use CLAHE preprocessing and two sets of data that will be used as deep learning training materials, original data and CLAHE preprocessing data. The training process is conducted using CNN with the Resnet-101 architecture. the experiment divided the data with the ratio of training data and test data of 80:20. The confusion matrix shows the proposed method provides the highest classification performance with 99.61% accuracy, 99.62% sensitivity and 99.60% specificity.

Keywords: Covid-19, Citra X-ray, Deep Learning, Convolutional Neural Networks, Transfer Learning.

Towards a Tunisian Earth Observation Data Cube for Environmental Applications

Manel Rhif, Ali Ben Abbes, Farah Chouikhi, Nouredine Jarray and Imed Riadh Farah

RIADI Laboratory, National School of Computer Sciences, La Manouba, Tunisia

manel.rhif@ensi-uma.tn, ali.benabbes@yahoo.fr, chouikhi_farah@yahoo.fr,
jarraynouredine@gmail.com, imedriadh.farah@isamm.uma.tn

Abstract. The analysis of environmental applications become a crucial global concern due to the continuous change in natural resources (climatic change, anthropogenic change, etc). Recently, a wide range of free and open accessible remote sensing earth observation (EO) data are investigated. However, these data still underutilized due to their complexity, volume, veracity, velocity, variety which make users spend an amount of effort into data preparation. To realize the full information potential of EO data, creative tools must be built to reduce the time and scientific expertise necessary to access and process these data. To deal with these challenges, Analysis Ready Data (ARD) are exploited to store big EO data on a formal and structured basis with modest hardware and low clouds expenses. Nevertheless, ARD necessitates a degree of knowledge that the majority of users is limited. Thus, the EO Data Cube (DC) is a modern concept that aims to make it a reality. In this paper, we propose a Tunisian EO Data Cube (TDC). The proposed TDC architecture is composed of four parts. The first and second part consists of data collection and ARD and multidimensional data cubes building from remote sensing EO data for Tunisia. Then, different web services are developed to create, integrate, discover, access, and process the data sets. Finally, various applications were presented such as vegetation change analysis based on machine learning methods.

Keywords: Analysis-ready data; Data cubes; Image time series analysis; Machine learning;.

Experiment on Electricity Consumption Prediction using Long Short-Term Memory Architecture on Residential Electrical Consumer

Nur Shakirah Binti Md Salleh¹, Azizah Suliman¹ and Bo Nørregaard Jørgensen²

¹Department of Computing, Universiti Tenaga Nasional, Kajang, Malaysia

²Center for Energy Informatics, Mærsk Mc-Kinney Møller Institute, Odense, Denmark

shakirah@uniten.edu.my, azizah@uniten.edu.my, bnj@mmmi.sdu.dk

Abstract. Renewable energy is an alternative for carbon-intensive energy sources that reduce global warming emissions. The electricity demand prediction helps to predict the consumption patterns on the demand side. The historical dataset of electricity usage is an essential source required to perform electricity prediction. This paper proposed the addition of independent variables that includes special days or holidays, weekend, seasons, and daylight duration into the basic electricity usage dataset that helps to increase the prediction accuracy. There were two datasets used in this study, basic electricity usage dataset that consists of date, time, and usage features, and extended electricity usage dataset that consists of the basic and independent variables features. Each dataset produced one model, basic model and extended model, respectively, from the training sessions conducted. The basic electricity usage dataset model was used as a benchmark to evaluate the quality of the model with extended features, extended model. Long-Short Term Memory (LSTM) was the selected machine learning architecture due to its ability to solve the regression problem in time series. All models produced were evaluated using two evaluation metrics, mean squared error (MSE) and mean absolute error (MAE). The application of the proposed methodology, LSTM with the proposed extended features had the lowest error rate with an MSE value of 0.1238 and an MAE value of 0.0388. These results showed that adding independent variables into the dataset improved the model generated from the training session.

Keywords: Electricity usage, prediction, LSTM, time-series

ABSTRACTS

An Open Source Platform to Estimate Soil Moisture Using Machine Learning Methods Based on Eo-Learn Library

Nouredine Jarray, Ali Ben Abbes, Manel Rhif, Farah Chouikhi and Imed Riadh Farah

RIADI Laboratory, National School of Computer Sciences, La Manouba, Tunisia

jarraynouredine@gmail.com, ali.benabbes@yahoo.fr, manel.rhif@ensi-uma.tn,
chouikhi_farah@yahoo.fr, imedriadh.farah@isamm.uma.tn

Abstract. Soil moisture (SM), is an important hydrologic variable that controls the interactions between land surface and atmosphere. It leads to the quantification of the quantity of water in the soil. Earth observation provides satellite data with high spatial and temporal resolution that is a key component for the estimated SM. Several Machine learning (ML) methods are used to estimate SM. In this paper, we present a platform open source to estimate SM based on Eo-learn library. The platform is developed in a complete sequence from the download of the sentinel-1A and sentinel-2A images, pre-processing, feature extraction and application of the ML models for the generation of the targeted SM data based on the Eo-learn architecture. In this work, we apply this platform to estimate SM in southern Tunisia, using the annual satellite images Sentinel-1A and Sentinel-2A from 2016 to 2017.

Keywords: Sentinel-1A & 2A; Earth Observation; Machine Learning (ML); Soil Moisture (SM); Eo-learn

Gamification Elements in E-commerce – A Review

Lina Fatini Azmi, Norasnita Ahmad and Noorminshah A. Iahad

Azman Hashim International Business School, Universiti Teknologi Malaysia, Johor Bahru, Malaysia

linafatini@graduate.utm.my, norasnita@utm.my, minshah@utm.my

Abstract. The implementation of gamification is driven by a range of factors, including the environment of the application, the elements involved and the types of users. The best practical method for effective gamification application still remains unclear, making it difficult to determine the most effective elements for an e-commerce website. This paper aims to present the literature review conducted to classify the gamification elements in e-commerce that have been investigated in previous studies which were published within the last four years (2018-2021). This is done to identify the most appropriate and relevant gamification elements to use in our future study. The findings from previous studies showed that gamification improved positive consumer behaviour in e-commerce, particularly in terms of engagement, and at the same time helped to boost business profitability. Furthermore, previous studies in this field have also found that rewards, badges and leaderboards were the most widely used gamification elements. This study may be used as a foundation for the researchers to build and develop a gamification framework for e-commerce in the future.

Keywords: Gamification, gamification elements, e-commerce, review.

ABSTRACTS

Big Data Based Architecture for Drought Forecasting Using LSTM, ARIMA, And Prophet: Case Study Of The Jiangsu Province, China

Hanen Balti¹, Ali Ben Abbes¹, Nedra Mellouli², Yanfang Sang³, Imed Riadh Farah¹, Myriam Lamolle² and Yanxin Zhu³

¹RIADI Laboratory, University of Manouba Manouba, Tunisia

²LIASD Laboratory University of Paris 8 Paris, France

³Key Laboratory of Water Cycle and Related Land Surface Processes, Institute of Geographic Sciences and Natural Resources Research, Chinese Academy of Sciences, Beijing, China

hanen.balti@ensi-uma.tn, ali.benabbes@yahoo.fr, n.mellouli@iut-univ-paris8.fr,
sangyf@igsnr.ac.cn, imedriadh.farah@isamm.uma.tn, m.lamolle@iut.univ-paris8.fr,
zhuyx.18s@igsnr.ac.cn

Abstract. Drought disasters significantly affected human life and water resources. Therefore, forecasting methods like statistical models, machine learning, and deep learning architectures help scientists to take effective decisions to decrease the effects of natural disasters by providing decision-making plans. Droughts can be forecasted using meteorological indices like the standardized precipitation evapotranspiration index (SPEI), which aid governments in taking drought-prevention steps. In this paper, we present a big drought architecture for drought modeling and forecasting. The proposed architecture is composed of 5 layers: Data collection, data preprocessing, data storage, data processing and interpretation, and decision making. Besides, we present a comparative study between three different methods ARIMA, PROPHET, and LSTM for drought forecasting. Five different metrics are used for the performance evaluation Root Mean Squared Error (RMSE), Coefficient of determination (R²), and Mean Squared Error (MSE). Experiments are carried out using data from the province of Jiangsu. Results revealed that LSTM outperformed the other models, and ARIMA outperformed the PROPHET model.

Keywords: Data analytics, Big data, Drought, Long-Short Term Memory, ARIMA, PROPHET, SPEI

Proposed Architecture for Hyperspectral Image Parallel Processing Methods Based on GPU

Amira Ayadi¹, Mongi Boulehmi² and Imed Riadh Farah¹

¹RIADI Laboratory, National School of Computer Science, ENSI Manouba, Tunisia

²VPNC Laboratory, University of Legal Sciences, Economics and Management Sciences of Jendouba, University of Jendouba, Jendouba, Tunisia

amiraayadi124@gmail.com, mongiboulehmi@gmail.com, imedriadh.farah@isamm.uma.tn

Abstract. With the development of remote sensing technology, the analysis of hyperspectral images (HSI) is becoming more and more complex. Dimension reduction, unmixing and HSI classification constitute important research contents. Those techniques have achieved good results but the richness of the spatial and spectral information of HSI increases, inevitably, the complexity of the treatments. That's why we think that this challenge can be, therefore, met by parallelizing and distributing the process using GPUs and "big data" tools. This paper reviews conventional algorithm of dimension reduction (SVM, ACI...), unmixing (ACP...) and classification (KNN, SVM...) and studies the importance of parallelization to make the task of HSI analysis more efficient and more adaptable.

Keywords: HSI, dimension reduction, unmixing, classification, parallelizing and distributing, GPU, big data

The Implementation of Hardware Security Based Zymkey 4i in HDVA

Rizzo Mungka Rechie¹, Yusnani Mohd Yussoff¹, Lucyantie Mazalan¹ and Suhairi Mohd Jawi²

¹Faculty of Electrical Engineering, Universiti Teknologi Mara Shah Alam, Shah Alam, 40450 Selangor, Malaysia

²Cybersecurity Malaysia, Menara Cyber Axis, Jalan Impact, 63000 Cyberjaya, Selangor, Malaysia

`mungkarizzo@gmail.com, yusna233@uitm.edu.my, lucyantie@uitm.edu.my, suhairi@cybersecurity.my`

Abstract. Technology advancement has made the life of electronics users much easier. During the pandemic, the usage of a smart assistant is found to be useful and convenient in everyday task or reminder. The electronics consumers who want their everyday life to be more convenient, they sacrifice the needs of a basic cybersecurity in their everyday electronic usage. Home Digital Voice Assistant (HDVA) that comes without a monitor can pose a threatening privacy issue towards the user. This research is to provide a countermeasure to the malicious attack towards the HDVA. The result of this implementation shows that Zymkey 4i is feasible in protecting the Raspberry Pi from being tampered by using the device 'binding' method from Zymkey 4i.

Keywords: voice assistant, IoT, cybersecurity, raspberrypi, malware

Intelligent Methods for Rainfall Forecasting in Wadi Al Wala, Jordan

Mohammad Al-Fawa'Reh¹, Alaa Hawameh², Rana Alrawashdeh³ and Muosa Tayseer Jafar⁴

¹Yarmouk University Irbid, Jordan

²University of Jordan, Amman, Jordan

³Jordan University of science and technology, Irbid, Jordan

⁴Princess Sumaya University for Technology. Amman, Jordan

fawareh@yu.edu.jo, alahawamdeh@gmail.com, ranadrdr1987@gmail.com,
mou20178003@std.psut.edu.jo

Abstract. Increasing water scarcity and rising demand throughout the Middle East and North Africa pose a major problem, and flood forecasting has been an open issue for a long time, attracting significant attention. Jordan seeks to use smart methods to solve the problem. Therefore, a real-world case study was conducted in Wadi al Wala for real-time rainfall forecasting and flood control, using 38 years of daily data from 13 rain gauge stations in the region. Different Machine Learning (ML) models were evaluated with various input information types to provide predictions in an almost real-time schedule. Preliminary tests showed that the decision tree (DT) and random forest (RF) techniques achieved the best generalized flood forecasting. In particular, the model was able to produce forecasts at any time, with the use of a mixture of meteorological parameters (relative humidity, air pressure, wet bulb temperature, and cloudiness), the precipitation at the forecasting point, and precipitation at the appropriate stations as input data, and the advanced ML model to be used with continuous data containing rainy and non-rainy cycles. Experiments showed the dominance of DT forecasts over those produced by the persistent model.

Keywords: Flood forecasting, Rainfall forecasting, machine learning, Wadi Al Wala, decision tree, random forest.

JPEG Image Compression Using Multiple Core Strategy in FPGA achieving High Peak Signal to Noise Ratios

Umar Anjum¹, Ahmed Hussain¹, Channa Babar Ali², Umer Afzal³, Israr Hussain⁴, Abdulfattah Noorwali⁵ and Syed Aziz Shah⁶

¹Department of Avionics Engineering, College of Aeronautical Engineering, Risalpur, NUST, Pakistan

²Department of Avionics Engineering Air University, Aerospace & Aviation Campus, Kamra, Pakistan

³Department of Avionics Engineering, Air University, Aerospace & Aviation Campus, Kamra, Pakistan

⁴Director Academics, National University of Sciences & Technology, Islamabad, Pakistan

⁵Department of Electrical Engineering, Umm Al-Qura University, Makkah, Saudi Arabia

⁶Research Centre for Intelligent Healthcare, Coventry University, UK

umar2472@hotmail.com, ahmedhussain16611@gmail.com, babar.aly1@gmail.com,
umer.afzal320@gmail.com, asrarhussain@yahoo.com, amnoorwali@uqu.edu.sa ,
syed.shah@coventry.ac.uk

Abstract. Field Programmable Gate Arrays are increasingly becoming an integral part of modern embedded system designs because of their ease of implementation, flexibility and unparalleled processing power capability. Taking into consideration these capabilities, a compression algorithm has been implemented on an FPGA (Xilinx Spartan 3A 3400 Kit) while the decompression part has been carried out on a Personal Computer (PC). The transmission between FPGA and PC has been done through Ethernet interfacing. Decompressor has been designed in MATLAB to decompress the data acquired through FPGA while the compression algorithm used is based on JPEG. Three different images have been considered for the test case purposes. Likewise, three resolutions of each image have been used for compression in FPGA and subsequent decompression using MATLAB in PC. Multiple cores strategy has been incorporated in the FPGA to speed up the compression process. The pictorial representation of each decompressed image viz-a-viz original image has been carried out. The Peak Signal to Noise Ratio (PSNR) and Mean Square Error (MSE) have been calculated for each set of resolution for comparing image compression quality. The graphical representation of Mean square Error for all resolutions of each image separately has been depicted.

Keywords: FPGA, Compression, Decompression, Xilinx, MATLAB, JPEG

Cloud Motion Estimation with ANN for Solar Radiation Forecasting

Ardan Hüseyin Eşlik, Emre Akarslan and Fatih Onur Hocaoglu

Electrical Engineering, Afyon Kocatepe University, Afyonkarahisar, Turkey

ardanhuseyineslik@gmail.com, eakarslan@gmail.com, fohocaoglu@gmail.com

Abstract. The most critical issue in integrating solar energy into the electricity grid is the variability of solar energy. Cloud cover and motions are the most fundamental factors in the formation of this variability. In the related study, a 167-degree camera is placed in the main campus area of Afyon Kocatepe University, and sky images are recorded at regular intervals. Using the obtained images, cloud motion estimations are made for a 10 second time horizon at a 1 second time scale. Firstly, within the scope of this purpose, the points to be tracked by the Shi-Tomasi algorithm were determined. Then, using the Lucas-Kanade optical flow algorithm, the points found are followed on sequential images. Finally, cloud motion estimations are obtained using the Feed Forward Backpropagation Artificial Neural Network. The results obtained showed that the approach could be used successfully in cloud motion estimation.

Keywords: Cloud Motion Estimation, Lucas-Kanade Optic Flow, Shi-Tomasi Corner Detector

Sun Closeness/Clearance Estimation for 3 Different Days

Ardan Hüseyin Eşlik, Emre Akarslan and Fatih Onur Hocaoglu

Electrical Engineering, Afyon Kocatepe University, Afyonkarahisar, Turkey

ardanhuseyineslik@gmail.com, eakarslan@gmail.com, fohocaoglu@gmail.com

Abstract. With the need for clean and sustainable energy, solar energy use has increased significantly in recent years. However, power fluctuations due to solar energy variability are among the main challenges in using photovoltaic systems. One of the most critical factors that cause these fluctuations is the clouds that block the sun's radiation. In this study, the motions of clouds are tracked, and the motions they could take in the future are estimated. Thus, in the short term, it has been tried to determine the moments when sudden solar radiation changes may occur by estimating the closeness and clearance of the sun. For this purpose, firstly, sky images are collected at regular intervals with the help of a digital camera placed in the main campus area of Afyon Kocatepe University. The Shi-Tomasi algorithm determines the points to be tracked on the collected sky images. Then, the points determined by using the Lucas-Kanade optical flow algorithm are tracked on sequential images. By analyzing the clouds' motions, the clouds with the risk of obstructing the sun are detected, and the motion estimations are made using the calculated direction and speed information. Finally, due to the experiments performed on datasets obtained from 3 different days, sun closeness/clearance estimations at the 1-second resolution at 120 seconds time horizon are reached. The obtained results showed that the approach could be used successfully in cloud motion estimation in different cloudy conditions.

Keywords: Renewable Energy, Solar Energy, Cloud Motion Forecasting, Lucas-Kanade Optical Flow, Shi-Tomasi Corner Detection

ABSTRACTS

A Survey of Prediction-based Routing Protocols for Vehicular Ad-hoc Networks

Sidra Rashid, Muazzam Ali Khan Khattak and Ali Saeed

Department of Computer Science, Quaid-e-Azam University, Islamabad, Pakistan

nssidra.rashid@gmail.com, muazzam.khattak@qau.edu.pk, alisaheed101@gmail.com,
Hamzachaudary20@gmail.com

Abstract. Vehicular Ad-hoc network (VANET) is a type of Mobile Ad-hoc network (MANET), where vehicle mobility is high and topology changes are frequent. VANETs have many applications in Intelligent Transportation System (ITS) e.g. traffic safety, vigilance control, and active prediction and infotainment applications. Routing in VANETs has emerged as an interesting topic due to popularity of vehicle-to-vehicle (V2V) and vehicle to infrastructure (V2I) communication. Due to frequent topology changes in VANETs, a topology independent protocol is desired to predict collisions and route failures. In this paper, we provide recent research progress from 2015-2020 in prediction based routing for VANETs. For this purpose, we have followed Kitchenham guidelines to survey research articles, performed classification based on their evaluation parameters and explored their applications. The research challenges have been identified for prediction-based routing. This paper provides a quick review of recent predictive protocols designed for VANETs.

Keywords: Prediction-based routing protocols, mobility prediction, V2V communication, V2I communication, Vehicular Ad hoc Networks (VANETs)

IoT-based Cardiac Healthcare System for Ubiquitous Healthcare Service

Umara Umar¹, Muazzam A. Khan², Rabia Irfan¹ and Jawad Ahmad³

¹School of Electrical Engineering and Computer Science (SEECs), National University of Science and Technology (NUST), Islamabad, Pakistan

²Department of Computer Science Quaid i Azam University, Islamabad, Pakistan

³School of Computing, Edinburgh Napier University (UK), United Kingdom

uumar.msit19seecs@seecs.edu.pk, Muazzam.khattak@qau.edu.pk,
rabia.irfan@seecs.edu.pk, J.Ahmad@napier.ac.uk

Abstract. The working of smart cities is enhanced by the application of IoT devices, software devices, User Interface (UI) and communication systems. Traditional Healthcare System is criticized for some inbuilt flaws like, long term wait time, being expensive, manual payment process, covering the long distance to reach the medical facility and visiting doctors regularly. Smart healthcare systems have all that it requires to replace the traditional healthcare system, and the Internet of Things (IoT) is considered as the ultimate solution for inexpensive round the clock monitoring of patients. In this paper, we have proposed an IoT-based Cardiac Healthcare System for ubiquitous access. The proposed Smart Cardiac Care System promises to give an affordable and accurate solution with real-time observations, with complete privacy of patients and minimum physical examinations by the professionals to Cardiac Units. Multiple physical signs required for a cardiac patient are designed to be sampled at different rates continuously. The hybrid combination of multiple parameters along with Electrocardiographic (ECG) analysis adds to the uniqueness of this model. This combination has never been used before. The System is also capable of generating alerts and warnings for abnormal values. Patient's record on cloud server helps to ensure ubiquitous access.

