AUS | الجامعة الأميركية في الشارقة
American University of Sharjah

ICCSPA'19

Third International Conference on Communications, Signal Processing and their Applications

March 19–21, 2019
Sharjah, United Arab Emirates

Sponsors:

IEEE

KEYSIGHT TECHNOLOGIES

مطابقة MOTABAQAH TRADING للتجارة

Contents

Welcome Message

Welcome to the 2019 International Conference on Communications, Signal Processing and their Applications (ICCSPA'19). The aim of the conference is to provide researchers and practitioners a venue for presenting their latest research findings and to provide a forum for discussions and networking among the participants. The conference themes cover a wide range of topics related to wireless and mobile communications, 4G, 5G and beyond wireless networks, cognitive radio systems, cooperative radio, multimedia communications and networking, biometrics, image and video processing, biomedical applications and compressive sensing, among others.

The organizing committee has prepared a rich and interesting program including two keynote lectures by distinguished researchers, five invited talks, and nine technical sessions. The presented papers will appear on IEEE Xplore. In this regard, we would like to acknowledge the IEEE UAE Section and the IEEE for their technical sponsorship. We also would like to thank Motabaqah and Keysight for their sponsorship.

We would like to thank the authors who submitted their work to the conference. We received papers from different regions and countries, making ICCSPA'19 an international event. After a rigorous review process, 41 papers will be presented through 9 technical sessions during the three days of the conference. Our thanks also go to the keynote and invited speakers as well as the session chairs for their invaluable contribution to the success of ICCSPA'19. Special thanks go to the members of the technical program committee and the large number of reviewers, who worked diligently on producing such a distinguished program. We also extend our appreciation to the members of the organizing committee for their dedication and excellent work on managing all aspects of the conference. In addition, we extend our thanks to the administration of American University of Sharjah for its support.

We wish you a successful event and hope you enjoy your stay in Sharjah and the UAE.

Mohamed S. Hassan and Hasan Mir
ICCSPA'19 Co-Chairs

General Information

Registration

The registration desk will be open every day of the conference from 9:00 a.m. to 5:00 p.m. Pre-registered attendees may pick up their badges and conference material at any time. For attendees who wish to register onsite, the registration fees may be paid by cash or credit card:

IEEE Member	$550
Non-member	$650
Additional Banquet Ticket	$75

Venue for Technical Sessions

All technical sessions will be held at American University of Sharjah.

Opening Ceremony: AUS Main Building - Lecture Hall A
Keynote Lectures: AUS Main Building - Lecture Hall A
Technical Sessions (March 19–21): Main Building

Banquet

The conference banquet will take place on Wednesday, March 20th (7:00–10:00 p.m.) at the Grand Ballroom Sheraton Grand Hotel Sheikh Zayed Road, Dubai. The event is included in the conference fees and all participants are invited to attend. Additional tickets are available at the registration desk for $75 per person.

Lunches

Complimentary luncheon buffet will be provided AUS main dining hall for the first and second days of the conference.

Coffee Breaks

Coffee breaks as listed in the program are included in the conference fees.

Transportation

Complimentary bus service will depart daily from the **Hilton Sharjah Hotel** (Corniche Road, Al Majaz 3, Sharjah) at 8:30 am to AUS and will go back from AUS to the hotel at 5:00 pm (On last day of the conference, the bus departs to hotel at 13:00)

The main means of transportation is by taxi. A taxi charge for a trip from downtown Sharjah to the conference venue at the American University of Sharjah (about 20 minutes) is about $15. The cost for the taxi trip from Dubai to the conference venue at American University of Sharjah is about $25-$30.

City Tour

A complimentary six-hour Dubai city tour will be held on Thursday March 19, 2015 starting at 13:00 p.m. Seats are limited so please make your reservation at the registration desk.