Keywords: electrocardiogram (ECG), internet of things (IoT), ubiquitous access, cloud server, artificial intelligence (AI)

Intrusion Detection using Machine Learning Techniques: An Experimental Comparison

Kathryn-Ann Tait¹, Jan Sher Khan², Fehaid Alqahtani³, Awais Aziz Shah^{1,4}, Fadia Ali Khan⁵, Mujeeb Ur Rehman⁵, Wadii Boulila^{6,7} and Jawad Ahmad¹

¹School of Computing, Edinburgh Napier University, United Kingdom.

²Department of Electrical and Electronics, University of Gaziantep, 27310 Gaziantep, Turkey.

³Department of Computer Science, King Fahad Naval Academy, Al Jubail, Saudi Arabia.

⁴Department of Electrical and Information Engineering (DEI), Politecnico di Bari, Italy.

⁵Department of Electrical Engineering, Riphah International University, Islamabad, Pakistan.

⁶RIADI Laboratory, University of Manouba, Manouba 2010, Tunisia.

⁷College of Computer Science and Engineering, Taibah University, Medina 42353, Saudi Arabia

J.Ahmad@napier.ac.uk

Abstract. Due to an exponential increase in the number of cyber-attacks, the need for improved Intrusion Detection Systems (IDS) is apparent than ever. In this regard, Machine Learning (ML) techniques are playing a pivotal role in the early classification of the attacks in case of intrusion detection within the system. However, due to the large number of algorithms available, the selection of the right method is a challenging task. To resolve this issue, this paper analyses some of the current state-of-the-art intrusion detection methods and discusses their pros and cons. Further, a review of different ML methods is carried out with four methods showing to be the most suitable one for classifying attacks. Several algorithms are selected and investigated to evaluate the performance of IDS. These IDS classifies binary and multiclass attacks in terms of detecting whether or not the traffic has been considered as benign or an attack. The experimental results demonstrate that binary classification has greater consistency in their accuracy results which ranged from 0.9938 to 0.9977, while multiclass ranges from 0.9294 to 0.9983. However, it has been also observed that multiclass provides the best results with the algorithm k-Nearest neighbor giving an accuracy score of 0.9983 while the binary classification highest score is 0.9977 from Random Forest. The experimental results demonstrate that multiclass classification produces better performance in terms of intrusion detection by specifically differentiating between the attacks and allowing a more targeted response to an attack.

Keywords: Machine Learning; intrusion detection; cyber- attacks; binary classification; multiclass classification

A Review on Emotional Recognition System Based E-learning: Technology and Challenges

Zaid Abass Fadahl Alhaboobi¹, Manjit Singh Sidhu² and Thaharah Hilaluddin¹

¹College of Computing and Informatics, Universiti Tenaga Nasional (UNITEN), Kajang, Selangor Malaysia

²College of Computing and Informatics National Energy University, Kajang, Selangor Malaysia

zaidhaboby@gmail.com, manjit@uniten.edu.my, thaharah@uniten.edu.my

Abstract. Multiple technologies have been incorporated with learning management systems (LMSs) in order to facilitate electronic learning (e-learning) experience. Emotional recognition system (ERS) is one of those technologies for providing tutors with learners' emotions related data such as anger, sadness, happiness etc. Additionally, emotions can be recognized using data alike facial, body activities and brain activate. This paper provides an overview of ERS structure referring to the existing state of the art technology. Results showed that great contribution was made in terms of ERS classification score enhancement by using Deep learning-based conventional neural networks (CNN) such as AlexNet, GoogleNet, Inception V3, ResNet50 and SqueezeNet classifiers.

Keywords: ERS, CNN, LMS, E-learning, IRS, MFCC, LPCC

Text Mining Life Cycle for a Spatial Reading of Viet Thanh Nguyen's *The Refugees* (2017)

Esraa Faisal Malik, Pantea Keikhosrokiani and Moussa Pourya Asl

School of Management, Universiti Sains Malaysia, 11800 Minden, Penang, Malaysia

ORCID: 0000-0003-4705-2732

Abstract. Textual analysis is traditionally used by literary critics as a central methodology to interpret creative writings, however this method is significantly affected by human-error, which cause the failing to offer one correct interpretation of the text. As an example, the Vietnamese-American writer Viet Thanh Nguyen's short story collection *The Refugees* (2017) has received opposing critical receptions: Whereas some critics applaud the stories for their truthful representations of the two countries, others criticize them for their biased depictions. This study aims to demonstrate how text mining can offer a more objective analysis of the representation of the two main countries in the selected stories. We propose a Big Data Analytics lifecycle that consider two empirical methods. The first method used N-grams, while the second method propose sentiment analysis using lexicon dictionary. The study revealed that text mining is useful in discovering the hidden pattern of textual data and resolving the problem of human error that occurs in performing the analytics manually.

Keywords: Big Data, Digital Humanities, Text Analytics, N-Grams, Sentiment Analysis, Spatial Analysis, *The Refugees* (2017)

ABSTRACTS

Machine Learning Algorithm Model for Improving Business Decisions Making in Upstream Oil & Gas

Mohd Shahrizan Abd Rahman, Dr. Nor Azliana Akmal Jamaludin, Dr. Zuraini Zainol and Prof. Emeritus Dato Dr. Tengku Mohd Tengku Sembok

Faculty of Defence Science and Technology, Universiti Pertahanan Nasional Malaysia, Kuala Lumpur, Malaysia

mshahrizan.ar@gmail.com, azliana@upnm.edu.my, zuraini@upnm.edu.my,
tmts@upnm.edu.my

Abstract. The upstream capital project oil and gas industry is considered a critical sector in Malaysia. Apart from its significant monetary contribution to the country, big data analysis is also applied to the supply chain operation. The prescriptive analysis is based on Artificial intelligence (AI), specifically Machine Learning (ML), which involves algorithms and models that enable computers to make decisions based on mathematical data relationships and patterns. This study aims to identify ML analysis in Malaysia's upstream capital projects, which may improve business decisions via the use of statistical models and ML algorithms. Incorporating ML algorithms and statistical models will produce better business decision-making by enhancing efficiency and productivity besides fast monetisation and minimising risk and returns. Overall, with the use of mixed analysis elements, it can produce better decision support for stakeholders and company owners before making crucial business decisions.

Keywords: Algorithm Model, Business Decisions, Upstream, Oil & Gas, Prescriptive Analysis

A New Feature Hashing Approach Based on Term Weight for Dimensional Reduction

Abubakar Ado, Noor Azah Samsudin and Mustafa Mat Deris

Faculty of Computer Science and Information Technology, Universiti Tun Hussein Onn Malaysia, Batu Pahat, Malaysia

adamrogo@yahoo.com, azah@uthm.edu.my, mmustafa@uthm.edu.my

Abstract. Machine learning models usually face a problem when encountered with large scale text dataset. Such kind of dataset produces sparse features of a high-dimensional, which makes it complex or infeasible to process by the learning models. Feature hashing is a dimensional reduction technique commonly used in the pre-processing phase to overcome the aforementioned problem. However, models performance are negatively affected due to the inherited so-called collisions that occur during the hashing process. In this study, we proposed a new Feature hashing approach that hashes similar features to the same bin based on their weight known as “weight term” while minimizing certain collisions. The approach effectively reduces the collisions between dissimilar features, thus improving model performance. The experiment results conducted on binary and multi-class classification datasets with a very high number of sparse features show that the proposed approach achieved competitive performance compared with the conventional FH.

Keywords: feature hashing, dimensionality reduction, high-dimensional and collision

ABSTRACTS

Sentiment Analysis using Effective Keyword Extraction Algorithm of Twitter Posts on Subject #solatjumaat During MCO in Malaysia

Roziyani Setik, Raja Mohd Tariqi Raja Lope Ahmad and Suziyanti Marjudi

Faculty of Communication, Visual Art and Computing Universiti Selangor, Malaysia
Faculty of Computer Science and Information Technology, Universiti Tun Hussein Onn Malaysia, Batu Pahat, Malaysia

roziyani@unisel.edu.my, rmtariq@gmail.edu.my, suziyanti@unisel.edu.my

Abstract. Analysis of sentiment (or opinion mining) is a technique used to determine whether a polarity of data has become positive, negative, or neutral. It studies the opinions, feelings, emotions, and stances of people using an algorithmic process that understands the opinions of a particular topic based on the methodology of Natural Language Processing (NLP). It has gained popularity in recent years and it has played a vital role in a variety of fields, such as online product reviews and social media analysis (Twitter, Facebook, etc.). This paper presents the findings of a research conducted to investigate people's sentiment toward a government decision that temporarily suspending Friday prayers in all the mosques, as a response to the pandemic of COVID-19 in the country, due to The Malaysia Movement Control Order (MCO) 1.0 as a precautionary measure. A collection of tweets were crawled based on the #solatjumaat hashtag, then it was grouped into one corpus as a new dataset for further text preprocessing and sentiment analysis process. It applies a Python language with an adaption of Malaya, a Natural-Language-Toolkit library created especially for text in Malay Language verse for the treatment techniques. A visualization of the outcome will illustrate the finding of people's feelings for this study.

Keywords: Malaya, sentiment analysis, tweets, corpus, keyword extraction

Semi-supervised Classification of Hyperspectral Image through Deep Encoder-Decoder and Graph Neural Networks

Refka Hanachi¹, Akrem Sellami², Imed Riadh Farah¹ and Mauro Dalla Mura³

¹RIADI laboratory, ENSI, University of Manouba, Manouba, 2010, Tunisia

²LORIA-lab, UMR 7503, University of Lorraine, Campus Scientifique, 615 Rue du Jardin-Botanique, F-54506 Vandoeuvre-lès-Nancy, France

³Grenoble INP, GIPSA-lab, Univ. Grenoble Alpes, CNRS, 38000 Grenoble, France

`hannachi-refka@outlook.fr, akrem.sellami@inria.fr, riadh.farah@ensi.rnu.tn,
mauro.dalla-mura@gipsa-lab.grenoble`

Abstract. The hyperspectral image (HSI) classification is a challenging task due to the high dimensional spectral feature space, and a low number of labeled training samples. To overcome these issues, we propose a novel methodology for HSI classification, called DAE-GCN, which is based on deep neural networks. The main goal is to preserve both spectral and spatial features in the classification task by using only a few number of labeled training samples. Firstly, we propose a deep autoencoder (DAE) model, which learns to extract relevant features from the HSI. It seeks to find a better representation of the HSI in order to improve the classification rates. Secondly, we construct a spectral-spatial graph using the obtained latent representation space. The aim is to take into account the spectral and spatial features by considering distances between neighboring pixels. Finally, a semi-supervised graph convolutional network (GCN) is trained based on the latent representation space to perform the spectral-spatial classification of HSI. The main advantage of the proposed method is to allow the automatic extraction of relevant information while preserving the spatial and spectral features of data, and improve the classification of hyperspectral images even when the number of labeled samples is low. Experiments are conducted on two real HSIs, including Indian Pines, and Pavia University datasets. Experimental results show that the proposed model DAE-GCN is competitive in classification performances compared to various state-of-the-art methods.

Keywords: Hyperspectral image classification, deep autoencoder, graph convolutional networks, dimensionality reduction

Management of Uncertain Spatial Information

Manel Chehibi, Ahlem Ferchichi, Imed Riadh Farah and Allel Hadjali

RIADI/ENSI, university of manouba, Manouba, Tunisia

manel.chehibi@ensi-uma.tn, ferchichi.ahlem@gmail.com,
imedriadh.farah@isamm.uma.tn, allel.hadjali@ensma.fr

Abstract. Spatial information is often associated with uncertainty and inaccuracy, and there is a growing recognition that this uncertainty must be represented and dealt with. In this paper, we present a new approach based on Dempster–Shafer theory for the representation and management of imprecision and uncertainty of qualitative spatial information. This approach is developed in the context of the Region Connection Calculus 8 (RCC8) and is applicable to geographical information systems (GIS), spatial databases and all applications that manage uncertain relationships between spatial features.

Keywords: Spatial information, Topological relations, RCC8, Uncertainty, Qualitative spatial representation and reasoning, Dempster–Shafer theory

ABSTRACTS

Computer Aided Diagnosis System for Early Prediction of Atherosclerosis using Machine Learning and K-fold cross-validation

Bouchaib Cherradi, Oumaima Terrada, Asmae Ouhmida, Soufiane Hamida, Abdelhadi Raihani, and Omar Bouattane

SSDIA Laboratory, ENSET Mohammedia, Hassan II University of Casablanca, Mohammedia, Morocco

bouchaib.cherradi@gmail.com, oumaima.terrada@gmail.com,
asmaeouhmida1995@gmail.com, hamida.93s@gmail.com, abrahani@yahoo.fr
o.bouattane@gmail.com

Abstract. Atherosclerosis known as coronary artery disease (CAD) becomes epidemic in any society that relies on an industrial-technological system with an associated behavioral alteration in people's lifestyles as junk food consumerism and stressful habits. However, this disease residue the first cause of death in industrialized countries, despite many new therapeutic approaches and risk factors prevention. Moreover, atherosclerosis misdiagnosis has side costly effects. In this paper, we have proposed a computer-aided diagnosis system based on K-Nearest Neighbors (KNN) and Artificial Neural Network (ANN) algorithms. Then, we applied K-fold cross-validation in order to split the databases and reach the best model with the higher accuracy and fewer side effects. In this proposed work, we tested the reached model on 573 patients with several effective features which collecting from Cleveland and Z-Alizadeh Sani datasets. Then Area Under the Curve (AUC), F1-Score, and accuracy were used to enrich and determine the effectiveness of each predictive model. Using Machine Learning (ML) methods, K-fold cross-validation, and performance evaluation metrics, 96.78% average accuracy is achieved with the original training accuracy of 100%, which means the prediction system is obtained as the best predictive model comparing to the previous studies.

Keywords: Machine Learning Algorithms, Prediction Systems, Atherosclerosis Cardiovascular disease

ABSTRACTS

Functional and Architectural Solution of a Software Package for the Analysis of Educational Data

Zhenisgu Rakhmetullina¹, Gulnaz Zunimovaline², Gulzhan Soltan¹, Raushan Mukhamedova², Roza Mukasheva¹ and Shynar Tezekpayeva¹

¹D. Serikbayev East Kazakhstan Technical University, Oskemen, Kazakhstan

²S. Seifullin Kazakh Agro Technical University, Nur-Sultan, Kazakhstan

Zhrakhmetullina@ektu.kz, gsoltan@mail.ru, Mukashevaru@mail.ru,
zunimova.g.d@mail.ru, Rmukhamedova@ektu.kz, shynar8787@mail.ru

Abstract. The development of e-learning systems and the introduction of digital technologies in the traditional educational process leads to the emergence of large information arrays, which are studied by the analysis of educational data (EDM) - a scientific discipline associated with the application of data mining methods to information produced by educational institutions. The article discusses EDM methods and their features in comparison with data mining methods. The directions of the EDM application and the advantages that its use gives to all participants in the educational process are analyzed. The problems and challenges facing the EDM are analyzed, as well as promising areas of research.

Keywords: e-learning; analysis of educational data; learning analytics

Sentiment Analysis of Arabic Tweets Related to COVID-19 Using Deep Neural Network

Najla Hamandi Alharbi and Jawad Hassan Alkhateeb

Department of Computer Science, Taibah University, Medina, Saudi Arabia

najla.hamandi@gmail.com jkhateeb@taibahu.edu.sa

Abstract. Along with the Coronavirus pandemic, several other severe crises also spiraled worldwide. Different industries are getting irreparable scathed and many organizations succumbed to this havoc. There is an inevitable need to analyze different trends going on social media platforms to alleviate the fear and misconceptions among public. The research plays out a thorough investigation on the emotional directions of the Arabic public dependent on social media using Twitter platform particular. We have extracted data from Twitter from November 2020 to January 2021. There are tweets from different cities of Arab. Natural language processing NLP and Machine learning ML capabilities are used to analyze whether an opinion's sentiment is positive, negative, or neutral. This research scrapes around Arabic tweets and then after manual annotation to classify the tweets into different sentiments like negative, positive, neutral, etc. This research use TFIDF and word embedding as a feature vector and then use Long Short-Term Memory and Naïve Bayes as classification. This work using two advanced machine learning methods, present a learned long short term memory LSTM model and a Nave Bayes model on the collected tweets. In addition, compare the performance of the Nave Bayes and LSTM models. In comparison with the Naïve Bayes the LSTM model performs better with an accuracy of 99%. The work analysis helps different Government and private organizations to understand public sentiments, their behavior towards this pandemic and then act make strategic decisions accordingly. In addition, this research focuses on data visualization by displaying a sentiment plot and a word cloud.

Keywords: Corona Virus, Covid 19 , Arabic Text, Machine Learning ,Deep learning, Sentiment Analysis, Opinion mining , LSTM, Naïve Bayes, CNN

Diet & Exercise Classification using Machine Learning to Predict Obese Patient's Weight Loss

Kawser Ahmed Pinto, Nasuha Lee Abdullah and Pantea Keikhosrokiani

School of Computer Sciences, University Sains Malaysia, Pulau Pinang, Malaysia

kawser098@gmail.com, nasuha@usm.my, pantea@usm.my

Abstract. Obesity-related diseases such as coronary heart disease, stroke, respiratory disorders, etc. has steadily risen in the world over the last decades. Various studies related to obesity have been done; however, there is still a need to predict the possibility of losing obese patient's weight based on history of his/her diet and exercise data. Therefore, this study use an obese patient as the case study. Diet and exercise data was collected using Smartwatch. This study classifies the obese patient's level of possibility to lose weight to high (Good health), medium (Normal) and low (Poor health) from the patient's diet and exercise data. Machine learning techniques such as k-nearest neighbour and decision tree are used in this study to classify the diet and exercise data and find out the level of possibility to reduce weight. Analysis of this study shows that the decision tree provides the best accuracy for diet and exercise data where it is recorded 71.54% and 63.63% respectively. On the other hand, k-nearest neighbour shows the accuracy of 65.85% for diet and 69.32% for exercise data. The prediction results of this study can be used by the doctors and physicians to provide better advice and prescription for the obese patients.

Keywords: Obesity, Classification, Diet, Exercise, Machine Learning, K-Nearest Neighbour, Decision Tree, mHealth, Habit Change.

Employee Awareness Model to Enhance Awareness of Social Engineering Threats in the Saudi Public Sector

Mohammed Fahad Alghenaim¹, Nur Azaliah Abu Bakar, Rasimah Che Mohd Yusoff, Noor Hafizah Hassan and Hasimi Sallehudin

¹Advanced Informatics Department, Razak Faculty of Technology and Informatics, Universiti Teknologi Malaysia, 54100 Kuala Lumpur, Malaysia

²Faculty of Information Science and Technology, Universiti Kebangsaan Malaysia, 43600 Bangi, Malaysia

aalghenaim@graduate.utm.my, azaliah@utm.my, rasimah.kl@utm.my,
noorhafizah.kl@utm.my, hasimi@ukm.edu.my

Abstract. The increase in social-engineering threats within the Saudi public sector has changed awareness and training methods. However, due to employees' lack of awareness, social engineering could lead to a breach whereby attackers identify vulnerabilities and subsequently launch their attacks. A social-engineering attack is a high risk to the Saudi public sector and may significantly affect its security measures. Thus, the benefits of adopting awareness-enhancement tools in the public sector are undeniable. This study proposes a conceptual awareness model designed to enhance employee awareness in the Saudi public sector to address this issue. This study reviews seven main factors of social engineering risk: phishing, baiting, pretexting, quid pro quo, tailgating, related security policies, and the ability to identify attacks and respond to threats. Additionally, this research examines one public sector actor in Saudi Arabia as a case study. The findings led to a model creation comprising of five components: a situation-awareness model for phishing, an information-security awareness tool, a power-knowledge-practice triangle, Saudi public sector follow-up metrics, and implementation phases. As a result, an a priori model was successfully developed, tested, and applied in the subsequent stage by the case study participants, the employees.