Committees

Conference Co-Chairs

Mohamed S. Hassan, UAE
Hasan Mir, UAE

Technical Program Co-Chairs

Aboelmagd Noureldin, Canada
Mahmoud H. Ismail, UAE

Steering Committee

Mohamed El-Tarhuni	UAE
Khaled Assaleh	UAE
Mohamed Hassan	UAE
Hasan Mir	UAE

Technical Program Committee

Malek Karaim, Canada
Opeyemi Ajibola, UK
Houcem Gazzah, UAE
Hany Elgala, USA
Soliman Mahmoud, UAE
Aly Elrefaie, USA
Hatem Alharbi, UK
Oualid Hammi, UAE
Ismaill Shahin, UAE
Mohamed Saad, UAE
Samah Ghanem, Portugees
Umar Iqbal, USA
Mohamed Tamazin, Egypt
Turgay Korkmaz, USA
Taha Landolsi, UAE
Aboelmagd Noureldin, Canada
Amer Zakaria, UAE
Sanaa Mohamed, UK
Mahmoud Ismail, UAE
Haidy Elghamrawy, Canada

International Advisory Board

Karim Abed-Meraim, France
Mohamed Alouini, Saudi Arabia
Moeness Amin, USA
Eesa Bastaki, UAE
Moncef Gabbouj, Finland
Adel Belouchrani, Algeria
John Hansen, USA
Aboelmagd Noureldin, Canada
Asrar Sheikh, Saudi Arabia
Andreas Spanias, USA
Marwan Krunz, USA
Khaled Ben Letaief, Hong Kong
Sanjit Mitra, USA
Asrar Sheikh, Saudi Arabia
Halim Yanikomeroglu, Canada
Abdelhak Zoubir, Germany
Hamid Aghvami, UK
Hossam Hassanein, Canada
Kainam Wong, Hong Kong
Fred Harris, USA

Publication chair

Amer Zakria, UAE

Secretary

Helen Leopoldo, UAE

Program Overview

Time	Day 1: Tuesday, March 19, 2019	
9:00 a.m. onwards	Registration	
10:00 – 10:15	**Opening Ceremony – Main Building / Lecture Hall A**	
10:15 – 11:15	**Keynote 1: Collaborative Caching in Next Generation Wireless Networks** Professor: Hossam Hassanein Queen's University School of Computing, Canada (Hall A)	
11:15 – 11:40	Coffee Break	
11:40 – 13:00	C1: Networking (Hall B)	D1: Image Processing (Senate Room)
13:00 – 14:00	Lunch Break	
14:00 – 15:00	**Invited Talk: 3GPP 5G New Radio Technology Overview, Deployment Scenarios & Keysight 5G Workflow Solutions** Asish Jain, Application Engineer, Keysight Technologies (Hall A)	
15:00 – 15:20	Coffee Break	
15:20 – 17:00	C2: PHY and MAC Aspects (Hall B)	D2: Signal Processing Applications (1) (Hall A)

Time	Day 2: Wednesday, March 20, 2019	
9:00 a.m. onwards	Registration	
9:30 – 10:30	**Keynote 2: Polarization in Wireless Communications and in Wireless Sensing** Professor: Kainam Thomas Wong Beijing University of Aeronautics and Astronautics, China (Hall A)	
10:30 – 11:00	Coffee Break	
11:00 – 12:00	**Invited Talk: The Relevant Capstone** (Hall A) Dr. Abd-Elhamid M. Taha Electrical Engineering Department, Alfaisal University, Riyadh, KSA	
12:00 – 13:40	C3: Microwave Theory and Antennas (Hall B)	D3: Signal Processing Applications (2) (Senate Room)
13:40 – 15:00	Lunch Break	
15:00 – 16:00	**Invited Talk: Non-Linear Device Characterization and X-parameters** Vishal Gupta, Solutions Architect and RF Segment Team Leader, Keysight Technologies (Hall A)	
16:00 – 16:20	Coffee Break	
16:20 – 17:40	C4: Autonomous Systems/Localization (Hall B)	
19:30 – 22:00	**Conference Banquet**	

Time	Day 3: Thursday, March 21, 2019	
9:00 a.m. onwards	Registration	
9:00 – 10:40	C5: IoT-based Systems (Hall B)	D4: Electronics and Power Considerations for Communications and Signal Processing (Senate Room)
10:40 – 11:00	Coffee Break	
11:00 – 12:00	**Invited Talk: GNSS Signal Processing and Future Applications** (Hall A) Dr. Mohamed Tamazin Head of Central Unit for Training and Consultancy Services Department at Arab Academy for Science, Technology and Maritime Transport (AASTMT), Alexandria, Egypt	
12:00 – 13:00	**Invited Talk: A Platform Based Approach to Advanced Wireless Research** (Hall A) Michel Nassar NI Account Manager serving UAE, Saudi Arabia and Lebanon	
13:00 – 19:00	**City Tour**	

Keynote Speakers

Keynote 1

Tuesday, March 19, 2019 **10:15–11:15** **Hall A**

Collaborative Caching in Next Generation Wireless Networks

Professor: Hossam Hassanein
School of Computing, Queen's University, Canada

Abstract:
User generated content, especially video is the predominant source of Internet traffic. Such traffic will be primarily facilitated by mobile devices in 5G wireless networks. To alleviate the high cellular costs and excessive delays, the use of content caching (in-network and/or at the edge) is widely accepted. This talk sheds light on how to utilize in-network and edge caching for supporting multimedia applications over 5G wireless networks.

Since content producers and consumers can be mobile, we discuss predictive mobility management schemes for caching that are resilient to uncertainties. We show how proactive solutions, which exploit location and data traffic prediction, can deliver the content of mobile users (both consumers and producers) under application delay constraints. Particularly, the network can detect roaming users and caches their prospective content ahead of handover events while considering the maximum tolerable delay and network overheads.

Caching nodes could be part of the infrastructure or in user devices/vehicles. We investigate methods of getting the data closer to the requester using cooperative content discovery and placement at vehicles. We exploit the static and mobile nature of parked and moving vehicles, respectively, to dynamically populate valuable road segments with diverse cached data. We discuss methods of diffusing cached content information and tracking caching nodes, hence providing an implicit form of off-path caching by assessing the trajectory of moving vehicles encountered along the data delivery path.

Finally, and realizing that cache performance diminishes as video consumers dynamically select content encoded at different bitrates, we introduce methods to dissect the cache capacity of routers along a forwarding path according to dedicated bitrates. To facilitate this partitioning, we propose a guiding principle which stabilizes bandwidth fluctuation while achieving high cache utilization by safeguarding high-bitrate content on the edge and pushing low-bitrate content into the network core.

About the Presenter

Hossam Hassanein is a leading authority in the areas of broadband, wireless and mobile networks architecture, protocols, control and performance evaluation. His record spans more than 500 publications in journals, conferences and book chapters, in addition to numerous keynotes and plenary talks in flagship venues. Dr. Hassanein has received several recognition and best paper awards at top international conferences. He is the founder and director of the Telecommunications Research Lab (TRL) at Queen's University School of Computing, Canada, with extensive international academic and industrial collaborations. He is a fellow of the IEEE, and is a former chair of the IEEE Communication Society Technical Committee on Ad hoc and Sensor Networks (TC AHSN). Dr. Hassanein is an IEEE Communications Society Distinguished Speaker (Distinguished Lecturer 2008-2010).

Keynote 2

Wednesday, March 20, 2019 **9:30–10:30** **Hall A**

Polarization in Wireless Communications and in Wireless Sensing

Professor: Kainam Thomas Wong
Beijing University of Aeronautics and Astronautics, China

Abstract:
Radiowave communication is electromagnetic in nature, hence polarization is a critical dimension, though somewhat neglected. This talk surveys how creative exploitation of this polarizational dimension could mitigate deep fades, could aid geolocation of mobile emitters, and could advance coding technology. This talk also explores the research topics of characterizing the polarizational behaviors of antennas and of wireless channels.

About the Presenter

K. Thomas Wong earned his B.S.E. from UCLA and Ph.D. from Purdue University, both in the USA. He was a Manufacturing Engineer in the General Motors Technical Center, and a Senior Professional Staff Member at the Johns Hopkins University Applied Physics Laboratory. Between 1998 and 2018, he was a regular member of the faculty at Nanyang Technological University (Singapore), The Chinese University of Hong Kong, The University of Waterloo (Canada), and The Hong Kong Polytechnic University. He is currently a Professor at the Beijing University of Aeronautics and Astronautics. He serves/served on the editorial board of 10 journals in the Science Citation Index, including the IEEE Transactions on Aerospace and Electronic Systems (as Technical Editor), the IEEE Transactions on Signal Processing, the IEEE Transactions on Vehicular Technology, the IEEE Signal Processing Letters, and the IET Signal Processing (as Deputy Editor-in-Chief). He is a fellow of the UK's Institution of Engineering and Technology.

Invited Talks

Tuesday, March 19, 2019 14:00–15:00 Hall A

3GPP 5G New Radio Technology Overview, Deployment Scenarios & Keysight 5G Workflow Solutions

Asish Jain

Application Engineer, Keysight Technologies.