Keywords: Obesity, Classification, Diet, Exercise, Machine Learning, K-Nearest Neighbour, Decision Tree, mHealth, Habit Change.

A Blockchain Based Secure IoT Solution for Water Quality Management

Nouf Alharbi, Arwa Althagafi, Omamah Alshomrani, Ahad Almotiry and Shrooq Alhazmi

College of Computer Science and Engineering, Taibah University, Madina 42353, Saudi Arabia

nmoharbi@taibahu.edu.sa , amjohni@taibahu.edu.sa, omamaharif@taibahu.edu.sa,
flawlessahad@taibahu.edu.sa, shrooqhaz@taibahu.edu.sa

Abstract. Water pollution is a major issue all over the world, and one of the great causes of water deterioration is industrial waste as the polluted water is being dumped into surface water such as seas, springs, and dams. Consequently, this will affect the whole planet, starting from destroying the agricultural crop up to the endangerment of humankind. There are plenty of industries all over Saudi Arabia, many of which are of a high category that generates dangerous fluids and other materials in their daily production activities. By discharging polluted components in water, the industry is considered to be violating the General Authority of Meteorology Environmental Protection (GAMEP)'s laws and regulations. It's a revolutionary step to stop establishments and industries from contributing to water pollution. Currently, industries violating these laws are difficult to identify due to the manual nature of measuring industrial water tanks. This produces difficulties in pulling out a sample to measure. To tackle the aforementioned issue, a system has been proposed as it is not only detecting water pollution but will take action in order to prevent the continuation of water pollution. The integration between two technologies has been introduced in this system. First, IoT (internet of things) is used to measure water components in industrial tanks and detect any violation. Second, blockchain is applied to the appropriate penalty of the violating industry and maintain the transparency, integrity, and reliability of the violation records. The system will be capable of measuring water quality in real-time and facilitate the instant detection of any violations to carry out the appropriate penalty. An introductory experiment shows prominent results that can be used to decrease the number of water violation cases to save the planet and secure a promising future.

Keywords: Water Quality, IoT, Blockchain, Violation, Industry

Malaysian Politicians' Connection Pattern on Twitter using SNA: A Case of Najib Razak

Nur Amalina Diyana Suhaimi¹, Syaza Iffah Mohammad Salleh¹, Siti Amanina Farhanah Abdul Hakim¹, Pritheega Magalingam¹, Nurazeen Maarop¹, and Mohana Shanmugam²

¹Razak Faculty of Technology and Informatics, Universiti Teknologi Malaysia, Malaysia

²College of Computing and Informatics, Universiti Tenaga Nasional, Malaysia

nuramalinadiyana@graduate.utm.my, syzaiaffah@graduate.utm.my,
sitiamaninafarhanah@graduate.utm.my, mpritheega.kl@utm.my, nurazeen.kl@utm.my,
mohana@uniten.edu.my

Abstract. Najib Razak is one of the most prominent politicians in Malaysia whose popularity has risen worldwide over the years due to his political sharp-witted strategy and various political scandals. He is also identified as one of the most followed Malaysian politicians on social media, especially Twitter. Hence, this study aims to apply Social Network Analysis (SNA) to further examine the interactions between Twitter users and the relationship formed with Najib Razak. A complete network of Najib Razak's Twitter account is used to study the connection pattern, influence, and groups developed between account users in the network. Netlytic is used to extract the data on Twitter, and based on the extracted dataset, it is discovered that 1004 nodes that represent Twitter users, follows and mentions the @najibrazak Twitter account. The dataset was further analyzed using R to explore the interaction and the connection patterns were visualized using Gephi. Based on the findings, the connectivity, centrality and clustering of the top 10 most influential Twitter users that contribute to the discussion and mention of Najib Razak on Twitter were determined. The previous work using Najib Razak's twitter account focused on finding the relations between public and politicians by analyzing the issues discussed through language processing at topical and lexical level. Unlike the previous achievement, the results from this proposed SNA technique can be further analyzed to gather greater insights on the hidden relationship built between politicians to strengthen their position and distinguish their possible future followers for further investigations.

Keywords: Najib Razak, Twitter, Centrality, Connectivity, Clustering, Social Network Analysis, Politician, Malaysia

Multi-Objective Algorithms for Virtual Machine Selection and Placement in cloud Data Center

Akram Saeed Aqlan Alhammadi¹ and V. Vasanthi²

¹Computer Science Department, Rathinam College of Arts and Science, Bharathiar University, Coimbatore, India

²Department of Information Technology, Sri Krishna Adithya College of Arts& Science, Bharathiar University, Coimbatore, India

Akram_aqlan@hotmail.com, vasarthika@gmail.com

Abstract. Dynamic Virtual Machine (DVM) consolidation is one of the operational techniques to reduce energy consumption by grouping Virtual Machines (VM) in a limited number of hosts. However, the mighty Virtual Machine consolidation may incite the Service Level Agreements violation (SLAV). In this study, we proposed (a) Multi-objective Virtual Machine selection (MOVMS) algorithm to determine a migratable Virtual Machine from the overloaded host and (b) Multi-objective Modified Best Fit Decreasing (MOMBFD) algorithm for virtual machine placement. We have implemented it in cloudsim and the result shows that the proposed approaches appear to significantly reduce energy consumption by 31.36%, Service Level Agreements violation(SLAV) by 4.95%, and decrease the number of migrated Virtual Machine by 28.49 % compared to some previous studies which used Maximum Correlation (MC) algorithm, Minimum Migration Time (MMT) algorithm, Minimum Utilization (MU) algorithm and Random Selection (RS) algorithm for Virtual Machine selection and Power-Aware Best Fit Decreasing (PABFD) algorithm for Virtual Machine placement.

Keywords: Dynamic VM consolidation, VM placemen, VM selection, Cost of migration, Resource usage

ABSTRACTS

Improving Enterprise Performance Using Agent Based Modelling and Simulation System Driven Price Optimization

Hasan Beyari

Department of Administrative and Financial Sciences, Makkah Community college, Umm Al-Qura University, Makkah, Saudi Arabia

hmbeyari@uqu.edu.sa

Abstract. The general observation is that price reduction by one firm in a duopoly situation will cause switch-over of price-sensitive customers from the other firm and this may lead to increased profits for the firm which reduces the price. A simulation study consisting of two electric car manufacturers with agent based modelling was done to verify this contention. The baseline was first defined. Simulations of 1000 times and agent-based modelling was done in which company 1 was assumed to reduce its price to the maximum of 20% leading to switch-over of a maximum of 40% of the customers of company 2, who were price-sensitive. The results of 1000 simulations and agent-based modelling showed that price reduction by company 1 increased its customers significantly, presumably due to switch-over from company 2 and there were significant increase in revenues from two of the sales avenues. This study has implications for companies looking to sway the price sensitive customers from a competitor.

Keywords: Enterprise performance improvement, agent-based modelling, simulation, marketing systems, marketing campaigns

Using BGP Features Towards Identifying Type of BGP Anomaly

Noor Hadi Hammood¹ and Bahaa Al-Musawi²

¹Department of Computer Science, Faculty of Computer Science and Mathematics, University of Kufa, An Najaf, Iraq

²Department of Electronics and Communication Engineering, Faculty of Engineering, University of Kufa, An Najaf, Iraq

noorh.ammood@student.uokufa.edu.iq, bahaa.almusawi@uokufa.edu.iq

Abstract. Unregular events such as large-scale power outages and routing table leaks (RTL) can negatively affect the global routing stability and interrupt Internet services. The Border Gateway Protocol (BGP) is the de-facto Internet routing protocol responsible for managing connectivity between Autonomous Systems (ASes). Detecting BGP anomalies enables network operators to protect their network and helps to improve Internet reliability. This paper suggests using different feature selection algorithms to find out the most effective BGP features then use these features to identify types of anomalies. Out of 55 extracted BGP features, we find out that 9 BGP features indicate identifying RTL and link failure. BGP features related to volumes such as total number of announcements per prefix, number of IPV4 announcements, and implicit withdrawal represent a key to identify RTL. In contrast, BGP features related to Origin change and AS-PATH, such as announcement to the longer path and Edit distance, represent a key to identify link failure.

Keywords: Inter-domain routing, BGP, BGP features, feature selection, and anomaly detection

ABSTRACTS

Industry 4.0 Revolution and Challenges in Developing Countries: A Case Study on Pakistan

Muhammad Saqib Iqbal and Zulhasni Abdul Rahim

Malaysia-Japan International Institute of Technology (MJIIT), Universiti Teknologi Malaysia (UTM), Kuala Lumpur, Malaysia

s.iqbal@graduate.utm.my, zulhasni@utm.my

Abstract. This paper looks at Industry 4.0 in developing countries such as Pakistan, a country with one of the youngest populations in the world. The fourth revolution in the industry lets us drive at light speeds, changing our way of living. It is the digital revolution, with the main focus on the data. It is the driver of growth that can fully revolutionise the relationship between digital education, healthcare, and digital agriculture. While new technologies give many rewards, they also pose ethical problems as they change people's lives, work, or communication. This study focuses on the ethical issues associated with industry 4.0, like unemployment and approach towards a knowledge economy. There has not been any significant study in this context. The paper also highlights and presents a detailed review of deeming Pakistan's approach towards the digital economy, unemployment, and knowledge economy in the context of the digital industrial revolution. This paper also discusses how Pakistan is embarking on the digital journey to coup up the pace of other developing nations.

Keywords: IR 4.0, Pakistan, Industrial Revolution

ABSTRACTS

Improving the Performance of Intrusion Detection System through Finding the Most Effective Features

Aliaa Al-Bakaa and Bahaa Al-Musawi

Department of Electronics and Communication Engineering, Faculty of Engineering, University of Kufa, An Najaf, Iraq

aliaam.h.albakaa@gmail.com, bahaa.almusawi@uokufa.edu.iq

Abstract. In recent years, we witnessed the ensuing surge in massive numbers and types of attacks. The future years will continue these trends but at a faster pace as a result of increasing the number of devices and the development of IoT devices. Thus, it becomes really important to detect different types of threats and hence secure these resources. To that end, previous works examined different feature selection techniques and machine learning algorithms. However, they are either suffer from a low detection accuracy or are not able to detect various types of attacks particularly the low-frequency attacks like worms. In this paper, we use multiple feature selection algorithms to find the subset of the more relevant features regarding each type of attack. Forward Selection Ranking and Backward Elimination Ranking algorithms are used along with decision tree classifier and random forest classifier. The system is evaluated in terms of accuracy, precision, sensitivity, and F-score and shows very high performance in detecting all types of attacks. It can detect all types of attacks with an accuracy rate of 99.9% and 99.96% for binary classification.

Keywords: Network intrusion detection system, UNSW- NB15 dataset, feature selection algorithms, classification, IoT security, and network security

Conceptual Paper: Behavioural Intention to Use MOOCs the Moderating Effect of Perceived Openness and Facilitating Condition

Abubakar Mu'Azu Ahmed^{1,2} and Nor Athiyah Abdullah¹

¹School of Computer Sciences, Universiti Sains Malaysia, Penang, Malaysia

²Faculty of Computer Science, Kaduna State University, Kaduna State, Nigeria

abubakarmuaz11@student.usm.my, abubakarmuaz11@gmail.com, athiyah@usm.my

Abstract. Massive Open Online Courses (MOOCs) have recently gained a lot of attention as a new e-learning paradigm. Despite its widespread use, the high percentage of students who do not use it raises concerns among institutions in developed countries who have spent considerable time and money developing it. As a result, it is critical to comprehend the variables that affect students' decisions to take MOOCs. This paper proposes a conceptual framework for assessing MOOC acceptance among students in Nigerian higher education institution, and it expands on the technology acceptance model (TAM). Five constructs and two moderators are identified and hypothesized and synthesis of related prior literature: perceived usefulness, perceived ease of use, reputation, subjective norm, facilitating condition, and technology awareness. The suggested conceptual framework in this research enriches existing literature on student's intention to use MOOCs.

Keywords: Openness, Facilitating condition, Behavioral Intention, MOOCs

Implementation of New Message Encryption using Elliptic Curve Cryptography Over Finite Fields

Yasin Genç and Erkan Afacan

Dept. of Electrical-Electronics Eng., Gazi University, Ankara, Turkey

yasin.genc@gazi.edu.tr, e.afacan@gazi.edu.tr

Abstract. Elliptic curve cryptography (ECC) is public-key cryptography that is increasingly used today because it provides better security. In this study, we propose a new message encryption algorithm using an elliptic curve over finite fields. This new method converts each character of the message to its hexadecimal Unicode value and then separates the value divided into blocks that contain one character. Unicode contains many more characters than ASCII. In the Unicode table, the hexadecimal values of the characters range from one to six digits. The proposed new encryption algorithm can encrypt not just by using the values in the ASCII table but all values in the Unicode table, thus can use different alphabets and characters. The algorithm is implemented in C++.

Keywords: Elliptic Curve Cryptography (ECC), Encryption, Unicode, Extended ASCII Code, Different Alphabets, Finite Fields, C++

ABSTRACTS

New Database of French Computer Science Words Handwritten Vocabulary

Soufiane Hamida¹, Bouchaib Cherradi², Oussama El Gannour¹, Oumaima Terrada¹, Abdelhadi Raihani and Hassan Ouajji¹

¹SSDIA Laboratory, ENSET Mohammedia, Hassan II University of Casablanca, Mohammedia, Morocco

²STIE Team, CRMEF Casablanca-Settat, SSDIA Laboratory, ENSET Mohammedia, Hassan II University of Casablanca, Mohammedia, Morocco

hamida.93s@gmail.com, bouchaib.cherradi@gmail.com, oussama.elgannour@gmail.com ,
oumaima.terrada@gmail.com, abrahani@yahoo.fr, ouajji@hotmail.com

Abstract. Handwriting recognition still considered a difficult problem statement. In this paper, we present a new database containing educational vocabulary written by adolescent's learners. 200 Moroccan secondary school students whose age varies between 14 and 16 years participated in the development of the first version of the Computer Science Vocabulary Database (CSVD). Our database contains a set of 15000 images. Word images are scanned and converted to image format to prepare them for subsequent processing steps. Preprocessing techniques were applied to the images to decrease the variability of colors, contrast, and brightness often presented in handwritten word images. This database is designed for the training and testing of handwritten French word recognition systems. Furthermore, the CSVD database can constitute an opportunity for other researchers to evaluate their recognition methods and systems.

Keywords: French, Database, Handwriting, Recognition system, OCR

ABSTRACTS

Voice-Based Deep Learning Medical System for Parkinson's Disease Classification

Asmae Ouhmida¹, Oumaima Terrada¹, Abdelhadi Raihani¹, Bouchaib Cherradi² and Soufiane Hamida¹

¹SSDIA Laboratory, ENSET Mohammedia, Hassan II University of Casablanca, Mohammedia, Morocco

²STIE Team, CRMEF Casablanca-Settat, SSDIA Laboratory, ENSET Mohammedia, Hassan II University of Casablanca, Mohammedia, Morocco

asmaeouhmida1995@gmail.com, oumaima.terrada@gmail.com, abraihani@yahoo.fr,
bouchaib.cherradi@gmail.com, hamida.93s@gmail.com

Abstract. Nowadays, the biomedical signal processing area (MSP) is one of the most important research fields. It is often applied in medical diagnosis and early detection of neurological diseases. Thereby, the MSP is deployed in Parkinson's disease (PD) detection from voice disorder. Therefore, Convolutional Neural Networks (CNN) and Artificial Neural Networks (ANN) are employed to classify healthy patients from PD ones, based on vocal features. We accomplished our study using two UCI Machine Learning repository databases, denoted database I and database II in the whole article. These datasets include 22 and 45 acoustic features, respectively. Accuracy, sensitivity, and specificity were calculated in order to qualify and evaluate the performance of the detection system. The experiment results reveal that the accuracy reached a rate of 93.10 % as the highest value when we applied the CNN model to database I.

Keywords: Parkinson's disease, Deep Learning, Acoustic dataset, CNN, ANN

Software Defined Networking based Information Centric Networking: An Overview of Approaches and Challenges

Yousef Fazea and Fathey Mohammed

School of Computing, University Utara Malaysia, 06010 Sintok, Kedah, Malaysia

yosiffz@uum.edu.my, Fathey.mohammed@uum.edu.my

Abstract. ICN (Information-Centric Networking) is a traditional networking approach which focuses on Internet design, while SDN (Software Defined Networking) is known as a speedy and flexible networking approach. Integrating these two approaches can solve different kinds of traditional networking problems. On the other hand, it may expose new challenges. In this paper, we study how these two networking approaches are been combined to form SDN-based ICN architecture to improve network administration. Recent research is explored to identify the SDN-based ICN challenges, provide a critical analysis of the current integration approaches, and determine open issues for further research.

Keywords: Information centric network, ICN, Software defined network, SDN, SDN based ICN

Cloud Service Adoption Model in the Libyan e-government Implementation

Osama Abied and Othman Ibrahim

Dept.Information Systems, Universiti Teknologi Malaysia, Johor, Malaysia

mosama@graduate.utm.my ; othmanibrahim@utm.my

Abstract. Cloud computing (CC) is a technology that has received attraction in many various sectors. Several developing nations are trying to improve their e-government to furnish better services to citizens that are automated and efficient. Hence, the Libyan government is making effort to improve its e-government. Therefore, this study aims to explore significant factors for cloud computing implementation in the Libyan government as a case study. The proposed model is an adoption of the Technology Organization Environment (TOE) framework, Theory of Diffusion of Innovation (DOI), and Human Organization Technology (HOT-fit) model. The aspects that are considered in this study include technological, environmental, organizational, innovation and human factors. This is a position study showing work in progress. Finally, the study is expected to transform and improve the Libyan government through accessibility, effectiveness, transparency, and enable full public participation in all processes.

Keywords: Cloud Computing, Cloud Services, E-government, Libyan Government

A Case Study in The Use of Attack Graphs for Predicting the Security of Cyber-Physical Systems

Chris Few, James Thompson, Kenny Awuson-David and Tawfik Al-Hadhrami

²The Office of Gas and Electricity Markets (Ofgem), London, United Kingdom

²Cyber Security Lead, EDF, Energy, United Kingdom

³School of Science and Technology, Nottingham Trent University, Nottingham, United Kingdom

chris.few@ofgem.gov.uk, james.thompson@edfenergy.com , kenny.awuson-david@ofgem.gov.uk, tawfik.al-hadhrami@ntu.ac.uk

Abstract. Cyber-attacks increasingly threaten Cyber-Physical Systems (CPS). Recent examples are attacks on a Florida water plant control system and firewalls protecting several Western U.S. electricity grid operators. Techniques for rigorously analysing the cybersecurity of CPS without the risk of disrupting their operations are therefore of increasing interest to CPS operators and regulators. Meanwhile, attack graphs have long been studied by researchers as a means of analysing the cybersecurity of both information and control systems. In this paper, we present a case study on the use of attack graphs for predicting the cybersecurity of a CPS within the critical national infrastructure. It explains how the attack graph was developed and analysed using existing system documentation, computer-aided techniques and human analysis. In this case study human cyber analysts with good knowledge of the CPS considered the automated predictions of the most exploitable attack paths to be credible. This enabled a detailed and evidenced analysis of the minimum level of cyberattacker sophistication needed to compromise the CPS. The case study has evidenced that this style of CPS analysis could be used either during system design or whilst in operational use.

Keywords: Cyber-attack graph, Cyber-physical system, Computer-aided techniques, Control system

The Influence of Sentiments in Digital Currency Prediction Using Hybrid Sentiment-based Support Vector Machine with Whale Optimization Algorithm

Nor Azizah Hitam, Amelia Ritahani Ismail, Ruhaidah Samsudin and Omair Ameerbakhsh

¹Department of Computer Science, International Islamic University Malaysia (IIUM), Kuala Lumpur, Malaysia

²Department of Information Systems, Faculty of Computing, Universiti Teknologi Malaysia, Johor, Malaysia

³Department of Information Systems College of Computer Science and Engineering, Taibah University

amelia@iium.edu.my, ruhaidah@utm.edu.my, oameerbakhsh@taibahu.edu.sa

Abstract. Getting an accurate prediction of a digital currency, also known as a cryptocurrency price index, becomes a significant factor in helping investors make the right decision. Failure to predict the movement of the crypto market gives a huge impact on profit loss. The difficult part is that market is dynamic in a way that is driven by many factors including inflation rate, economics, and natural calamities. This creates a chaos in the price of index so does the sentiment of the investor. This study proposes a machine learning model that applies a combination of sentiment-based support vector machine that is optimized by the whale optimization algorithm for predicting the daily price of a digital currency. Support Vector Machine (SVM) technique is used with the Whale Optimization Algorithm (WOA) which is inspired by the swarm optimization algorithms. The proposed Hybrid Sentiment-based Support Vector Machine with a Whale Optimization Algorithm (SVMWOA). will be evaluated and compared based on performance measures. The proposed method is compared with Support Vector Machine Optimized by Genetic Algorithm (SVMGA) and the Support Vector Machine Optimized by Harmony Search (SVMHS). The proposed model is found robust to be used in other fields of study.

Keywords: Cryptocurrency, prediction, hybrid sentiment-based Support Vector Machine (SVMWOA), Support Vector Machine (SVM), Whale Optimization Algorithm (WOA)

GuideMe: An Approach based on Global Positioning System and Object Recognition Towards a Smart Tourist Guide

Wadii Boulila¹, Anmar Abuhamdah², Maha Driss¹, Slim Kammoun² and Jawad Ahmad³

¹National School of Computer Sciences, University of Manouba, Manouba, Tunisia, College of Computer Science and Engineering, Taibah University, Medina, Saudi Arabia

²College of Business Administration, Taibah University, Medina, Saudi Arabia

³School of Computing, Edinburgh Napier University, United Kingdom

wadii.boulila@riadi.rnu.tn, aabuhamdah@taibahu.edu.sa, maha.idriss@riadi.rnu.tn,
kammslim@gmail.com, j.ahmad@napier.ac.uk

Abstract. Finding information about tourist places to visit is a challenging problem that people face while visiting different countries. This problem is accentuated when people are coming from different countries, speak different languages, and are from all segments of society. In this context, visitors and pilgrims face important problems to find the appropriate doaas when visiting holy places. In this paper, we propose a mobile application that helps the user find the appropriate doaas for a given holy place in an easy and intuitive manner. Three different options are developed to achieve this goal: 1) manual search, 2) GPS location to identify the holy places and therefore their corresponding doaas, and 3) deep learning (DL) based method to determine the holy place by analyzing an image taken by the visitor. Experiments show good performance of the proposed mobile application in providing the appropriate doaas for visited holy places.

Keywords: Deep Learning, Mobile Application, Global Positioning System (GPS), Neural Network

Evolution of Target Localization in Wireless Sensor Network (WSN): A Review

Muneeb A. Khan^{1,2}, Muazzam A. Khan¹, Maha Driss^{3,4}, Wadii Boulila^{3,4}, Jawad Ahmad⁵

¹Department of Computer Science, Quaid i Azam Univeristy, Islamabad, Pakistan.

²Department of Software, Sangmyung University, South Korea.

³RIADI Laboratory, University of Manouba, Manouba 2010, Tunisia.

⁴College of Computer Science and Engineering, Taibah University, Medina 42353, Saudi Arabia.

⁵School of Computing, Edinburgh Napier University, United Kingdom.

wadii.boulila@riadi.rnu.tn, maha.idriss@riadi.rnu.tn, j.ahmad@napier.ac.uk

Abstract. Wireless Sensor Network holds a pivotal position and gained a lot of attention from researchers in recent years. Sensor nodes have been used in vast applications such as environment monitoring, security purpose applications and target tracking. This latter comprises of detection and monitoring of the target movement. In this paper, we explore in detail well-known target tracking techniques. The existing techniques are evaluated using metrics such as network topology, target recovery, energy efficiency and security. We also discuss some of the challenges that affect the performance of tracking schemes. Furthermore, a thorough analysis is performed on existing techniques and future directions are explored.

Keywords: Wireless Sensor Network (WSN), Sensor Node (SN), Cluster Head (CH), Kalman Filter (KF), Prediction, Energy Efficiency, Security



**The International Conference of Advances in
Electrical and Electronic Engineering**

(ICOEEE 2021)

ABSTRACTS

38GHz Rectangular Microstrip Antenna with DGS for 5G Applications

Anas Abu Bakr Binshitwan, Seraj Mohamed keskeso, Abdulmunem Adel Alquzayzi, Ahmed Elbarsha

Electrical & Electronic Engineering, Bright Star University, Elbriga, Libya

anasbenshatwan@gmail.com, sirag.keskeso@hotmail.com, abdulmunemalquzayzi@gmail.com, ahmed.elbarsha@uob.edu.ly

Abstract. The rectangular microstrip antenna with inset feed operating at 38GHz was designed and analyzed using Computer Simulation Technology CST software. The antenna has a relatively compact size, with Rogers Duroid 5880 as substrate material and dielectric constant 2.2 with a height of 0.208 mm. The dimensions of the Defected Ground Structure (DGS) and its position were implemented experimentally with the help of CST. The bandwidth of the microstrip antenna was limited so the purpose of (DSG) is to get a wider bandwidth with maintaining acceptable values of efficiency and return loss. The final values of antenna gain, bandwidth, efficiency, return loss, and VSWR, which have been obtained from the simulation are 6.85 dBi, 2.146 GHz, 95.4%, -40.54 dB, and 1.02 respectively. This type of antennas can find applications in 5G within the mm-Wave band where it is necessary to maintain high rates of Gbps.

Keywords: Defected Ground Structure; 5G Applications Microstrip Antenna; mm Wave

Indoor Electrical Installation Design Layout Using IOT

Mamunur Rashid, Nasir A. Algeelani, Samir A. Al-Gailani, Nohaidda Binti Sariff

Dept. of Electrical and Electronics Engineering, Faculty of Engineering, Al-Madinah International University,
Kuala Lumpur, Malaysia

mamunursiraj93@gmail.com, nasir.ahmed@mediu.edu.my, samer.algailani@usm.my,
nohaidda.sariff@mediu.edu

Abstract. With the popularization of Internet of things (IOT) technology and the rise of the smart grid concept, a lot of theoretical research and practical exploration have been carried out on intelligent electrical construction at home. They enable communication between home appliances and users, and enhance home appliances' automation, monitoring and remote-control capabilities. Persistent power crisis in Bangladesh leads to the necessity of using alternative method of power generation in short, mid and long-term basis. If solar panels be the alternative short-term power source, then per unit production cost is a huge barrier in making this technology popular among the mass. In this research paper, an intelligent wiring design for domestic house layout is carried out. Where, all the necessary electrical layout designs are designed using the Auto-CAD software. Solar panels are also being used for the purpose of load shedding. An intelligent system comprising of Arduino is also used, to control the loads and for energy saving. A proto type is then developed and tested, which resulted in high performance in terms of safety reliability and automation.

Keywords: Installation Design, wiring, AutoCAD, IOT, Solar, Arduino UNO.

ABSTRACTS

Analysis and Design Rectangular Microstrip Patch Antenna for LTE Terminals at 2.6 GHz

Alhusayn Fathi Alhusayn, Seraj Fathi Elshwehdi, Ahmed Elbarsha

Electrical and Electronic Dep., University of Benghazi, Benghazi, Libya

alhusseinalagori@gmail.com, Serajalshwehdi@gmail.com,
Ahmed.elbarsha@uob.edu.ly

Abstract. The purpose of this paper is to design a rectangular microstrip antenna in CST MICROWAVE STUDIO (CST MWS). The resonant frequency of the antenna is 2.6 GHz used in LTE radio (operating in band 38 according to 3GPP LTE-TDD). The patch substrate is made of Roger 4350 with dielectric constant ($\epsilon_r = 3.48$). This rectangular antenna is fed by inset feed lines with particular dimensions which provide good impedance matching. Key performance indicators such as return loss, efficiency, directivity, and antenna side-lobe level in the far-field are obtained from CST MWS software.

Keywords: Microstrip Patch Antenna, LTE, Dielectric Substrate, CST Program

Design of UWB Antenna for Microwave Imaging using Modified Fractal Structure

Hamid .M.Q. Rasheda, Norsaliza Abdullah, Qazwan Abdullah, Nabil Farah, Abbas Uğurenve, Adeb Salh, Abdul Rashid.O.Mumin

Faculty of Electrical and Electronic Engineering, Universiti Tun Hussein Onn Malaysia, Johor, Malaysia

hamidmohamed23@hotmail.com, nsaliza@uthm.edu.my, gazwan20062015@gmail.com,
nabil-farah11@hotmail.com, abbasugurenver@aydin.edu.tr,
adebali@uthm.edu.my, abdulrashidomar3@gmail.com

Abstract. UWB is increasingly advancing as a high data rate wireless technology after the Federal Communication Commission announced the bandwidth of 7.5 GHz (from 3.1 GHz to 10.6 GHz) for ultra-wideband (UWB) applications. Furthermore, designing a UWB antenna faces more difficulties than designing a narrow band antenna. A suitable UWB antenna should be able to work over the Federal Communication Commission (FCC) of ultra-wide bandwidth allocation. Furthermore, good radiation properties across the entire frequency spectrum are needed. This paper presents an optimization of a modified fractal structure based on a square microstrip patch antenna with the partial ground using computer software technology (CST) simulation software for a microwave imaging application. The optimized antenna proposed a small fractal structure to meet the ultra-wideband characteristic in terms of reflection coefficient and bandwidth. The overall size of the designed antenna is 39 mm × 39 mm × 1.65 mm and reduced the size by cutting the edges and the center of the patch. The optimized results reported concentrating on the rerun loss, voltage standing wave ratio (VSWR) and gain. The projected antenna is fabricated and the results are validated using measurements indicating an important enhancement. Thus, the optimized design is suitable for the microwave imaging system.

Keywords: UWB, Fractal structure, Microwave imaging, Patch antenna

ABSTRACTS

Optimal Siting and Sizing of D-STATCOM in Distribution System using New Voltage Stability Index and Bat Algorithm

Muniru Olajide Okelola, Sunday Adeleke Salimon, Oluwole Abiodun Adegbola, Emmanuel Idowu Ogunwole, Samson Oladayo Ayanlade, Baruwa Abiodun Aderemi

Electronic and Electrical Engineering Department, Ladoke Akintola University of Technology, Ogbomoso, Nigeria

mookelola@lautech.edu.ng, sasalimon@lautech.edu.ng, oaadegbola@lautech.edu.ng, emmanuelidowu18@gmail.com, samson.ayanlade@lcu.edu.ng, baruwaabiodun03@gmail.com

Abstract. Distribution Static Compensators (DSTATCOMs) are one of the cheapest advanced devices used for reactive compensation for efficient operation of electrical distribution systems. However, the size of these DSTATCOMs and their placement location are significant issues that have to be considered to derive maximum benefits from their installation. To find its appropriate site and size, this study proposes the application of New Voltage Stability Index (NVSI) for its siting and Bat Algorithm (BA) for its sizing with the aim of minimization of the total loss in the distribution networks. The proposed method is implemented on IEEE 33 bus and a Nigerian Ayepe 34-bus system. The results obtained indicate the effectiveness and viability of the technique in significantly reducing the total power losses and improving of the voltage profile of the system.

Keywords: Distribution Static Compensator, Reactive compensation, Distribution system, New Stability Voltage Index, Bat Algorithm, power loss

Performance Analysis of 4.68 kWh Proposed Grid-Connected PV System in Iraq

Abdulrahman Th. Mohammad, Zuhair S. Al-Sagar, Ali Nasser Hussain, Majid Khudair Abbas Al-Tamimi

Department of Renewable, Energy, Baqubah Technical, Institute, Middle Technical, University (MTU)
Baqubah, Iraq

abd20091976@gmail.com, zuhairalsagar@mtu.edu.iq, Alinasser1974@yahoo.com
Engmajid02@gmail.com

Abstract. Iraq is one of the countries that have solar energy over the year. However, the PV solar systems have not received sufficient support from the Iraqi government. Also, the on-grid PV solar systems have not been used to feed the transmission lines of national electricity. Therefore, in this study, a dynamic simulation with 3D visualization (PV*sol premium valentine) software was used to analyze and calculate the characteristics output of the system according to the weather data of Iraq capital city –Baghdad (latitude 34.03° and longitude 45.04°) for one year. The size of the proposed system was 4.68 kWh and consists of 18 Polycrystalline silicon cell modules with a total area of 30.2 m² and inclined at an angle of 27°. The performance analysis of the system includes total production, efficiencies, performance ratio (PR), capacity utilization factor (CUF), yield types, and energy losses. The total energy generated during this period was found to be 7336 kWh/year. The annual mean of PV module, PV system, and inverter efficiencies was found to be 13.78%, 12.98%, and 82.48% respectively. While the PR and CUF were found to be 81.19% and 17.84 respectively. On the other side, the annual mean of final yield, total losses, and losses in the inverter was found to be 4.28 h/d, 0.88 h/d, and 9.24% respectively. Some of the important performance parameters of PV systems were compared with the performance of convergent systems in size available in the literature.

Keywords: PV, sol-software, PVgrid-system, performance-ratio, energy losses..

Experimental study of a real-time control by backstepping technique of an induction motor drive

Meryem Benakcha¹, Abdelhamid Benakcha², Salah Eddine Zouzou² and Abdelkarim Ammar³

¹Electrical Engineering Laboratory LGE, M'sila University, M'sila, Algeria

²Electrical Engineering Laboratory LGEB, Biskra University, Biskra, Algeria

³Signals and Systems Laboratory, LSS, Boumerdes University, Boumerdes, Algeria

benakcha.meryem@gmail.com, abdelhamid.benakcha@univ-biskra.dz, s.zouzou@univ-biskra.dz, ammar.abdelkarim@yahoo.fr

Abstract. Induction machine, associated with a static converter, constitutes a variable speed drive whose industrial uses are increasingly important. To achieve good dynamic performances, it is therefore necessary to develop robust control laws. The aim of this paper is the experimental validation of a Backstepping vector control strategy applied to the three-phase induction machine (IM). This approach consists in replacing the conventional controller proportional/integral (PI) by an algorithm using the Backstepping technique. The PI controller has the drawbacks of a strong dependence on the machine parameters in their gains synthesis. The system development is based on Lyapunov's stability theory. The results show good dynamic performances, because the system perfectly follows the speed reference, ensuring the decoupling of the two fluxes. The design of the control and its experimental implementation in real time are carried out on a dSPACE 1104 acquisition card and in a MATLAB / Simulink environment. The machine used is a three-phase 1.1 kW induction machine.

Keywords: Induction Machine, proportional/integral, Backstepping Control, dSpace 1104.

New Algorithm for Elimination of Induction Effect on The Magnitude of Partial Discharge Current Pulse

Abdulrahman Baboraik¹, Sameh Kassem², Abdulla Ebrahim³ and Alexandar Usachev¹

¹Department of Power Plant, Kazan State Power Engineering University, Kazan, Russia

²Department of Instrumentation & Mechatronics, Kazan State Power Engineering University, Kazan, Russia

³Department of Applied and Technical Physics, Tyumen State University, Tyumen, Russia

baboraik_4@mail.ru, ali20105@mail.ru, abdulla.ybragim@mail.ru,
aleksandr_usachev@rambler.ru

Abstract. Partial discharge (PD) is considered as one of the most complicated phenomena which causes serious damages to electrical insulation and degrades the insulation of high voltage equipment as well. Therefore, a lot of efforts recently have been done to increase the reliability of measuring the PD characteristics. However, this stills a very complicated task, as there are numerous factors that affect the PD measurement conditions. Therefore, simulation of the partial discharge process is the only approach that allows us to understand its complexity and to analyze certain factors which can affect the main PD characteristics, particularly the current magnitude of measured PD pulse. This paper investigates how the induction of decoupling parameters between the power supply and the test object affects the waveform and magnitude of the partial discharge pulse by carrying out a simulation of PD measurement through a high-frequency current transformer using Multisim software. Additionally, the paper proposes a new algorithm to eliminate the induction effect on partial discharge pulse's current magnitude.

Keywords: Partial discharge, PD current pulse, waveform, magnitude, cavity, decoupling inductance, insulation, and HFCT.

Investigation The Impact of Partial Discharges Polarity on Reliability Assessment of Insulation Condition in High Voltage Equipment

Abdulrahman Baboraik¹, Abdulla Ebrahim², Sameh Kassem³, and Alexandar Usachev¹

¹Department of Power Plant, Kazan State Power Engineering University, Kazan, Russia

²Department of Applied and Technical Physics, Tyumen State University, Tyumen, Russia

³Department of Instrumentation & Mechatronics, Kazan State Power Engineering University, Kazan, Russia

baboraik_4@mail.ru, abdulla.ybragim@mail.ru, ali20105@mail.ru,
aleksandr_usachev@rambler.ru

Abstract. The partial discharge (PD) method is widely used to assess the condition of insulation in high voltage equipment. Moreover, the magnitude and the number of pulses are the most important characteristics of partial discharge. However, there are many factors that affect the reliability of these parameters, which in turn leads to wrong estimations of insulation conditions during the PD measurements through the electrical method. Therefore, there are many kinds of research to minimize the effect of various parameters on measured PD magnitudes. However, until now there are not any explanations of the appearance of PD pulses with opposite polarities, which do not correspond to the theory of PD. As result, some devices filter these numbers of unusual PDs and consider them as noise. For this reason, this work will explain the detection of different PD pulse polarities by carrying out computer simulation and experimental analysis using different applied voltages. It will also illustrate how ignoring the PDs pulses with opposite polarities affects the reliability of the assessment method of the insulation condition in HV equipment..

Keywords: Partial discharge, PD polarity, partial voltage drop, cavity model, insulation, and magnitude of PD pulse.

An Optimization of Fractal Microstrip Patch Antenna with Partial Ground using Genetic Algorithm Method

Hamid .M.Q. Rasheda¹, Norshahida Mohd Shah¹, Abdu Saif², Qazwan abdullah¹, Abbas Uğurenver³, Abdul Rashid.O. Mumin¹, Nan Bin Mad Sahar¹

¹Faculty of Electrical and Electronic Engineering, Universiti Tun Hussein Onn Malaysia, Johor, Malaysia

²Department of Electrical Engineering, University of Malaya, Kuala Lumpur, Malaysia,

³Faculty of Electrical Engineering, İstanbul Aydın University, İstanbul, Turkey

hamidmohamed23@hotmail.com

Abstract. UWB is increasingly advancing as a high data rate wireless technology after the Federal Communication Commission announced the bandwidth of 7.5 GHz (from 3.1 GHz to 10.6 GHz) for ultra-wideband (UWB) applications. Furthermore, designing a UWB antenna faces more difficulties than designing a narrow band antenna. A suitable UWB antenna should be able to work over the Federal Communication Commission (FCC) of ultra-wide bandwidth allocation. Furthermore, good radiation properties across the entire frequency spectrum are needed. This paper outlines an optimization of fractal square microstrip patch antenna with the partial ground using a genetic algorithm at 3.5 GHz and 6 GHz. The optimized antenna design shows improved results compared to the non-optimized design. This design is optimized using a genetic algorithm and simulated using CST simulation software. The size of the optimized design is reduced by cutting the edges and the center of the patch. The optimized results reported, and concentrated on the rerun loss, VSWR and gain. The results indicate a significant enhancement as is illustrated in Table II. Thus, the optimized design is suitable for S-band and C-band applications.

Keywords: Ground, Genetic Algorithm, Fractal structure, S-band, C-band, Patch antenna.