Abstract:

In this session, detailed technology overview of 5G New Radio as per 3GPP release 15 will be provided. 5G New Radio frequency ranges, bandwidths, numerology, frame structure, beamforming and initial access methodology will be discussed. 5G NR comparison with LTE will be drawn to highlight the research required to solve the challenges associated with 3GPP New Radio. Different deployment scenarios of 5G NR with EPC, 5GC, eNB, ng-eNB and gNB will be discussed. This session also aims to provide an overview of 38 series specifications of 3GPP Release 15 for 5G NR. Specifications of both User Equipment (UE) and gNB will be discussed to cover the test requirements of NR's frequency range 1 and frequency range 2. The lecture will also explain the specifications related to frequency bands, defined bandwidths, carrier aggregation combinations and measurement requirements for ACLR, Spurious emissions and EVM requirements. Towards the end, speaker will explain in detail the test setup required for 5G NR research and development of both User Equipment (UE) and gNB. Keysight workflow solutions for physical layer R&D and L2/L3 R&D will be explained along with an overview of Over-the-air (OTA) test requirements.

About the Presenter

Asish Jain is an Application Engineer at Keysight Technologies India and is based out of Keysight Delhi office. He has 10 years of experience in Aerospace & Defense, RF, µW & mmWave, Wireless and Automotive technologies. He has been working on test and measurement solutions used in these segments and technologies. At Keysight, Asish has developed solutions for EMF testing, contributed to aerospace and defense turnkey projects and driven country wide 5G initiative. He has also been instrumental in deploying test & measurement setups for wireless manufacturing industry in India. He works closely with leading wireless technology companies working in different areas of the ecosystem viz. Chipset R&D, Design & Validation, Device Certification, Wireless Device manufacturers and cellular operators. Asish also leads Automotive, Energy and Software teams at Keysight India and works closely with automotive industry for enabling connected and secure transport system. His areas of interest include Cellular technologies, mmWave technologies, active component characterization and test automation. Asish has written technical articles for various national electronics magazines like Electronics for You, Test & Measurement World, Electronic Bazaar etc. He is a prominent speaker at various communication and automotive forums. He has earned his Bachelor of Technology degree in Electronics & Communication Engineering from Vellore Institute of Technology, Vellore. He is currently pursuing M. Tech. from Amity University.

Invited Talks

Wednesday, March 20, 2019 **11:00–12:00** **Hall A**

The Relevant Capstone

Dr. Abd-Elhamid M. Taha
Assistant professor of electrical engineering, Alfaisal University, Riyadh, KSA.

Abstract:
We live in exciting times, where a large mix of technology is enabling many innovative solutions. As your journey in undergraduate engineering is coming to an end, you're eager to make your through your capstone project. After all, this is your legacy to the school, and your true expression of all that you've learned, and more. This talk is therefore about relevance. Specifically, how you can make your capstone relevant to you, to your society, and to the times we're in. When funding is needed, you also need to ensure relevance to your investors. We'll talk about good problem hunting, and how to tackle it with a good solution plan. We'll further talk about recent technologies (machine learning, IoT, cloud computing, blockchain, etc.), and how they can help you achieve your goals. Meanwhile, some possible projects will be discussed

About the Presenter

Abd-Elhamid M. Taha is an assistant professor in electrical engineering at Alfaisal University, Riyadh, KSA. His current research interest lies in application of the Internet of Things (IoT) in smart cities, and autonomy in computer network management. Prior work spans radio resource management in broadband wireless networks, IoT security, and modeling networked cyber-physical systems. He has published and lectured extensively in the area, and his efforts have been noted through best-paper awards and other distinctions. He also takes in pride in supervising several award-winning capstones at Alfaisal.

Invited Talks

Wednesday, March 20, 2019 **15:00–16:00** **Hall A**

Non-Linear Device Characterization and X-parameters

Vishal Gupta
Solutions Architect and RF Segment Team Leader, Keysight

Abstract:
Recent developments in semiconductor technology for example, Gallium Transistors (GaN) is revolutionizing development of high power RF devices. When pushed to deliver high power, these devices behave nonlinearly but result to deliver high power efficiently and making them apt to use as power amplifiers. These developments arise the need for accurate nonlinear characterization and modeling of high power RF transistors to correctly predict performance and use these models for designing a high-performance amplifier and systems. Modern VNA nonlinear VNA software can model these devices non-linearity, however standard configuration limits to small signal measurements using S-parameters, not enough to characterize a high power GaN devices. User must take enough care to put together modern VNA along with external components for high power applications. This paper will describe latest developments in non-linear device characterization and introduction to a PHD based nonlinear model called X-parameters which can be known as mathematically extended S-parameters for non-linear devices. The paper will also give brief about Loadpull setup and measurements.