Vibration Analysis for Defective Bearings by Blind Source Separation

Mohamed Lotfi Cherrad, Hocine Bendjama and Tarek Fortaki

Dept. of Electrical and Electronics Engineering, Faculty of Engineering, Al-Madinah International University,
Kuala Lumpur, Malaysia

mamunursiraj93@gmail.com, nasir.ahmed@mediu.edu.my, samer.algailani@usm.my,
nohaidda.sariff@mediu.edu

Abstract. an obstacle to diagnosing multi-component machines using multiple sensors to acquire vibration data first lies in the data acquisition itself. This is because the vibration signals collected by each sensor are a mixture of vibrations produced by different components and noise. In industrial environments, the rolling element bearing is the most important components of rotating machines which requires permanent or periodic monitoring. The signal acquired from a running bearing often presents a mixture of vibrations. The analysis of these vibrations is important to achieve precise diagnosis. For this purpose a method based on blind source separation (BSS) is proposed in this work. The performance of the proposed method is verified using synthetic and real vibration signals acquired from an accelerometer placed on a test bench. The obtained results confirm the effectiveness of the proposed method.

Keywords: Blind Separation Source, Fourier transform, Mixing matrix, Real Vibration Signals, Synthetic Signals.

ABSTRACTS

Construction and Analysis of Dynamic Distribution for Resource Blocks of Real-Time and Data Elastic Traffic in IMS/LTE Networks

Aymen Mohammed Khodayer Al-Dulaimi, Mohammed Khodayer Hassan Al-Dulaimi and Omer Mohammed Khodayer Al-Dulaimi

¹Dept. Communication Technical Engineering, Al-Farahidi University, Baghdad, Iraq

²Dept. Computer Engineering, Al-Rafdian University College, Baghdad, Iraq

³Dept. Telecommunication Engineering Politehnica University of Bucharest, Bucharest, Romania

aymenaldulaimi@uoalfarahidi.edu.iq, mohammednofa@yahoo.com,
aldulaimiomer187@gmail.com

Abstract. A model is created for the joint service of multi-service traffic in the IMS / LTE network. The reception of requests for the transmission of service traffic in real time follows the Poisson model. The requests for data traffic transmission are received by the groups also according to the Poisson model. The requests that make up the group occupy the free units of the line resource or the free waiting places to start the service if the entire resource is occupied. Requests in excess of the group are lost if all the resources and waiting places are occupied. The number of requests in the group varies from one to the sum of the number of units of resources and waiting places and is determined by the corresponding probability, the sum of which is equal to one. The file size has an exponential distribution with an average value expressed in bits. Real-time traffic takes priority in occupying and using the channel resource. It is expressed in the reduction of the data transfer speed to a certain minimum value equal to the selected unit of resources.

Keywords: Multi-service, LTE, Resource block, Resource element, Real-time, Data elastic, QoS.

State Feedback Controller Design for Capacitive Power Transfer System

Yaser Awadh, and Shakir Saat

Department of Electronic and Control, Seiyun Community Collage, Hadhramout, Yemen
Department of Electrical and Computer Engineering, Universiti Teknikal Malaysia Melaka, Malaysia, Melaka,
Malaysia

yasser.awad480@gmail.com, shakir@utem.edu.my

Abstract. Wireless Power Transfer (WPT) has become an advantageous and commercially viable technology in recent years, concurrently with the prevalence of electric vehicles and smartphones. Capacitive Power Transfer (CPT) is one of the latest techniques in WPT. It has an uncomplicated structure and is safer compared to other WPTs. Nonetheless, the major issue of the CPT system is that its efficiency significantly decreases when there is variation in load. In this paper, a state-feedback (SF) controller model which is able to maintain the output voltage was described. Hence, the overall efficiency of the system was retained even with load variations. A mathematical model of the CPT system was developed using Generalized State Space Averaging (GSSA) method. The proposed SF controllers were designed based on Linear Quadratic Regulator (LQR) and pole placement method. MATLAB was used to validate and simulate two SF controllers with the CPT system. The obtained results showed that the SF controllers model improved the system response's speed and provided a satisfactory response in maintaining the output voltage.

Keywords: WPT, CPT, Class E inverter, GSSA, State feedback controller.

B5G and 6G: Next Generation Wireless Communications Technologies, Demand and Challenges

Evizal Abdul Kadir¹, Raed Shubair², Sharul Kamal Abdul Rahim³, Mohamed Himdi⁴, Muhammad Ramlee Kamarudin⁵, and Sri Listia Rosa¹

¹Department of Informatics Engineering Universitas Islam Riau, Pekanbaru, 28284 Indonesia

²Research Laboratory of Electronics Massachusetts Institute of Technology Cambridge, MA, 02139 USA

³Wireless Communication Centre Universiti Teknologi Malaysia, Skudai, Johor Bahru, Johor, 81310 Malaysia

⁴Institute of Electronics and Telecommunications of Rennes, University of Rennes 1, 35000 France

⁵Faculty of Electrical and Electronic Engineering, Universiti Tun Hussein Onn Malaysia, Johor, 86400 Malaysia

evizal@eng.uir.ac.id, rshubair@mit.edu, sharulkamal@fke.utm.my,
mohamed.himdi@univ-rennes1.fr, mramlee@uthm.edu.my, srilistiarosa@eng.uir.ac.id

Abstract. The Fifth Generation (5G) is now have been implemented in some countries and will be progressing according to its plan to be commercialized worldwide soon. Nevertheless, many research institutions around the world have now started to look Beyond 5G (B5G) and Sixth-Generation (6G) where these could be the next generation of wireless communications technologies. The demand for wireless connectivity has grown exponentially over the last few decades, to meet the demands of future connectivity a significant improvement needs to be made in communications technologies. A new paradigm of wireless communication, the 6G system, with the full support of massive multiple inputs multiple-output (MIMO) system and millimeter-Wave (mmWave), is expected to be implemented between 2027 and 2030. B5G, some fundamental issues that need to be addressed are higher system capacity, higher data rate, lower latency, higher security, and improved quality of service (QoS) compared to the 5G system. This paper focusses on the discussion of the potential of 6G wireless communication and its network demands and challenges including mmWave, terahertz communications and massive MIMO systems.

Keywords: Wireless Communication, Terahertz, MIMO System, B5G, 6G.

Improvement of Wind Turbine Lightning Receptor

Nawfan Al-Fakih, Salem Bagaber and Salman Al Abd

Department of Electrical engineering, Universiti Tun Hussein Onn Malaysia, Johor, 86400, Malaysia

Seiyun Community Collage, Seiyun University, Hadramout Yemen

Department of Electrical and electronics, Universiti Malaysia Pahang, 26600 Pekan, Pahang, Malaysia

nawfan711@gmail.com, sasalah2021@gmail.com, slmnamn2014@gmail.com

Abstract. Lightning receptor is a device attached to a wind turbine blade that will attract and assist lightning current flow to the ground. This paper focuses on the study of lightning protection theory, knowledge, and basis. Knowledge of cloud to ground lightning, lightning protection system (LPS), electric field relation, receptors configuration are elaborated. This paper is aimed to study the practical parameters of LPS, including the relation between receptor size and electric field strength. Other than that, this paper aimed to test three different diameters of receptors 0.2m, 0.5m and 0.8m. In 0.2m receptor diameter, the comparison between the numbers and length of needles presents that 32 number of needles and 0.3 m length of needles can attract a higher electrical field than others with different needles numbers and lengths. This paper is aimed to develop a new shape of wind turbine receptors with different needles number and length also to suggest the parameters for receptor diameter and needles. Finite Element Method (FEM) has used for this research, the proper dimensions and shapes of receptors simulated by suggesting the minimum and maximum electric field that accumulates around receptors.t).

Keywords: Lightning Protection System (LPS), Electrical Field, Receptors.

A Review of Airborne Landmine Detection Technologies: Unmanned Aerial Vehicle-Based Approach

Yunes Sh. Alqudsi¹, Abdulhameed S. Alsharafi² and Abdulwahid Mohamed³

¹Department of Aeronautical and Aerospace Engineering, Cairo University, Giza, Egypt

²Department of Mechatronics Engineering, Sana'a University, Sana'a, Yemen

³Department of Electrical Engineering, Al-Azhar University, Cairo, Egypt

yunes.sharaf@pg.cu.edu.eg, alsharafi.ab@pg.cu.edu.eg,
abdulwahid1520121@eng1.cu.edu.eg

Abstract. The rapid development of Unmanned Aerial Vehicles (UAVs) leads to expand the application of such technologies in various fields. The detection and mapping of landmines are one of the challenging and critical areas. The provision of efficient airborne detection technologies will save the lives of thousands of civilians and even workers involved in such dangerous missions. The objective of this paper is to provide a brief review of the state-of-the-art airborne landmine detection studies for researchers to further explore. We have also proposed a promising direction for future research towards a reliable, efficient, and integrated UAV-based landmine detection system.

Keywords: UAV Landmine Detection, Ground Penetrating Radar, Subsurface Sensing, Aerial Landmine Detection, Airborne Sensing.

An Automatic Facial Age Progression Estimation System

Othman Khalifa¹, Ayub Ahmed Omar¹, Muhammed Zaharadeen Ahmed¹, Aisha Aisha Hassan Abdallah Hashim¹, Rashid Abdelhaleem Saeed² and Abdelrahim Esgiar²

¹Department of Electrical and Computer Engineering, International Islamic University Malaysia.
Kuala Lumpur, Malaysia

²Computer Engineering, Computers Information Technology (CIT), Taif University (TU) Al Huwaya, Taif
26571, Saudi

³Electrical and Electronic Engineering Faculty of Engineering, Sirt University

khalifa@iiu.edu.my, ayub1621@hotmail.com, zaharadeen22@unima.edu.ng,
aisha@iiu.edu.my, Arabiaeng_rashid@hotmail.com, anasser6474@yahoo.co.uk

Abstract. Linear age progression models which are largely used in prototype and conventional approaches usually produce synthesized images that are lack of quality because of the aging variations. Therefore, in this paper, a facial age progression model that captures non-linear age variances is designed by using a deep learning-based method called Generative Adversarial Network. The proposed face aging model aims to achieve convincing and visually plausible aging effects by controlling the age attribute. The model first maps the face via a convolutional encoder to a latent vector, then the vector is projected by a deconvolutional generator to the face manifold based on age, and finally the encoder and the generator are imposed on two adversarial networks respectively. The proposed model is trained on UTKFace dataset using Pytorch machine learning library. The experimental results demonstrate the capability of the proposed Generative Advanced Network (GAN) model of generating photorealistic aging faces and preserving the original identity property.

Keywords: Age estimation, Face, Feature, Classification.

Digital Image Forgery Detection by Utilize combined Feature Extraction Techniques

Akram. H Saber¹, Mohd Ayyub Khan¹ and Basim Galeb Mejbhel²

¹Department of Electronics Engineering, Aligarh Muslim University, Aligarh, India

²Department of Computer Technician Engineering, AL-Esraa University, Baghdad, Iraq

alasmr2a@gmail.com, ayyub.alig@gmail.com, dr.basim.ghalib@esraa.edu.iq

Abstract. Due to the increased revolution of digital technology, the process of information sharing, accessing becomes easier. But securing this information is the major critical task. The major threat is occurred in digital images by making forgeries. Several existing techniques are utilized for detecting the forgeries in digital images. But still, it lacks inaccurate detection. Hence a novel technique is designed for detecting the forged images accurately. The main motive of this research is focused on detect image forgery and localize the forged region accurately. Initially, the input images obtained from digital image acquisition and the selected images are isolated as an overlapping patch. Polar Cosine Transform (PCT) with orthogonal kernel and Local Binary Pattern (LBP) approaches are used to extract features from these patches. From the features extracted from the PCT approach, the patches are detected using Multidimensional Spectral Hashing techniques (MSH), and the forged patches are filtered out. Alternatively, geometry-based image forgery detection is carried out using the LBP extracted features. Finally, the forged regions are located and detected in the digital image. The proposed approach's efficiency is measured and compared to current techniques.

Keywords: Digital image Forensics, Copy move Forgery, Polar Cosine Transform, Local Binary Pattern, and Multidimensional Spectral Hashing.

Performance Enhancement and Size Reduction of Vivaldi Antenna Using Defected Ground Structure for Active Phased Array Radar Applications

Hamza Abbas Kiani¹, Channa Babar Ali², Syed Jehad Ali Shah³, Mohammad Zubair Khan⁴,
Abdulfattah Noorwali⁵ and Syed Aziz Shah⁶

¹Department of Electrical Engineering, National University of Sciences and Technology Islamabad, Islamabad, Pakistan

²Department of Avionics Engineering, Air University, Aerospace and Aviation Campus Kamra, Kamra, Pakistan

³Data Science and Analytics, University of Hertfordshire, UK, Hatfield, England

⁴Department of Computer Science, Taibah university Madinah, Saudi Arabia

⁵Department of Electrical Engineering, Umm Al-Qura University, Makkah, Saudi Arabia

⁶Research Centre for Intelligent Healthcare, Coventry University, Coventry, UK

hamzaabbaskiani91@gmail.com, babar.alyl@gmail.com, syedjehad@outlook.com,
mkhanb@taibahu.edu.sa, amnoorwali@uqu.edu.sa, syed.shah@coventry.ac.uk

Abstract. Wideband performance and size reduction of antennas are ostensible requirements of Wireless and Active Phased Array Radar Applications. The proposed paper aims to reduce the size of Planar Vivaldi Antennas to address these challenges by introducing defects in the ground plane of the antenna. The size of the Conventional Vivaldi Antenna specifically the width is reduced to 50% with the insertion of Defected Ground Structure (DGS). The effect of DGS was evaluated with the aid of four rectangular slots inserted on the two ground planes of the antenna (two on each ground plane). Optimal performance was achieved when these slots were inserted on the outer edges of the ground planes. Simulated results showed that the proposed Vivaldi Antenna offers 100% improvement in the impedance bandwidth even with the reduced size. Similarly, the proposed antenna offers an improved gain of 8 dB instead of 5 dB achieved from the basic model. The proposed Vivaldi antenna can easily be integrated with a stripline feed network for achieving wide bandwidth and narrow beam-width for radar and communication applications.

Keywords: antenna arrays; defected ground structure; Vivaldi antenna, Active phased array radar, HFSS.

Design of High-Performance X-Band Monopulse Comparator for Active Phased Array Radar Applications

Muhammad Hashsham Chishti¹, Channa Babar Ali², Umar Anjum², Syed Yaseen Shah⁴, Abdulfattah Noorwali⁵ and Syed Aziz Shah⁶

¹Department of Electrical Engineering, National University of Sciences and Technology Islamabad, Islamabad, Pakistan

²Department of Avionics Engineering, Air University, Aerospace and Aviation, Kamra, Pakistan

³Data Science and Analytics, University of Hertfordshire, UK, Hatfield, England

⁴School of Computing, Engineering and Built Environment, Glasgow Caledonian University, UK

⁵Department of Electrical Engineering, Umm Al-Qura University, Makkah, Saudi Arabia

⁶Research Centre for Intelligent Healthcare, Coventry University, Coventry, UK

hashshamchishti@hotmail.com, babar.aly1@gmail.com, umar2472@hotmail.com,
syedyaseen.shah@gcu.ac.uk, amnoorwali@uqu.edu.s, syed.shah@coventry.ac.uk

Abstract. Monopulse Comparator is one of the core components in development of RF front-end of the tracking radars and therefore widely employed in active phased array radars. Thus, active phased array system are progressively becoming the norm for airborne radars imposing stringent requirement on operation over a wide range of frequencies. The proposed design employed four rat race couplers (180° hybrid coupler) to devise the monopulse comparator network and to exploit microstrip technology to realize the network. In this paper, an X-band Monopulse Comparator Network from 8 GHz to 11 GHz is realized on RT Duroid 6002 using microstrip transmission line technology. The design of the monopulse comparator network is modelled and simulated in ANSYS HFSS. The proposed monopulse comparator network achieved VSWR ≤ 1.6 , and isolation values better than 20 dB for almost the entire frequency band.

Keywords: Monopulse comparator, Rat Race, fractional bandwidth, RF-CAD, microstrip, HFSS.

An X-Band Coupled Lined Based Channel Failure Detection Mechanism for Active Phased Arrays

Umar Anjum¹, Channa Babar Ali¹, Ahmed Hussain¹, Israr Hussain², Syed Ikram Shah³, Abdulfattah Noorwali⁴ and Syed Aziz Shah⁵

¹Department of Avionics Engineering, Air University, Aerospace and Aviation, Kamra, Pakistan

²Director Academics, National University of Sciences & Technology, Islamabad, Pakistan

³College of Electrical & Mechanical Engineering, NUST, Islamabad, Pakistan

⁴Department of Electrical Engineering, Umm Al-Qura University, Makkah, Saudi Arabia

⁵Research Centre for Intelligent Healthcare, Coventry University, Coventry, UK

umar2472@hotmail.com, babar.aly1@gmail.com,
ahmedhussain16611@gmail.com, asrarhussain@yahoo.com,
syed.shah15@ce.ceme.edu.pk, amnoorwali@uqu.edu.sa,
syed.shah@coventry.ac.uk

Abstract. Active phased arrays are mainly used in radars providing exceptional detection, targeting, tracking, and self-protection capabilities. In these radars, every element has its own Transmit/Receive (T/R) module, which makes the system more reliable. However, a detection mechanism is considered imperative for maintenance, repair and overhaul of RF

front-end of active phased array radars in general and T/R modules in particular. The proposed research aims to devise a mechanism of RF power sensing of each T/R channel, particularly design, study and simulation of coupled line operating in X-Band from 9.5 to 12 GHz for failure detection. Several designs have been proposed beginning with a design consisting of quad through ports and terminated coupled port. All designs were modelled in ANSYS HFSS on Rogers RT/Duroid 5880 substrate. Subsequently, the initial design was re-modelled with incorporation of a Vivaldi antenna array and terminated through ports as separate cases to study the effects i.e., return losses and coupling ratio. Likewise, the effects, in case of incorporation of coupled line and in the absence of the same were studied. The grounded coplanar waveguide was opted for realization of the aforementioned designs on said high-frequency laminate due to its minimal radiation losses and moderate fabrication complexity

Keywords: Coupled Line, Channel Failure, T/R Module, Active Phased Arrays, Ansys HFSS.

High Efficiency High Gain DC-DC Boost Converter Using PID Controller for Photovoltaic Applications

Channa Babar Ali¹, Abdul Haseeb², Kawish Parvaiz², Talat Mehmood Awan², Abdulfattah Noorwali³ and Syed Aziz Shah⁴

¹Department of Electrical Engineering, COMSATS University, Islamabad, Attock, Pakistan

²Department of Avionics Engineering, Air University, Aerospace and Aviation, Kamra, Pakistan

³Department of Electrical Engineering, Umm Al-Qura University, Makkah, Saudi Arabia

⁴Research Centre for Intelligent Healthcare, Coventry University, Coventry, UK

babar.aly1@gmail.com, abdulhaseeb2233@yahoo.com, kawish.pervez@yahoo.com, talat.awan8@gmail.com, amnoorwali@uqu.edu.sa, syed.shah@coventry.ac.uk

Abstract. The proposed paper offers designing and simulation of a high-gain and high-efficiency DC/DC Boost converter intended for voltage sources with low inputs i.e. Photovoltaic (PV) cells, which enable the use of Proportional Integral Derivative controller for improved performance of complete system. Generally, high gains are offered by boost convertor at expense of extreme duty cycle, which establishes high voltage stresses across switches. Owing to these stresses, high on-state resistance switches ought to be used. The proposed research discusses in detail the design of high efficiency and high gain DC/DC boost converter, which step up lower DC voltages to higher voltages without compromising gain and efficiency by introducing a coupled inductor. The proposed research presents a comparative study on selection of optimal MOSFET to obtain high efficiency and high gain. Thus, several MOSFETs were studied, reviewed and assessed in terms of performance affecting parameters and results of various MOSFETs have been recorded. Resultantly, high efficiency and high gain were achieved with the removal of voltage spikes across switches and switch stresses were also mitigated. Moreover, It is required to maintain constant output voltage at load end. Owing to change in voltage at load and source end, there is a constant variation in converter output voltage. Thus, Proportional Integral Derivative controller is employed to attain constant output voltage regardless of variations in source or load. The complete system has been designed and subsequently simulated in MATLAB Simulink to authenticate system operation.

Keywords: High efficiency, High gain, Coupled inductor, PID controller. MOSFET, DC-DC Converter, MATLAB

Antenna Installation and Location Qualification Aircraft using Computational Electromagnetic Tools

Kamran Arif¹, Umer Afzal², Channa Babar Ali², Azhar Hassan², Abdulfattah Noorwali³ and Syed Aziz Shah⁴

¹Department of Electrical Engineering, National University of Sciences & Technology (CAE) Islamabad, Pakistan

²Department of Avionics Engineering, Air University, Aerospace and Aviation, Kamra, Attock, Pakistan

³Department of Electrical Engineering, Umm Al-Qura University, Makkah, Saudi Arabia

⁴Research Centre for Intelligent Healthcare, Coventry University, Coventry, UK

ranakamranarif@gmail.com, umer.afzal320@gmail.com, babar.aly1@gmail.com,
ahasan.cae.nust.edu.pk, amnoorwali@uqu.edu.sa, syed.shah@coventry.ac.uk

Abstract. In this work, antenna location qualification and co-site analysis were performed on Mirage aircraft. Two blade antennas operating within the frequency range of 0.960 GHz to 1.220 GHz and 0.400 GHz to 0.500 GHz have been designed, optimized and their location qualification on the Mirage fuselage has been carried out. The designed antennas are simulated by using the 'CST Microwave Studio' software in an isolated environment and also simulated by mounting the antennas onto an aircraft CAD model. The radiation pattern and return loss of the designed antennas are measured. The mutual coupling between the antennas mounted on the aircraft is measured and the coupling matrix is optimized.

Keywords: Blade antenna, Return loss, CST, Radiation pattern, Location qualification, Co-site analysis, Mutual coupling, Coupling matrix, Computational Electromagnetic.

Design of 15W X-Band GaN Based Transmit / Receive Module for Airborne Active Phased Array Radar Applications

Channa Babar Ali¹, Muhammad Hashsham Chishti², Umar Anjum¹, Shahzad Arshad¹, Abdulfattah Noorwali³ and Syed Aziz Shah⁴

¹Department of Avionics Engineering, Air University, Aerospace and Aviation, Kamra, Pakistan

²Department of Electrical Engineering, Karlsruhe Institute of Technology, Karlsruhe, Germany

³Department of Electrical Engineering, Umm Al-Qura University, Makkah, Saudi Arabia

⁴Research Centre for Intelligent Healthcare, Coventry University, Coventry, UK

babar.aly1@gmail.com, hashshamchishti@hotmail.com,
umar2472@hotmail.com, shahzadarshad@hotmail.com, amnoorwali@uqu.edu.sa
, syed.shah@coventry.ac.uk

Abstract. Transmit / Receive module (TRM) is the core component that addresses key requirements of next generation Active Electronically Scanned Array Radars i.e. multifarious functionality, modularity and scalability. Furthermore, ostensible requirements of miniaturization, wideband performance, high-output power and apt electrical performance exacerbate design intricacies of TRM. Thus, the proposed paper aims to design TRM ranging from 8.5 GHz – 11 GHz, with 15W output power while meeting half-the-wavelength size constraint. Moreover, the proposed paper focuses to devise apt architecture, opt substrate optimally, propose PCB layer and MMIC stack-up, design high-frequency transmission lines, perform crosstalk analysis and propose test-setup for validation of TRM. The proposed architecture of TRM was validated through RF budget simulation in Visual System Simulator (AWR) followed by transmission lines design in ANSYS HFSS, Multi-layer PCB design in Cadence Allegro and Crosstalk simulations in ANSYS SIwave. In a nutshell, the achieved performance of TRM was up-to-the-mark in terms of returns loss and fractional bandwidth as return losses of all high-frequency transmission lines were below -20 dB and fractional bandwidth < 40% was attained over the entire X-Band from 8 GHz to 12 GHz. Furthermore, the near-end crosstalk (NEXT) and far-end crosstalk (FEXT) were achieved to be < 7%.

Keywords: T/R Module, AESA, GaN, Multi-layer PCB, Crosstalk, VSS, ANSYS HFSS, Cadence Allegro, ANSYS SIwave.

Stability Elements and Matching Components of Microwave Amplifier at C-band Frequency: Simulation Study

R. C. Yob, N. H. Ramli, N. Bahari, L. Zahid and M. W. Nasrudin

Faculty of Electronic Engineering Technology (FTKEN), Universiti Malaysia Perlis (UniMAP), Pauh, Perlis

rashidahcheyob@unimap.edu.my, hidayahramli@unimap.edu.my,
norfatihah@unimap.edu.my, liyanazahid@unimap.edu.my, wafi@unimap.edu.my

Abstract. The stability elements and matching components of microwave amplifier at C-band frequency are presented in this article, which primarily focuses on a simulation analysis. Agilent's Advanced Design System software is used to conduct this simulation analysis. To maintain the necessary outputs, such as low noise for low noise amplifier and high power for high power amplifiers, the stability elements and matching components on microwave amplifiers have been a significant consideration. Simultaneously, problems of reliability need more focus to prevent oscillations and ensure that the amplifier function properly. Furthermore, the stability elements and matching components must be completed at the start of the design process to ensure that the circuits are run in a stable area, ensuring that it will be operated properly. In this article, this investigation is tested for two types of transistors at 5 GHz: conditional stable and unconditionally stable transistors. The conditional stable will be represented by the pseudomorphic high electron-mobility transistor, pHEMT of ATF-36077. Meanwhile, the unconditional stable transistor is a power gallium arsenide field-effect transistor (GaAs FET) of the FLC053WG. The stability analysis results for both conditions of the transistor are compared in a calculation or MATLAB with an ADS software simulation. The obtained results show a high level of consensus. To perform well as a microwave amplifier in the stable area, the unconditional stable transistor of ATF-36077 required proper stability and matching components.

Keywords: C-band frequency, matching components, microwave amplifier, simulation analysis, stability elements.

Artificial Neural Network Approach Assessment of Short-Circuit Fault Detection in a Three Phase Inverter

Mimouna Abid, Souad Saadi Laribi, Zuhair S. Al-Sagar and M'hamed Larbi

Department of Electrical Engineering, L2GEGI Laboratory, University of Tiaret, Tiaret, Algeria
Departement of Renewable Energy, Middle Technical University, Baqubah Technical Institute, Baghdad, Irak

mimouna.abid@univ-tiaret.dz, souad.laribi@univ-tiaret.dz,
Zuhairalsagar@mtu.edu.iq, larbi_mh@yhoo.fr

Abstract. The design of a new technique based on Neural Networks for the diagnosis of three-phase inverters is the objective of this article. The new technique is based on the fast Fourier transform of the currents in the output of the inverter with the aim of detecting short circuits faults in the Insulated Gate Bipolar Transistor (IGBT) switches of the inverter. These currents also form a database for the technique used from their modules and phases angles. Implementing this technique in the inverter, makes the location of the switch shorted easy and quick even if there is more than one switch shorted. Using SimPower / Simulink® MATLAB environment, the obtained results shown the perfect performance of the Artificial Neural Network method (ANN) to detect the short-circuit faults in three-phase inverters.

Keywords: three-phase inverter, IGBTs, fault diagnosis, fault localization, short-circuit, MLP neural network, Fourier analysis

Robust sensorless Induction Motor Control based on Extended Kalman Filter Observer

Lamyae Et-Taaj, Zakaria Boulghasoul, Abdelhadi Elbacha and Abdellah El kharki

System Engineering and Applications Laboratory (SEAL), National School of Applied Sciences, Cadi Ayyad University Marrakesh, Morocco

lanyaetaaj95@gmail.com, z.boulghasoul@gmail.com, a.elbacha@uca.ma, abdellah.elkharki@gmail.com

Abstract. This paper suggests a robust sensorless control of the Induction Motor (IM) using the famous Extended Kalman Filter (EKF). The quality of the estimated speed strongly depends on rotor resistance R_r and stator resistance R_s . A change in R_r or R_s causes a significant speed estimation error, especially at low speed. The variation in these resistances affects not only the estimated speed but also the indirect Field-Oriented Control (FOC), as it would be demonstrated later in this paper. Unfortunately, these resistances are strongly affected by temperature and frequency variation. Therefore, the estimation of R_s and R_r and rotor speed is necessary to enhance the robustness of the sensorless control of IM. This study also covers the load torque estimation used to improve the estimated speed transient state. In short, the contribution of this paper is represented by the estimation of the following states: currents ($I_{\alpha s}$, $I_{\beta s}$), fluxes ($\varphi_{\alpha s}$, $\varphi_{\beta s}$), rotor speed Ω , load torque T_L , stator resistance R_s , and rotor resistance R_r simultaneously by a single EKF without using a model of R_s or switching between two separate EKF algorithms. Simulation results obtained thanks to Matlab/Simulink software demonstrates the robustness of the EKF observer at low speed against variation of parameters and the robustness of Field Oriented Control against variation of R_r .

Keywords: Induction Motor, robust Extended Kalman Filter, rotor resistance, stator resistance, parameters identification, low-speed, stability, sensorless control, Field Oriented Control

ABSTRACTS

A Systematic Approach for Evaluating the Accuracy of Overhead Line Fault Location Using the Traveling Wave Method

Daw Saleh Sasi Mohammed¹, Abdulrahman A.A. Emhemed¹, Hawa Ayad Alsanousi¹, Abusaif S. Abdulalli¹ and Mohd Wazir Mustafa²

¹Dept. Electrical Engineering, Bright Star University, Al Brega -Libya

²School of Electrical Engineering, Universiti Teknologi Malaysia, Johor, Johor Bahru, Malaysia

sasedaw@gmail.com, abdo_83f@yahoo.com, ahwaalsnwsy@gmail.com,
abusaif69@yahoo.com, wazir@utm.my

Abstract. In the power system, the high-voltage transmission lines are responsible for transmitting large amounts of energy from one location to another. However, this feature is not always possible because of different defects that may occur on these lines. Therefore, power suppliers must provide exact defective locations where maintenance lines can accelerate, system reliability improved, and unnecessary operating expenses eliminated. In this paper, the traveling wave technique based on wavelet transform proposes to find the exact location assist with voltages and currents signal at the single and multi-end of the transmission line. The techniques simulated using PSCAD / EMTDC software based on a single-phase to ground fault and tested on the sample system. A compendium of the results has shown that the multi-end technique is more accurate than the single-end technique.

Keywords: Algorithm, fault location, power transmission line, Wavelet transform, PSCAD / EMTDC software



**The International Conference of Advances in
Bioscience and Biomedical Engineering**

(ICOBBE 2021)

ABSTRACTS

Assessments of Concentrations of Sulfur Dioxide (SO₂) In Universiti Tun Hussein Onn Malaysia (UTHM) Campus Area, Batu Pahat

Farrah Nuramanina Mohd Anuar, Norzila Othman, Wahid Ali Hamood Altowayti

Faculty Micropollutant Research Centre, Faculty of Civil Engineering and Built Environment, Universiti Tun
Hussein Onn ,Malaysia

farrahanuar.work@gmail.com, norzila@uthm.edu.my, wahidali@uthm.edu.my

Abstract. More air contaminants have an effect on public health. In recent decades, the topic of production of air pollutants has gained a lot of public interest and research attention. One of the main gases responsible for air pollutants is sulphur dioxide (SO₂). The purpose of this research is to explore sulphur dioxide differences at various locations in the campus area of Universiti Tun Hussein Onn Malaysia (UTHM). For this purpose, air pollutant data from thirteen areas were measured at different times. The maximum levels of sulphur dioxide were recorded in the afternoon and the minimum in the morning. SPSS study (one-way ANOVA) of the SO₂ concentration at various locations in UTHM revealed eight independent groups for all locations at $p < 0.5$. The highest concentration of SO₂ were recorded at KKTDI (a) with the reading of 0.198 and the lowest concentration of SO₂ reading were at PKU with the reading of 0.03 ppm. The results of this investigation show that SO₂ concentrations are strongly associated to locations near emission sources and have a significant fluctuation in the atmosphere.

Keywords: Air quality parameters, Air pollutants, Human health, Sulphur Dioxide (SO₂).

ABSTRACTS

Epoxidation of Waste Cooking Palm Oil with Peracetic Acid Catalyzed by Sulfuric Acid

Asem Abduqawi Alsofiany, Mohamad Faiz Mukhtar Gunam Resul

Department of Chemical and Environmental Engineering, Universiti Putra Malaysia (UPM) Serdang, Malaysia

eng.ase4@gmail.com, mf_mukhtar@upm.edu.my

Abstract. The interest in the epoxidation of vegetable oils has increased significantly in recent years due to their sustainability, renewability, and biodegradability. In this study, waste cooking palm oil (WCPO) was epoxidized, which then can be introduced as a potential bio-based monomer. The epoxidation reaction was carried out by in situ generated peroxyacetic acid in the presence of a sulfuric acid catalyst in a tri-neck flask fitted with a condenser. Heating and stirring were provided by a heater-stirrer. In this study, the effect of the process operating parameters such as temperature (40– 60 °C), catalyst loading (1.0-2.5%) and the molar ratio of hydrogen peroxide and acetic acid to the double bond (0.5-2.0) and (0.1-0.7) respectively, were investigated and the optimum conditions were established. A maximum relative conversion to oxirane of 56.8% and iodine conversion of 53.7% could be achieved at the optimum reaction conditions namely, temperature 60 °C within a reaction time of 4 hrs, catalyst loading 2.0%, hydrogen peroxide to unsaturation (1.5), acetic acid to unsaturation (0.5), and stirring speed of 900 rpm. The findings of this study provide keys to those interested in the epoxidation of WCPO for making valuable bio-based materials such as plasticizers, adhesives, and lubricants.

Keywords: In Situ Epoxidation, Optimization, Palm Oil, Peroxyacetic Acid

ABSTRACTS

Reasons for Increasing of In Vitro Fertilization Treatment In Palestine: Cross-sectional Study Design

Noura Abulail, Mohammed Moreb and Shahenaz Najjar

Department of Chemical and Environmental Engineering, Universiti Putra Malaysia (UPM) Serdang, Malaysia

eng.aseem4@gmail.com, mf_mukhtar@upm.edu.my

Abstract. In the last decade it has been observed that more Palestinian women have had In Vitro Fertilization (IVF) treatment to have their babies than ever, however this study aims to identify major factors that influence the decision to have this treatment, evaluating public support for fertility treatment exist, This research connects the IVF patient information, and annual reports of ministry of health, data collected by questionnaire, that couples who undergo IVF asked to fill questionnaire about their life style to modify Lifestyle factors effects on fertility (such as nutrition, the quality of drinking water, weight, exercise, psychological stress, environmental and occupational exposures, and some manners can have substantial; lifestyle factors such as cigarette smoking, and caffeine consumption). Data was analyzed using SPSS tools used to produce a descriptive tabulation of data obtaining variables which will be presented as frequency, percentage, and charts, and This study revealed that infertile women seeking treatment having unhealthy lifestyle that decrease chances of becoming pregnant.

Keywords: In Vitro Fertilization, lifestyle, fertility factors, exercise, psychological stress, nutrition

Bioelectrical Impedance Analysis for Evaluation of Body Composition: A Review

Mahmood Aldobali and Kirti Pal

Dept. Electrical Engineering, Gautam Buddha University, Greater Noida, India

mmaldobali@gmail.com, kirti.pal@gbu.ac.in

Abstract. Bioelectrical impedance (BIA) is a painless, non-invasive, and easily portable technique that may clarify how the human body is operational. Body composition (BC) assessment is commonly established as a clinical technique for evaluating and estimating disease status. BIA has been applied to assess the mass distribution and water compartments in the BC. BIA has several parameters: fat mass, fat-free mass, total body water, phase angle, and body mass index; these parameters show the body distributions. BIA could beneficially predict the patient's status. However, more studies need to improve validity and reliability, according to these aspects. The purpose of this review was to briefly theoretical procedures of numerous compartments models of body composition.

Keywords: bioelectrical impedance analysis, body composition, body mass index, total body water, fat mass, fat-free mass, body cell mass, body fat percentage, phase angle

Optimization of Callus Induction Using Different Plant Hormone and Light Condition

Siti Zulaiha Ghazali, Saiyidah Nafisah Hashim, Nur Nadirah Rodzali, Siti Nur Azmu'I
Abdullah, Noor Amira Muhammad, Tay Chia Chay and Norrizah Jaafar Sidik²

¹ Department of Biology, Faculty of Applied Sciences, Universiti Teknologi MARA Perlis, 03500 Arau, Malaysia.

Department of Biology, Faculty of Applied Sciences, Universiti Teknologi MARA, Perak Branch, 35400 Tapah Road, Perak, Malaysia

Department of Chemistry, Faculty of Applied Sciences, Universiti Teknologi MARA, Perak Branch, 35400 Tapah Road, Perak, Malaysia

Department of Chemistry and Environment, Faculty of Applied Sciences, Universiti Teknologi MARA Shah Alam, 40450 Shah Alam, Selangor, Malaysia

Department of Biology, Faculty of Applied Sciences, Universiti Teknologi MARA Shah Alam, 40450 Shah Alam, Selangor, Malaysia

ctzulaiha_91@yahoo.com, saiyidah394@uitm.edu.m, nurnadilah@uitm.edu.my,
siti6368@uitm.edu.my, noora6359@uitm.edu.my, taychiay@uitm.edu.my,
norri536@uitm.edu.my

Abstract. Clinacanthus nutans is a well-known source for pharmaceutical drugs with most of the active ingredients classified as secondary metabolites. The study objectives are to explore the effect addition of different plant hormones alone or by combinations in the MS plant growth medium and factor of light sources towards induction of callus via in vitro culture. In this study, nodal explant of *C. nutans* was cultured on Murashige and Skoog Medium (MS) supplemented with different concentrations of Naphthaleneacetic acid (NAA) (0.5, 1.0, 1.5, and 2.0 mg/L) and 2,4-Dichlorophenoxyacetic acid (2,4-D) (0, 1, 2, 3 and 4 mg/L) at dark and light conditions. In hormone combination treatments, study was conducted with addition on same concentration of NAA and BAP in MS medium. Study with single hormone in MS medium resulted that only NAA had successfully induced callus at both light and dark conditions. Highest friable callus produced is at MS + 1.5 mg/L NAA in dark as 100% callus induced with 1.470 ± 0.225 g fresh weight. Next, study on the effect of NAA + BAP combinations in MS medium resulted that the treatment induced compact callus formation in both light and dark condition. The highest number of callus produced is in treatment of MS + NAA (0.1 mg/L) + BAP (0.1 mg/L) with 0.569 ± 0.159 callus fresh weight. To conclude single treatment callus 1.5 mg/L NAA alone at dark condition was best to produce friable and proliferative callus.

Keywords: Clinacanthus nutans, callus induction, Naphthaleneacetic acid, 2,4-Dichlorophenoxyacetic acid and Benzylaminopurine, light and dark

ABSTRACTS

Characterization of Bionanocellulose Producing Bacteria Isolated from Tapioca Wastewater

Intan Shafinaz Mohamad Jamal, Nurul Syuhada Sahari, Siti Halimah Hasmoni, Zaharah Ibrahim, Nik Ahmad Nizam Nik Malek and Shafinaz Shahir

Department of Biosciences, Faculty of Science, Universiti Teknologi Malaysia, Johor Bahru, Johor

shafinazjamal5@gmail.com, syuhadasahari@gmail.com, sitihalimah@utm.my, zaharah@utm.my, niknizam@utm.my, shafinazshahir@utm.my

Abstract. This study was conducted to explore the potential of isolating bionanocellulose (BNC) producing bacteria from tapioca wastewater. A total of ten bacteria were successfully isolated and only one isolate named BPNC 3 produced white gelatinous materials in Hestrin and Schramm (HS) medium believed to be the BNC. According to 16S rRNA analysis, bacterium BPNC 3 was identified as *Asaia* sp. The BNC produced by *Asaia* sp. BPNC3 was characterized via Fourier transformed-infrared spectroscopy (FTIR) and Field-emission scanning electron microscope (FESEM). The FTIR spectrum showed the presence of two signature peaks at 3276.69 cm⁻¹ and 2923.99 cm⁻¹ indicative of nanocellulosic material. The FESEM micrograph showed characteristics of network fibrils typically present in nanocellulose structure.