About the Presenter

Vishal Gupta is Solutions Architect and RF Segment Team Leader at Keysight Technologies in India. Vishal Gupta has over 20 years of techno-commercial experience mainly in the field of RF/Microwave, Millimeter wave Electronics, Wireless and Surveillance testing. Vishal has very strong grip on technologies related to aerospace and defence viz, RADAR, EW, Satellite, Avionics, Signal Surveillance, Imaging, Device and material characterization and Signal Integrity. Together with his technical acumen and business skills, Vishal has a very strong consultancy, hardware design, project management and system engineering background. Apart from providing technical support to wide customer base in defense, wireless and manufacturing industries in India, Vishal has provided support to customers in Australia, Singapore, Middle-east and Srilanka. Prior to joining Agilent/ Keysight – Vishal earned experience in telecom, RF and Microwave system/ subsystem design and VSAT technology, with positions at R&D and Satellite Communications organizations. Vishal has done his Masters of Technology (Microwave Electronics) from University of Delhi, India. Along with technical education Vishal is also a post graduate in Business Management with specialization in Marketing and Strategy from Management Development Institute, Gurgaon. Vishal is an active member of IEEE-MTT. Vishal has many publications in national and international magazines to his credit

Invited Talks

Thursday, March 21, 2019 11:00–12:00 Hall A

GNSS Signal Processing and Future Applications

Dr. Mohamed Tamazin
Assistant Professor, Arab Academy for Science, Technology and Maritime Transport (AASTMT)

Abstract:
Nowadays, the world's increasing dependence on the Global Navigation Satellite Systems (GNSS) is prevalent. GNSS is now an indispensable tool upon which governments, industries and consumers depend on; and will increasingly continue to do so, as GNSS integration deepens. This tutorial will review the principles of GNSS technology with specific focus on GNSS observables and error sources. Moreover, It will provide an overview of the GNSS receiver architecture and covers the basic concepts of the signal processing techniques in a GNSS receiver with particular attention to signal acquisition, tracking and navigation. Later in the tutorial, the effects of Multipath and Jamming on the performance of the receiver will be discussed, as well as the various augmentations systems available for service enhancement. A concluding talk will be presented on the future of GNSS and its relevant applications.

About the Presenter

Dr. Mohamed Tamazin is Head of Central Unit for Training and Consultancy Services and Assistant Professor in the Electronics and Communications Engineering Department at Arab Academy for Science, Technology and Maritime Transport (AASTMT), Alexandria, Egypt. He received his Ph.D. degree in Electrical and Computer Engineering from Queen's University, Ontario, Canada in 2015. He holds M.Sc. degree in Geomatics Engineering from the University of Calgary, Alberta, Canada. Also, He holds B.Sc. and M.Sc. in Electronics and Communications Engineering from Arab Academy for Science, Technology and Maritime Transport (AASTMT), Alexandria, Egypt. His research interests are in the fields of GNSS signal processing, Jamming Mitigation, software receiver design and indoor navigation systems. From January 2012 to February 2015 he was a senior researcher in the Navigation and Instrumentation (NavINST) group of the Department of Electrical and Computer Engineering in Royal Military College of Canada, Ontario, Canada. From July 2009 to September 2011 he has been a researcher in the Position, Location and Navigation (PLAN) group of the University of Calgary, Alberta, Canada.

Invited Talks

Thursday, March 21, 2019 12:00 – 13:00 Hall A

A Platform Based Approach to Advanced Wireless Research

Michel Nassar

Account Manager, National Instruments

Abstract:
For more than 40 years, NI has developed high-performance automated test and automated measurement systems to help you solve your engineering challenges now and into the future. Our open, software-defined platform uses modular hardware and rich ecosystem to help you turn powerful possibilities into real solutions. Throughout this seminar, we will highlight the areas of applied research that are in the space of advanced wireless; more specifically around the topics of LTE, 802.11, Network Simulator, LTE-WIFI Co-existance, MIMO, mmWAVE and more. In addition to that we are going to discuss the challenges faced by researchers and how NI platform-based approach is helping to address them.