Keywords: Bionanocellulose; Acetic Acid Bacteria; Tapioca Wastewater; *Asaia* sp



**The International Conference of Advances in
Sustainable Environmental Engineering**

(ICOSEE 2021)

ABSTRACTS

Optimization in a Two-Stage Sorption of Malachite Green by Date Palm Residue Carbon

Salem Mahfoudh Salem Bamatraf and Muhammad Abbas Ahmad Zaini

¹School of Chemical and Energy Engineering, Faculty of Engineering, Universiti Teknologi Malaysia, Johor Bahru, Johor, Malaysia

salem_bamatraf@hotmail.com, r-abbas@utm.my

Abstract. This paper aimed to optimize the sorption of malachite green onto date seed shell activated carbon. Langmuir and pseudo-second-order constants were used to evaluate the optimum mass and contact time, respectively with the aid of Microsoft Excel. Mass reduction of 34% was obtained, while contact time has been optimized by 70% for the two-stage sorption system. The improvement from a two-stage design would offer benefits in enhancing the performance of the sorption process.

Keywords: Activated Carbon, Date Palm, Malachite Green, Two-stage Sorption, Optimization.

Improving the Geometric Characteristics of Road Infrastructure to Reduce the Rate of Run-off and Head-on Crashes

Abeer Jameel, Ahmed Al-Bdairi and Atheer Al-Nuaimi

¹ Highway and Transportation Engineering, College of Engineering, Mustansiriyah University, Baghdad, Iraq

abeer_khudhur@uomustansiriyah.edu.iq, ahmed_shaker_eng87@uomustansiriyah.edu.iq,
engatheernaji@yahoo.com

Abstract. Road risk assessment is an important strategy recommended by global organisations to avoid the road accidents occurring and reduce the likelihood of road accidents. It can be done in the design and construction stages as it is based mainly on the geometric characteristics of roads and it is not based on the road accidents history in the assessed roads. In Iraq, a few studies have been conducted to consider the road attributes in studying road safety and assess the level of road risk based on the road geometric characteristics. Therefore, it is aimed in this paper to assess road risk levels according to the road attributes and other factors such as traffic characteristics. It is focused on two types of crashes, run-off and head-on. The main steps followed in this paper are selecting the study area, collecting the needed data that represent the geometric features of roads and supporting traffic data, processing the selected methodology for assessment, presenting the results of the assessment which are presented in terms of the likelihood score, severity score, star rating and the estimated rate of fatalities. Based on the results of assessments, countermeasures are suggested to improve the safety level. The results show that poor road condition has led to high likelihood scores of both types of crashes. In addition, the unpaved roadside has led to a high severity score of run-off crashes, while the undivided road has led to a high severity score of head-on crashes. Therefore, it is suggested to resurface main roads, pave shoulders and upgrade the road section to a divided multi-lane road with a safety barrier median. The results of processing data after implementing each proposal show that resurfacing can save about 70% of the likelihood scores and fatalities rate, but the star rating is still at its lower level. Paving shoulders can eliminate a high rate of the severity of run-off crashes while widening and building a wide median can eliminate the severity of head-on crashes. A 5-star road for head-on crashes can be achieved by widening the road and building a wide concrete median. However, the star rating is still low for run-off crashes; therefore, it is recommended to improve driver behaviour to enhance road safety.

Keywords: road safety, risk assessment, geometric characteristics, iRAP, road condition, median, shoulder.

Statistical Evaluation of Moving Observer Method Accuracy for Measuring Traffic Flow Variables on Urban Roads

Tareq Al-Bahr¹, Othman Che Puan², Sitti Asmah Hassan¹, Shaza Farouk Azhari¹, Abdulsase M Al-Sabaei³, and Haydar A Mohammed¹

¹ School of Civil Engineering, Faculty of Engineering, Universiti Teknologi Malaysia (UTM), Johor Bahru, Malaysia

² Civil Engineering Department, College of Engineering, Universiti Malaysia Pahang, Gambang, Pahang, Malaysia

³ Department of Civil & Environmental Engineering, Universiti Teknologi Petronas (UTP), Perak, Malaysia

albahrtareq@gmail.com, othmancp@ump.edu.my, sasmah@utm.my,
shaza_azhari@hotmail.com, abdulnaser_17005477@utp.edu.my,
a_ali1976@graduate.utm.my

Abstract. The accuracy of traffic data collected from the field is an essential requirement for effective and reliable outcomes for planning, design, operation and assessment of transportation facilities. Moving Observer Method (MOM) is one of the well-known techniques that is widely used for generation of traffic data on urban roads due to its cheapness and ease of field application. However, the accuracy of the data collected using MOM is sensitive to the fluctuation of traffic flow demand, especially, on urban road. This study aims to statistically evaluate the traffic flow collected using MOM on urban road. A representative urban road segment in Johor Bahru was chosen for this study. The chosen road section has five (5) major access points of driveways and intersections. Traffic flow was concurrently measured on the selected urban road segment using both manual (with the aid of field observers) and MOM approaches over a duration of 90 minutes. Traffic flow estimates from the two approaches were compared statistically. A null hypothesis put forth is that there is no significant difference between the traffic estimates from the techniques. A statistical analysis using Z-standard normal distribution at 90% confidence level affirmed the postulated hypothesis, which implies that there exists no statistically significant difference between the traffic flow estimates derived from the two methods. This finding suggests that MOM can reliably be applied to estimate traffic flow on urban roads with reasonable accuracy.

Keywords: Moving Observer Method, Normal Distribution Test, Urban Roads.

A Short Review of Nano-Cellulose Preparation from Textile Spinning Waste Cotton

Abu Shadate Faisal Mahamude¹, Wan Saruzi Wan Harun¹, Kumaran Kadirgama², Kaniz Farhana³
and Devarajan Ramasamy⁴

¹Department of Mechanical Engineering, College of Engineering, Universiti of Malaysia Pahang, 26600 Pekan, Pahang, Malaysia

²Faculty of Mechanical & Automotive Engineering Technology, University of Malaysia Pahang, 26600 Pekan, Pahang, Malaysia

³Department of Apparel Engineering, Bangladesh University of Textiles Tejgaon, Dhaka-1208, Bangladesh

⁴Devarajan Ramasamy, Department of Mechanical Engineering, College of Engineering, Universiti of Malaysia Pahang, 26300 Kuantan, Pahang, Malaysia

mahamude.ump@gmail.com, sharuzi@ump.edu.my, kumaran@ump.edu.my,
kfarhana81@yahoo.com, deva@ump.edu.my

Abstract. Cotton fiber is the most used natural fiber among all other fibers as its application is not bound to the restriction. Cotton cellulose is a linear biopolymer and cotton is the most abundant as well as the most popular natural fiber for preparing natural human apparel that directly produces from nature. In the process of apparel manufacturing, each year huge amount of cotton fiber turns into waste. This paper aims to evaluate the preparation of nano-cellulose or nanocrystal cellulose from this waste cotton. Therefore, the waste cotton scenario of the spinning industry, statistics of waste cotton, and nanofiber in the spinning industry studied elaborately. Besides, this review describes the nano-cellulose materials preparation techniques, cotton waste source, nano-cellulose physical structure. Nano-cellulose is prepared using a variety of methods, including biological, mechanical, organic mechanical, bacterial, and enzyme processes, as well as a variety of chemicals. Nano-cellulose preparation processes with a high proportion aspect and strong thermal efficiency in this phase pave the way for alternative cotton reuse. Nano-cellulose has become commercially popular, but it cannot be used across the market at a high price, but waste cotton is the solution for the cheap end price for food supply, drug supply, army dress, and textiles. Due to the availability of waste cotton in very cheap in market and conversion to valuable product it will be a value added product.

Keywords: Cellulose; Nano-cellulose; Waste cotton; Textile spinning mill; Sulphuric acid.

Energy Demand Estimation of Electric Buses Considering Dynamic Wireless Charging Technology

Yaseen Alwesabi¹, Nabil Mohammed², Ala Al-Shargabi³ and Yong Wang⁴

¹Systems Science and Industrial Engineering, State University of New York at Binghamton, NY, USA

²School of Engineering, Macquarie University, Sydney, Australia

³Department of Computer Science, The Grove School of Engineering, The City College of New York, NY, USA

aminamed@unilorin.edu.ng, mojeed.ha@unilorin.edu.ng,

Abstract. The conversion from petroleum-fueled buses to electric buses (EBs) is regarded to limit damage to the environment from the widespread use of gasoline and diesel fuel. Several factors play important role in estimating the energy demand of EBs, such as vehicle mass, speed profile, energy efficiency rate, and road information. In the literature, validation of the analytical energy demand model of an EB is rarely reported. Large EB mass affects energy demand efficiency, which leads to higher consumption. This paper initially provides a comprehensive review of widely used energy demand models in EB systems. Using real-world data-driven from manufacturer test reports in the USA, a simple, practical, and validated mathematical model is derived to estimate the energy demand of EBs. Furthermore, the problem of computing the energy demand when EB battery size is a decision variable is addressed. To understand the energy demand system, the impact of efficiency rate and vehicle mass on the overall demand is also investigated. The influence of energy demand on optimization systems of dynamic wireless charging planning of EBs is investigated. The results show that a higher energy demand efficiency rate leads to lower consumption, overall cost reduction, battery size decline, and shorter dynamic charging facility.

Keywords: Electric bus, energy demand, dynamic wireless charging.

Proposed Contemplations to Make Current Modern Cities Normally Eco-friendlier and More Sustainable

Anmol Sachan

Senior software engineer

anmolsachan1997@gmail.com

Abstract. In this day and age of modern tech where everything, every single thing is getting fit into your pocket things like carbon emission, carbon footprint, E-waste, plastic accumulation do not have much importance in anyone's life. Now, this is all because of successful marketing campaigns by companies. The amazing thing about tech is that its spectrum is not limited to computers or IT, scientists and engineers have been successful in spreading their happy pill in all domains of engineering and sectors of life (kudos to engineers on that). Now, this is not in the scope of the paper. The fact that no one on this planet can live without the tech-drugs companies have been supplying in loads to the masses should be shoved down the throat and digested. So instead of telling people to stop using tech or all those gizmos, an alternative solution needs to be found. People have been trying recycling and upcycling things for decades and being truthful to yourself everyone knows that is a fail experiment. Think of it how would you recycle your 1000\$ iPhone or a laptop which was bought last year but is now dated which is also because of technological advances. So, instead of trying to restrict usage or refraining technology. It should be made ecological and economical (because no one uses herbal tooth-paste just because it has green leaves on the packaging).

Keywords: Environment, Institutes, Gases, real estate, transportation, roads, urbanization.

Comparative Study of Soil Erosion Factors According to Major Landforms Classification: A Review

Narendra Kumar Maurya and Prakash Singh Tanwar

¹ Department of Civil Engineering, Madhav University, Pindwara, Sirohi, Rajasthan, India
Lovely Professional University, Phagwara, Jalandhar, Punjab, India

er.narendramaurya@gmail.com, pst.online@gmail.com

Abstract. In most countries, estimation or prediction of soil erosion loss and evaluation of soil erosion risk becomes a tedious task before employing soil protection practices. A lot of literature is published on the Universal Soil Loss Equation (USLE) and Revised Universal Soil Loss Equation (RUSLE) with GIS techniques. This review paper assesses the current literature on USLE and RUSLE model for various landforms in separate papers. Here, the paper bifurcates the soil erosion according to major landforms used like Plain, Hill, Mountain, Plateau, and Miscellaneous then it is sub-classified according to model factor's equation. The aim of this paper is to determine the suitable soil erosion estimation factor's formulas according to various landforms and write down on single place. In the last section, it compares various equations provided by various researchers in various landforms. The author's view for the suitable formula according to various landforms is provided for all factors. According to this paper, if intensity data is unavailable formula R8 is recommended for the R factor, but if intensity data of rainfall is given then R1 will be a good choice. LS factor is widely calculated by the DEM model using GIS, otherwise, L2 or S2 are good choices for all regions or landforms. If M(Particle size parameter), OM(Organic matter content), S(Structure), and P(Permeability) are given then K can be calculated from K1 for all landforms, otherwise, K can be directly taken from standard table K2 and K2'. Formula C2 is the best choice for the C factor for all landforms. The review shows that formula for P is rarely used by most of the researchers, it varies according to agricultural practices, forest land, etc., and can be calculated using formula P1, otherwise, P can be directly obtained from the practice types used in the P2 with the given table.

Keywords: Soil Erosion, RUSLE, USLE, GIS, Fluvial Erosion.

ABSTRACTS

Acceptable Walking Distance Accessible to The Nearest Bus Stop Considering the Service Coverage

Nur Amirah Mhd Noh, Diana Mohamad and Ahmad Hilmy Abdul Hamid

¹ School of Housing, Building and Planning, Universiti Sains Malaysia, Penang, Malaysia
Ansart Sdn.Bhd, Penang, Malaysia

nuramirah_mhdnoh@yahoo.com, diana_mohamad@usm.my, hilcom59@gmail.com

Abstract. Accessibility primarily influenced the transport provision on land use. If the area consists of a better transport network, the economic growth surrounding the area is more highly developed. From the perspective of the transport model, it is very crucial to establish accessibility by weighting land use as one of the main variables. The key indicator in defining the most efficacious network supply and quality is through the measurement of the accessibility to the public bus service provided. This study assessed the acceptable walking distance to the nearest bus stop by using GIS analysis and service access coverage index. The finding discovered that the access coverage is directly proportional to the radius of the catchment area, and the walking behavior is influenced by the availability of the walking pathway. The local authorities' concern on the development of good infrastructure will help to sustain the public transportation system.

Keywords: bus stop location, accessibility, land use.

Removal of Cadmium (II) from Aqueous Solution by Rice Husk Waste

Anwar Ameen Hezam Saeed¹, Noorfidza Yub Harun¹, Suriati Sufian², Aiban Abdulhakim Saeed Ghaleb², Ahmad Hussaini Jagaba³ and Haetham G. Mohammed³

¹Department of Chemical Engineering, Universiti Teknologi PETRONAS, Bandar Seri Iskandar 32610, Perak Darul Ridzuan, Malaysia.

²Department of Civil and Environmental Engineering, Universiti Teknologi PETRONAS, Bandar Seri Iskandar 32610, Perak Darul Ridzuan, Malaysia

³Department of Mechanical Engineering, Universiti Teknologi PETRONAS (UTP), 32610 Bandar Seri Iskandar, Perak, Malaysia

aminamed@unilorin.edu.ng, mojeed.ha@unilorin.edu.ng,

Abstract. Rice husk is one of the best possible ingredients waste for producing a range of value-added goods, whether in the form of raw materials, ash, or char. Scanning Electron Microscopy (SEM), Fourier Transform Infrared Spectroscopy (FTIR), and BET surface area measurements Characterization were used to describe the adsorbent that had been processed. The impact of initial concentration, solution pH, and rotation time was investigated in the batch study. The modified rice husk adsorbent obtained a larger surface area, showed a good removal rate, and highest adsorption capacity compared to the pure rice husk. The maximum removal rate of cadmium obtained by modified rice husk and pure rice husk were 78% and 67% at 25mg/L initial concentration, respectively. The optimal pH was found at a 6-pH solution and the removal rate and adsorption capacity were found high at an early stage of agitation time and reach the highest at 3 hours of agitation time then no significant improvement occurred.

Keywords: Adsorption, Cadmium ions, Rice Husk, Sodium hydroxide.



**The International Conference of AThe International
Conference of Advances in Applied Sciences**

(ICOAPS 2021)

Biosynthesis of Zinc Oxide Microparticles By Using Palm Oil Leaves Extract

Adnan A. Alshaer¹, Ainun Rahmahwati¹, Ramzi Qasem²

¹Department Department of Mechanical and Manufacturing Engineering UTHM, Johor Bahru, Malaysia

²Department of Chemical & Natural Resources Engineering, UMP, Pahang, Malaysia

adnanalshaer99@gmail.com, ainun@uthm.edu.my, ramzihasanali@gmail.com

Abstract. Green biosynthesis is a good alternative where plants are used to assist microparticle synthesis which has eco-friendly benefits compared to chemical and physical methods. The aim of this study was to synthesize and characterize zinc oxide microparticles by using palm oil leaves. Fourier Transform Infrared Spectroscopy (FT-IR), X-Ray Diffraction analysis (XRD) and Field Emission Scanning Electron Microscope (FESEM) were used to characterize the biosynthesized Zinc Oxide microparticles. XRD results revealed the formation of hexagonal wurtzite structure. FT-IR analysis confirmed the formation of chemical bonds in zinc oxide. Finally, (FESEM) analysis showed that the average size of zinc oxide microparticles 0.58 and 0.83 and 1.44 μm at different annealing temperatures of 30, 60 and 90 °C respectively.

Keywords: Green Biosynthesis, Zinc oxide microparticles, Characterization, Plant Leaf Extract

Assessing Surface Defects of Flexible Pavement at Parking Lot due to Undesirable Commercial Activities

Muhammad Faris Mohd Rizam¹, Khairil Azman Masri¹, Ahmad Kamil Arshad², Mohamad Izuddin Saikhon¹, Shoaib Md Shahnewaz¹

¹Department of Civil Engineering, Universiti Malaysia Pahang, Kuantan, Malaysia

²Institute for Infrastructure Engineering and Sustainable Management (IIESM), Universiti Teknologi Mara, Selangor, Malaysia

farisrizam007@gmail.com, khairilazman@ump.edu.my, drahmadkamil@gmail.com, izuddinsaikhon@gmail.com, shahshoaib2012@gmail.com

Abstract. Flexible pavement can be considered as the main mode of transportation nowadays as it is most reliable and have more users per day. As the pavement technologies developed over time, they manage to build pavement which is durable and economic. Even so, surface distresses can occur if the pavement was constructed poorly and also does not have regular maintenance. The purpose of this study is to investigate the relationship between the surface deformation at the parking lot with the undesired utilities of commercial vehicles by using visual observation and also image analysis software. From this study, four different locations which are two from inside institutional parking lot area and other two locations from outside institutional area. The two location that we choose must be a location with business activities and location without business activities as a comparison of the severity of the pavement. Pavement severity distresses analysis usually done on a highway as it has more traffic load and also the vehicles have higher speed. From the results, it clearly shown the existence of all four types of surface defects. It is also usually done using manual method which are using special ruler and visual observation. Thus, it is dangerous as the data must be read on site and also it needed more workers for the observation. For our approach, we take the data on site and use visual analysis software to get the data which is much safer.

Keywords: Surface Defects, Flexible pavement, Pavement severity, Bleeding, Ravelling, Polishing, Delamination, Visual observation.

Evaluation of Flexible Pavement Distresses due to Undesirable Commercial Vehicles Activity

Mohamad Izuddin Saikhon¹, Khairil Azman Masri¹, Ahmad Kamil Arshad², Muhammad Faris Mohd Rizam¹, Shoaib Md Shahnewaz¹ and Rashida Ferdaus¹

¹Department of Civil Engineering, Universiti Malaysia Pahang, Kuantan, Malaysia

²Institute for Infrastructure Engineering and Sustainable Management (IIESM), Universiti Teknologi Mara, Selangor, Malaysia

izuddinsaikhon@gmail.com, khairilazman@ump.edu.my, farisrizam007@gmail.com,
shahshoaib2012@gmail.com, rashida.umpmy@gmail.com

Abstract. A study was carried out to evaluate the flexible pavement distresses for cracking and potholes in the parking area with and without commercial activity. Infrastructures such as parking areas are commonly used for another activity rather than for car park only. For example, fresh market, ceremony, and concert. This Study focusing on open space parking area as the gaps between other researchers that studied on highways or road network. The chosen of site location were divide into two categories which are urban area, Kuantan city and the educational area, Universiti Malaysia Pahang, Gambang. The aim is to study the severity level of distresses appeared on parking area. Therefore, the main objective is determining the most severe area of distresses by visual observation and performing the image software analysis to analyze the severity level of distresses with the guideline in collecting data based on national guidelines, published by the Public Works Department. Besides, performing Image Interpretation Group (IIG) as the method to classified the severity level by using Gwyddion Software. The data shows, 5 sample distresses for potholes were founded and 7 sample for cracking was collected at each site area. For the conclusion, parking area with commercial activity at urban area recorded the high number distresses and classified as the worst condition among the other site of parking area.