About the Presenter

Michel Nassar holds a degree in mechanical engineering with an emphasis in Mechatronics from the American University of Beirut. He gained practical field hands-on experience in the oil and gas industry as an engineer at Schlumberger. He also developed research expertise as a research assistant in University of Wisconsin Madison.

Technical Sessions

Day 1 - Tuesday, March 19, 2019

Tuesday, March 19, 2019 – Hall B **C1: Networking** **Session Chair: Prof. Taha Landolsi**		
Time	Title	Authors
11:40	Forward and Reciprocal Noisy Coded Networks: Precoding, Topology, and Error Analysis	Samah A. M. Ghanem (Independent, Portugal)
12:00	Performance Evaluation of MAC Protocols with Multi-Sink for Mobile UWSNs	Areeg Fahad (Al-Nahrain University, Iraq)
12:20	Error Correction Codes in Wireless Sensor Networks: A Systematic Literature Review	Meriem Bettayeb, Sara Ghunaim and Nour Mohamed (University of Sharjah, United Arab Emirates); Qassim MH Nasir (University Of Sharjah, United Arab Emirates)
12:40	Hashgraph based fast data transmission in VANET	Nishchay Grover (NIIT University, India); Jetendra Joshi (NIIT University, India); Tanya Kaintura and Payanshi Jain (Niit University, India)

Tuesday, March 19, 2019 – Senate Room **D1: Image Processing** **Session Chair: Dr. Usman Tariq**		
Time	Title	Authors
11:40	Edge Based Image Steganography: Problems and Solution	Rasber Rashid and Taban Majeed (Koya University, Iraq)
12:00	Quantitative Evaluation of Four-Dimensional versus Three-Dimensional Reconstruction on XCAT Phantom Under Different Sampling Rates	Sajedah Ahmad Al-Momani, Salma Elabed and Salam Dhou (American University of Sharjah, United Arab Emirates)
12:20	Quantitative Evaluation of 3D Reconstruction Using Filtered Back-Projection on XCAT Phantom	Aseel Alatoom, Salam Dhou and Jumana Farhat (American University of Sharjah, United Arab Emirates)
12:40	Three-Dimensional CT Image Reconstruction Techniques: Implementation and Comparison	Shafiya Sabah and Salam Dhou (American University of Sharjah, United Arab Emirates)

Tuesday, March 19, 2019 – Hall B **C2: PHY and MAC Aspects** **Session Chair: Dr. Khawla Alnajjar**		
Time	Title	Authors
15:20	On Analysis of Signal Detection in Relays Networks over Time-Varying Rayleigh Channels	Omar Gatera (Rwanda Standards Board (RSB), Rwanda); Louis Sibomana (University of Rwanda, Rwanda); Haci Ilhan (Yildiz Technical University, Turkey); Ahmet Hamdi Kayran (Istanbul Technical University, Turkey)
15:40	A Resource Allocation based Mode Selection Scheme in D2D Communication	Ibtihal Ahmed, Mahmoud H. Ismail and Mohamed Hassan (American University of Sharjah, United Arab Emirates)
16:00	Capacity Analysis of Downlink NOMA-Based Coexistent HTC/MTC in UDN	Mohammed Elbayoumi, Mahmoud I Kamel, Walaa Hamouda and Amr Youssef (Concordia University, Canada)
16:20	Performance of 5GNR with Interference Alignment	Khawla Alnajjar (University of Sharjah, United Arab Emirates); Mohamed El-Tarhuni (American University of Sharjah, United Arab Emirates)
16:40	Optimized WLAN Channel Allocation based on Gibbs Sampling with Busy Prediction using a Probabilistic Neural Network	Julian L Webber (Osaka University; Advanced Telecommunications Research Institute International, Japan); Abolfazl Mehbodniya (Kuwait College of Science and Technology); Kazuto Yano and Yoshinori Suzuki (ATR, Japan)

Tuesday, March 19, 2019 – Senate Room **D2: Signal Processing Applications (1)** **Session Chair: Prof. Aboelmagd Noureldin**		
Time	Title	Authors
15:20	Research on the Improved Data Processing Method for Foot-Mounted Inertial Pedestrian Positioning System	Qiuying Wang and Chunxu Kuang (Harbin Engineering University, P.R. China); Aboelmagd Noureldin (RMC Canada, Canada); Kaiyue Liu (Harbin Engineering University, P.R. China); Xufei Cui (Harbin Engineering University; College of Information and Communication Engineering, P.R. China); Zheng Guo (Harbin Engineering University, P.R. China)
15:40	Information transmission analysis of the effects of synthetic stop consonant duration modification on speech perception	Thoppil George Thomas (BITS Pilani, Dubai Campus, United Arab Emirates)
16:00	A Comprehensive Study of the Effects of Linear Chirp Jamming on GNSS Receivers Under High-Dynamic Scenarios	Malek Karaim (Queen's University, Canada); Aboelmagd Noureldin (RMC Canada, Canada); Haidy Elghamrawy (Queen's University, Canada); Mohamed Tamazin (Arab Acadmey for Science, Technology and Maritime Transport (AASTMT), Egypt and Royal Military College of Canada (RMCC), Canada)
16:20	Low-cost IMU Data Denoising using Savitzky- Golay Filters	Malek Karaim (Queen's University, Canada); Aboelmagd Noureldin (RMC Canada, Canada); Tashfeen Karamat (Royal Millitary College of Canada, Canada)
16:40	Joint Frequency Offset and Channel Estimation for Two-way Relays in the Presence of Timing Offsets	Ahmed Salameh, Saeed Abdallah and Mohamed Saad (University of Sharjah, United Arab Emirates)

Day 2 - Wednesday, March 20, 2019

Wednesday, March 20, 2019 – Hall B **C3: Microwave Theory and Antennas** **Session Chair: Dr. Amer Zakaria**		
Time	Title	Authors
12:00	FPGA Reconfigurable UWB CPW Bow-Tie Aperture Antenna for Wi-Fi Applications (4.9 GHz) by Rotating Slots	Walid Obaid (UOS, United Arab Emirates); Talal Bonny and Abdul-Kadir Hamid (University of Sharjah, United Arab Emirates)
12:20	Scattering from a Buried PEMC Cylinder Excited by a Line Source above a Planar Interface Separating Two Isorefractive Media	Abdul-Kadir Hamid (University of Sharjah, United Arab Emirates); Francis Cooray (Private Consultant, Australia)
12:40	A New Reconfigurable Antenna for Full-band Metal-Rimmed Smartphones' Applications	Saqer Alja'afreh and Mallak Alshamaileh (Mutah University, Jordan); E'qab Almajali (University of Sharjah, United Arab Emirates); Ahmad Abadleh (Mutah University, Jordan)
13:00	UWB Nanocellulose Coconut Coir Fibre Inspired Antenna For 5G Applications	Syuhaimi Kassim (Universiti Malaysia Perlis (UNIMAP), Malaysia); Hasliza A Rahim (Universiti Malaysia Perlis; Bioelectromagnetics Research Group, Malaysia); Fareq Malek (University of Wollongong in Dubai, Malaysia); Nur Syahirah Sabli (Universiti Malaysia Pahang, Malaysia)
13:20	Ultrathin Metamaterial Microwave Absorber Using Coconut Coir Fibre over X-Band Frequency Range	Nurul Fatihah Nabila Yah (Universiti Malaysia Perlis, Malaysia); Hasliza A Rahim (Universiti Malaysia Perlis; Bioelectromagnetics Research Group, Malaysia); Mohd Fareq Abd Malek (University of Wollongong in Dubai, United Arab Emirates); Lee Yeng Seng (University Malaysia Perlis, Malaysia); Qammer H Abbasi (University of Glasgow, United Kingdom)

Wednesday, March 20, 2019 – Senate Room **D3: Signal Processing Applications (2)** **Session Chair: Dr. Mohamed Saleh**		
Time	Title	Authors
12:00	Fourier Decomposition and Gibbs Ripple Removal from 1D Harmonically Reconstructed Signals	Humera Rafique (SZABIST, Pakistan)
12:20	A Symmetrically Increasing Frequency Offset for Short Range Beampattern Synthesis	Mobeen Mahmood and Hasan Mir (American University of Sharjah, United Arab Emirates)
12:40	An Efficient Multi-View Panoramic Imaging and Extra Compression of Surveillance Cameras' Footage Using Stitching	Mohamed Saleh el Shehaby, Jr. (Arab Academy of Science and Technology, Egypt); Sherin M. Youssef (Arab Academy, Egypt)
13:00	Error Control Codes for Molecular Communication Channels: A Survey	Abdollah Darya and Hassan Vakani (University of Sharjah, United Arab Emirates); Qassim MH Nasir (University Of Sharjah, United Arab Emirates)
13:20	High Payload Steganography: Surface-Fitting The Transform Domain	Tamer Rabie and Mohamad Baziyad (University of Sharjah, United Arab Emirates); Ibrahim Kamel (University of Sharjah; Concordia University, United Arab Emirates)