Keywords: Pavement Distresses, Cracking, Potholes, Image Analysis.

Numerical Studies of Graphene Hybrid Nanofluids in Flat Plate Solar Collector

Abu Shadate Faisal Mahamude¹, Wan Saruzi Wan Harun¹, Kumaran Kadirgama², Kaniz Farhana³
and Devaranjan Ramasamy¹

¹Department of Mechanical Engineering, College of Engineering, Universiti of Malaysia Pahang, 26600 Pekan, Pahang, Malaysia

²Faculty of Mechanical & Automotive Engineering Technology, University of Malaysia Pahang, 26600 Pekan, Pahang, Malaysia

³Department of Apparel Engineering, Bangladesh University of Textiles, Tejgaon, Dhaka-1208, Bangladesh

mahamude.ump@gmail.com, sharuzi@ump.edu.my, kumaran@ump.edu.my,
kfarhana81@yahoo.com, deva@ump.edu.my

Abstract. This study aims to present the fundamental properties related to heat transfer of nanofluids and hybrid nanofluids in solar collector numerically. To deduct the energy consumption and to improve the efficiency of the flat plate solar collector, a research study was conducted to expand its wings in various pathways. Computational simulation is one of them and plays a vital role to diminish the cost before the practical experiment. In this study, graphene, CNC nanofluids, and hybrid nanofluids (CNC + graphene) were used for numerical simulations, which were transferred to the header and riser tubes of the collector. Different attributes such as internal energy, heat transfer rate, surface heat transfer coefficient, surface Nusselt number, molecular Prandtl number and skin friction coefficient of nanofluids and hybrid nanofluids were evaluated and compared with the base fluid. The geometry was prepared based on the actual model of the solar collector using a software. The numerical study reported a satisfactory enhancement of internal energy, heat transfer rate, surface heat transfer coefficient of graphene and the hybrid of graphene nanofluids. Besides, nanofluids and hybrid nanofluids performed in a stable non-dimensional number but showed a rising trend in the skin friction coefficient.

Keywords: numerical simulation, graphene, hybrid nanofluids, thermal properties, solar collector.

Optimization of Synthesis of Poly (vinylbenzyl chloride) by RAFT Polymerisation

Hamzah Gamal Abdo Allozy and Khairil Juhanni Abd Karim

Department of Chemistry, Faculty of Science, Universiti Teknologi Malaysia
Johor Bahru, Malaysia

allozyhamzah@gmail.com, kjuhanni@utm.my

Abstract. One of the versatile radical polymerisation techniques, the reversible addition fragmentation chain transfer (RAFT) process, was used to synthesize the bifunctional monomer, vinylbenzyl chloride (VBC) into poly (vinylbenzyl chloride) (PVBC). The RAFT polymerisation technique is widely used because of the commercially available RAFT agent. The right choice of the RAFT agent will result in a good polymerisation. Temperature of 60°C and 80°C were chosen in this research study. The other conditions such as the purging and reaction time, the ratio of monomer/initiator for the control of VBC polymerisation were kept constant for all reaction. The reactions were monitored by ¹H Nuclear Magnetic Resonance spectroscopy (NMR) in the presence of deuterated chloroform as the internal standard and Attenuated Total Reflection (ATR-FTIR). The highest monomer conversion was 57.7 % at 80°C for 24 hours

Keywords: Vinylbenzyl chloride, RAFT polymerisation, temperature and time effects.

Magnetic Resonance Imaging Radiomics Analysis for Predicting Hepatocellular Carcinoma

Nurin Syazwina Mohd Haniff, Muhammad Khalis Abdul Karim, Nur Syafina Ali and Mohd Amir Abdul Rahman ²

Department of Physics, Faculty of Science, Universiti Putra Malaysia, 43400 Serdang, Selangor, Malaysia

nurinsyazwinal996@gmail.com, mkhalis@upm.edu.my, 39fina@gmail.com,
mohdamir@upm.edu.my

Abstract. Current technology allows for more accurate and precise diagnosis that able to classify the tumour staging by quantifying the features extraction and medical images analysis. Hence, this study aimed to evaluate radiomic features of Hepatocellular Carcinoma (HCC) based on magnetic resonance imaging (MRI) modality and to classify the tumour based on their staging. The image data were filtered by Laplacian Sharpening Images, and segmented by semi-automatic segmentation. Features such as shape features, first-order and second order statistic (GLSZM) were extracted from the segmented images. 51 data patients retrieved from The Cancer Imaging Archive (TCIA) browser and total forty-eight radiomic features were extracted from each patient. Features extracted were categorized into two group of HCC; group one (stage I and II) and group two (stage III and IV) and classified using automated machine learning (AutoML). Tree Based Pipeline Optimization Tool (TPOT) algorithm is chosen to perform the classification. TPOT algorithm selected the best pipeline with the highest accuracy and its performance was assessed using several performance metrics. The features range was seen to be overlapped between original images and images with enhancement after undergoes normalization. Decision Tree (DT) classifier is chosen as the best pipeline among TPOT algorithm for the features extracted from enhanced images. The accuracy, precision and recall for the pipeline are 0.846, 0.75 and 0.75. Area under ROC curve for DT classifier is 0.917. This study shows significance of image enhancement in pre-processing steps and AutoML.

Keywords: AutoML, image enhancement, Laplacian Sharpening Images, TPOT.

Detection of Novel Coronavirus from Chest X-Ray Radiograph Images Via Automated Machine Learning and CAD4COVID

M.K.A Karim¹, K. Izdihar², N. N Aresli¹, S. F. M. Radzi¹, A.Sabarudin³, M. M. Yunus³ and M.A.A Rahman¹

¹Department of Physics, Faculty of Science, Universiti Putra Malaysia, 43400 Serdang, Selangor, Malaysia

²Department of Medical Imaging, School of Health Sciences), KPJ Healthcare University College, Nilai, N. Sembilan, Malaysia

³Faculty of Health Sciences, Universiti Kebangsaan Malaysia, 43400 Serdang, Selangor, Malaysia

mkhalis@upm.edu.my, izdihar.kamal@kpjuc.edu.my, nrl.natsya09@gmail.com,
akmal.sabarudin@ukm.edu.my, mardhiyati@gmail.com, mohdamir@upm.edu.my

Abstract. Recently, Artificial Intelligence (AI) has been considered as a valuable tool to detect early COVID-19 (Cov-19) infections and to monitor the condition of the infected patients. Machine learning is a subset of AI that uses deep learning with neural network algorithms. Hence, this study aimed to explore the sensitivity of CoV-19 detection by using CAD4COVID program (Delft Imaging Netherland), and to evaluate the accuracy of the classifier performance using Automated Machine Learning (Auto ML) algorithm. 70 chest x-ray (CXR) images were assessed with 39, 20 and 11 patients receive probability score of low range (0-35), medium range (36-65) and high range (66-100), respectively. The sensitivity of AutoML detection was 0.99, with an accuracy of 0.83. In summary, the AutoML is comparable to CAD4COVID in detection of Cov-19.

Keywords: Artificial intelligence, CAD4COVID, Auto-ML, CoV-19, Chest X-ray.



**The International Conference of Advances in
Management and Education Technology**

(ICOMET)

Lean Hospital Using Waste Relationship Matrix

Fitra Lestari, Rozar Rayendra, Orie Harasakito and Rahmad Kurniawan

Industrial Engineering Department, Faculty of Science and Technology, UIN Sultan Syarif Kasim, Indonesia

fitra.lestari@uin-suska.ac.id, rozar.rayendra@uin-suska.ac.id,
Orie_1st@yahoo.com, rahmadkurniawan@uin-suska.ac.id

Abstract. This research was conducted at one of Indonesia's hospitals, especially in the outpatient service section. One outpatient services stage is a waste of waiting time on the part of the patient who queues for a long time at the BPJS registration for 1 hour with one person at the service counter. The model developed serves as a proposal for improving the BPJS service system by improving its waiting time waste. The current value stream mapping model is the initial model and the future value stream mapping is a model for the proposed improvement. The tools used are the waste relationship matrix to determine the most influential waste by looking at the value of the process cycle efficiency as a standard reference for lean which is around 30%. This research hopes that it will reference government proposals to other hospitals by improving the hospital service quality.

Keywords: Lean, Hospital, Waste Relationship Matrix, Value Stream Mapping, Indonesia.

ABSTRACTS

Comparison of Four Time Series Forecasting Methods for Coal Material Supplies: Case Study of a Power Plant in Indonesia

Muhammad Rizki, Farhan Dio Pahlevi, Muhammad Isnaini Hadiyul Umam, Muhammad Luthfi Hamzah and Sutoyo Sutoyo ³

Industrial Engineering Department, Faculty of Science and Technology, UIN Sultan Syarif Kasim, Pekanbaru, Indonesia

Muhammad.rizki@uin-suska.ac.id, Alexwenda@uin-suska.ac.id,
11850210432@students.uin-suska.ac.id, muhammad.isnaini@uin-suska.ac.id, muhammad.luthfi@uin-suska.ac.id, sutoyo@uin-suska.ac.id

Abstract. Coal is the main fuel in the production process at PT PJB UBJ O&M Tenayan. As a raw material, coal needs to be considered in terms of supply to prevent losses (depreciation in caloric content) in case of oversupply. This study aimed to compare four forecasting methods for coal material supply. The four methods of time series forecasting are the moving average method, the weighted moving average, the single exponential smoothing, and the linear regression. Forecasting error calculations used the smallest MAD, MSE, and MAPE error parameters, whereas the tracking signal was used to monitor the forecasting results. The data required were coal supply and demand. Based on the data processing obtained, results of this study show that the best method is linear regression with the results of the MAD value of 13,285.63, MSE of 228,778,800, and MAPE of 15.04%. Based on the results of the tracking signal, the forecasting results were within the control limits, which shows that the linear regression method is the best forecasting method that can be applied to control coal supply in the next period.

Keywords: forecasting, linear regression, time serie.

Knowledge Management Awareness and Application in Waqf Institutions: The Perception of Waqf Employees in Algeria

Abdelkader Laallam and Salina Kassim ³

IIUM Institute of Islamic Banking and Finance (IIiBF), International Islamic University Malaysia, Selangor, Malaysia.

kader0991@gmail.com, ksalina@iium.edu.my

Abstract. The purpose of this study is to investigate the level of awareness and perception of the importance of knowledge management among employees in the waqf sector in Algeria. In addition to investigating the extent to which knowledge management is applied in Algerian waqf institutions. A total of 193 out of 485 distributed questionnaires were returned and considered for analysis. Cluster technique based on geographical distribution was applied in order to select employees from both gender, male and female. In order to achieve the objectives of the study, a set of descriptive analyses were conducted using SPSS. The results of the study showed a positive level of awareness of the importance of knowledge management at the organizational level. However, the results showed a modest level of accreditation and application of knowledge management practices at the Algerian waqf institutions. This study provides several important implications to policy makers and waqf institutions, as it highlights on the consideration of knowledge management in their operations. This study is an extension of research on knowledge management, highlighting its importance and its effective role in enhancing the organizational performance of institutions. To the best of author's knowledge, this study is the first to address the issue of knowledge management importance in the context of waqf institutions in Algeria.

Keywords: Level of awareness, knowledge management practices, waqf employees, waqf institutions, Algeria.

Infrastructure Sharing and Quality of Service for Telecommunication Companies in Yemen

Abdu Saif, Ali Alashwal, Qazwan Abdullah, S. H. Alsamhi, Ali Ameen, and Adeeb Salh³

¹Department of Electrical Engineering, University of Malaya, Kuala Lumpur, Malaysia.

²School of Engineering, Design and Built Environment, Western Sydney University, Australia.

³Faculty of Electrical and Electronic Engineering, Sana'a University, Yemen.

Software Research Institute, Athlone Institute of Technology, Athlone, Ireland & IBB University, Ibb, Yemen

Faculty of Computer Science, Lincoln University college, Kuala Lumpur, Malaysia

Faculty of Electrical and Electronic Engineering, Universiti Tun Hussein Onn Malaysia, 86400 Parit Raja, Batu Pahat, Johor, Malaysia

saif.abduh2016@gmail.com, a.al-ashwal@westernsydney.edu.au,
gazwan20062015@gmail.com, salsamhi@ait.ie, ali.ameen@aol.com,
adebali@uthm.edu.my

Abstract. The telecommunication Quality of Service (QoS) is essential to run communication networks efficiently and smoothly. Effective costs and time management represent the most critical challenges globally to improve QoS. Infrastructure sharing in telecommunication companies (ISTC) refers to providing and delivering a high-level QoS to customers efficiently. QoS offered by telecommunication companies is not satisfactory due to the high expense of upgrading to the new technology. This paper focuses on mobile network infrastructure sharing among telecommunication companies in Yemen and improving QoS. A qualitative approach using semi-structured interviews was used to understand more about the role of ISTC in enhancing QoS in these companies. The study found that telecommunication companies in Yemen apply infrastructure sharing at a low level due to the absence of law and security policy for manage network sharing.

Keywords: ISTC, QoS, OPEX, CAPEX, Telecom, Yemen.

Connectivism: Promising Constructs to the E-Learning Systems Success

Behzad Nazari, Ab Razak Che Hussin and Naghmeh Niknejad³

¹Azman Hashim International Business School, Universiti Teknologi Malaysia, Johor, Malaysia.

²School of Computing, Universiti Teknologi Malaysia, Johor, Malaysia.

nazari.b@graduate.utm.my, abrazak@utm.my, naghmeh@utm.my

Abstract. The use of e-learning in teaching and learning today is very widespread. Various learning theories have been used behind the use of e-learning. However, there is still room for improvement by strengthening the connectivity aspect in the learning process. Connectivism has the potential to remove issues such as lack of interaction, inaccessibility to various ideas and resources, dissatisfaction with the systems, and failure in e-learning. Therefore, this study aims at the e-learning systems success by applying the principles of the connectivism theory. The findings of this study introduce the main connectivism determinants of interaction, autonomy, diversity, and openness which can equip the future e-learning studies with the necessary constructs and principles to propose models and frameworks for the e-learning success in not only usual but also unusual situations. This study will promote the satisfaction with the e-learning systems which leads to the e-learning success as a result.

Keywords: E-Learning, Information Systems, Systems Success, Satisfaction Theory, Success Model, Connectivism, Learning Theories, Online Learning, MOOCs, COVID-19.

An Overview of Reading Habits and Medium Preference Among University Students

Zubaidah Sadeq Alsaeedi¹, Nurizah Binti Md. Ngadiran¹, Zulida Abdul Kadir¹ and Wahid Ali Hamood Altowayti²

¹Centre of General Studies and Co-Curricular, Universiti Tun Hussein Onn Malaysia, Batu Pahat, Johor, Malaysia

²Faculty of Civil Engineering and Built Environment, Universiti Tun Hussein Onn Malaysia Batu Pahat, Johor, Malaysia.

zubedasadeq@gmail.com, nurizah@uthm.edu.my, zulida@uthm.edu.my, wahi-dali@uthm.edu.my

Abstract. The activity of reading is an important aspect of students' learning process. Reading increases thinking capacity by providing new thoughts and ideas, as well as improving vocabulary and language, all of which are important in verbal communication. Due to the advancement in ICT, the reading habits of students have changed. This paper reviews current literature on the reading habits and the preference of reading medium among university students with particular attention to the advantages and disadvantages of reading on paper vs on-screen. The reviewed literature (N = 17, published between 2015 and 2020) revealed several characteristics of students' reading habits and medium of reading. The findings show a decline in reading books and an inclination towards online materials. However, a preference for printed materials persists in academic reading.

Keywords: Reading, Reading Habits, Reading medium, University Students.

ABSTRACTS

Computational Thinking Work System Method: A Problem-Solving Method for Small and Medium Enterprises

Ahmad Najmi Amerhaider Nuar, Mohd Zaidi Abd Rozan and Mahadi Bahari ³

¹Information Systems, School of Computing, Faculty of Engineering, Universiti Teknologi Malaysia
Skudai, Johor Bahru, Malaysia.

² Information Systems, Azman Hashim International Business School, Universiti Teknologi Malaysia
Skudai, Johor Bahru, Malaysia.

ORCID: 0000-0003-3103-664X, 0000-0003-1409-4522, 0000-0003-0301-374X

Abstract. Computational thinking (CT) has been dubbed as a fundamental skill for the 21st century and can be learned by all. However, little research exists on the practical use of CT in daily life. Therefore, this problem was addressed by applying a design science research approach and situational method engineering to propose an artefact that can help small and medium enterprises (SMEs) in the problem-solving process using CT and the Work System Method (WSM). The resulting artefact offers a systematic way of problem-solving process and allows SMEs to discover process innovation. The study has considerable implications for business owners and IS researchers. The business owner can improve the efficiency of their business process and increase the company's productivity.

Keywords: computational thinking, small and medium enterprises, design science research, work system method.

COVID-19 Paradigm Shift: Exploring Effects on Entrepreneurial Phase Ventures

Muhammad Saqib Iqbal and Zulhasni Abdul Rahim³

Malaysia-Japan International Institute of Technology (MJIIT), Universiti Teknologi Malaysia (UTM), Kuala Lumpur, Malaysia.

s.iqbal@graduate.utm.my, zulhasni@utm.my

Abstract. Recent developments globally due to coronavirus have hustled the digital disruption and heightened the need for adopting the pillar technologies practised during the pandemic crisis. Disruptive technology is described as when one technology drifts the existing technology and changes the nature or structure of the industry. It is hard to conceive the technologies that will dominate in the post-COVID-19 era since trends are changing awfully, faltering economies, culture, employment, and the workforce individually and collectively. In analysing how Founder-CEOs make decisions by evaluating a particular operational decision, this study focuses on a process viewpoint and tries to understand the behaviour and processes used by decision-makers. For this study, three founding CEOs of technology-enabled businesses in Pakistan were interviewed. The findings of this study will refer to teaching, coaching and aspiring the current founding CEOs.

Keywords: Decision-making process, entrepreneurial.

Determinants of Banks' Customer's Intention to adopt Internet Banking Services in Yemen: Using the Unified Theory of Acceptance and Use of Technology (UTAUT)

Nabil Hussein Al-Fahim¹, Rawad Abdulgafor¹ and Edres Hamood Qaid²

¹Faculty of Information and Communication Technology, International Islamic University, Malaysia.

²Faculty of Business Management, Limkokwing University, 53100, Kuala Lumpur, Malaysia.

nalfaheem@gmail.com, rawad@iiu.edu.my, edreshamood92@gmail.com

Abstract. There is a lack of empirical research on Internet banking services in Yemen which makes it necessary to carry out research on the adoption of Internet banking service. This study aims to examine and investigate the factors of Unified Theory of Acceptance and Use of Technology (UTAUT) that influence the adoption of Internet banking services among banks' customers in Yemen. Research framework consists of five exogenous variables and one endogenous variable. The exogenous variables consist of performance expectancy, effort expectancy, social influence, trust and awareness whereas the endogenous variables comprise of intention towards Internet Banking (IB) for banks customers. This research also identifies the role of age and experience of customers as moderating variable that impact customers' intention to adopt Internet banking service. The sample of the present study consisted of a total of 354 analyzed using Structural Equation Modeling (SEM) in order to examine causal relationships among the study latent variables. The indirect exploratory effect of the moderators is examined by using Multiple-Group Analysis (MGA). The findings showed that performance expectancy, effort expectancy, trust and awareness have significance effect on intention towards Internet banking adoption among bank customers in Yemen, but social influence was no significant impact on IBSA. Furthermore, the findings of the study reveal that age and experience have a moderating effect on customers' intention towards IB adoption among banks' customers in Yemen.

Keywords: Internet Banking, UTAUT Factors, SMEs, Yemen.