Wednesday, March 20, 2019 – Hall B **C4: Autonomous Systems/Localization** **Session Chair: Prof. Hasan Mir**		
Time	Title	Authors
16:20	ALOS: Acoustic Localization System Applied to Indoor Navigation of UAVs	Kleber Cabral (Royal Military College of Canada, Canada); Sergio Ronaldo Barros dos Santos (Federal University of Sao Paulo, Brazil); Cairo L. Nascimento, Jr. (Instituto Tecnológico de Aeronáutica, Brazil); Sidney Givigi (Royal Millitary College of Canada, Canada)
16:40	Design and Experiment of Micro Autonomous Underwater Vehicle for Twilight Zone Surveying	Hanxiao Rong (Harbin Engineering University, P.R. China); Lianwu Guan and Yanbin Gao (Harbin Enginneering University, P.R. China)
17:00	The Impact of Communications Considerations in Multi-Robot Systems	Manu Nair (Royal Military College of Canada, Canada); Sidney Givigi (Royal Millitary College of Canada, Canada)
17:20	A Review on Small-Diameter Pipeline Inspection Gauge Localization Techniques: Problems, Methods and Challenges	Lianwu Guan, Yanbin Gao and Hongyu Liu (Harbin Enginneering University, P.R. China); Wendou An (Chongqing Vocational Institute of Safety; Technology, P.R. China)

Day 3 - Thursday, March 21, 2019

Thursday, March 21, 2019 – Hall B **C5: IoT-based Systems** **Session Chair: Dr. Raafat Aburukba**		
Time	Title	Authors
9:00	A Safe Systems View of IoT/ITS Solutions	Abd-Elhamid M. Taha (Alfaisal University, Saudi Arabia); Najah A. Abu Ali (UAEU, United Arab Emirates)
9:20	IoV Road Safety: Vehicle Speed Limiting System	Mohamed Abdelsalam and Talal Bonny (University of Sharjah, United Arab Emirates)
9:40	Optimization Model for Time Sensitive IoT Requests	Taha Landolsi, Raafat Aburukba and Dalia Omer (American University of Sharjah, United Arab Emirates)
10:00	Role of RFID Technology in Smart City Applications	Hunain Altaf, Ahmed Fahmy, Ahmed Al Nabulsi, Abdul-Rahman Al-Ali and Raafat Aburukba (American University of Sharjah, United Arab Emirates)

Thursday, March 21, 2019 – Senate Room **D4: Electronics and Power Considerations for Communications and Signal Processing** **Session Chair: Prof. Lutfi Albasha**		
Time	Title	Authors
9:00	An Overview on the Development of Recent Interdigital and Evanescent-Mode Filters for High Frequency Applications	Ahmad Darwish and Lutfi Albasha (American University of Sharjah, United Arab Emirates)
9:20	Enhanced Training Technique for Nested Look-Up Table Based Behavioral Modeling of Nonlinear Power Amplifiers	Ahmad Dalbah and Oualid Hammi (American University of Sharjah, United Arab Emirates)
9:40	Folded Cascode Current Mirror Design using Cadence	Lutfi Albasha (American University of Sharjah, United Arab Emirates)
10:00	Millimeter-Wave Analog Pre-distorted Power Amplifier at 65nm Node	Nasir Quadir (CMR Institute of Technology, India); Seyed Mohammad Kashfi (American University of Sharjah; American University of Sharjah, United Arab Emirates); Amit Jain (NIT SILCHAR, India); Lutfi Albasha (American University of Sharjah, United Arab Emirates)
10:20	Hybrid PEM Fuel-Cell-Solar Power System Design for Electric Boat with MPPT System and Fuzzy Energy Management	Walid Obaid (UOS, United Arab Emirates); Abdul-Kadir Hamid and Chaouki Ghenai (University of Sharjah, United Arab Emirates)