

5th International Conference on UK – China Emerging Technologies



Technically Sponsored by the IEEE Antennas and Propagation Society

Final Program

20 – 21 August 2020

Web Link: <https://www.gla.ac.uk/events/conferences/ucet/>

Zoom link

<https://uofglasgow.zoom.us/j/99090370295?pwd=bzc5SThCN2kzWVAyUU1Ed0djbjRSUT09>



Chairs' Welcome

Welcome to the 2020 International Conference on UK – China Emerging Technologies (UCET) now in its fifth iteration!

The world today is striving to be smarter and ubiquitously connected resulting in an explosive growth of heterogeneous and intelligent devices with diverse capabilities. Communication, Sensing (including antennas), devices and heterogeneous systems are thus becoming increasingly interweaved and are considered an integral part of most modern technologies. Communication and sensing devices/systems are experiencing widespread applications beyond their usual domain and playing a crucial role in every aspect of our lives including healthcare, automation, transport, weather, gaming, education, safety and security.

The 5th International Conference on UK - China Emerging Technologies will be held on 20-21 August 2020 at the University of Glasgow, UK. The conference is aimed at providing a vibrant platform for sharing ideas among researchers and practitioners from both industry and academia working on state-of-the-art research and development in the aforementioned technologies. We welcome you to join us for an exciting program in Glasgow during August 2020 via telepresence technologies!

General Chairs

Muhammad Ali Imran
University of Glasgow

Bing Zeng
University of Electronic Science and Technology of China

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Conference Schedule

Day 1: Thursday, 20th August 2020

Time	Activity	Speaker
09:00 – 09:15	Virtual Attendees Joining Phase	
09:15 – 09:30	Opening and Welcome	
09:30 – 10:00	Plenary Talk 1	Rahim Tafazolli
10:00 – 10:30	Plenary Talk 2	Tie Jun Cui
10:30 – 11:30	Invited Talks (20 min each)	Xiaoli Chu Mohamed-Slim Alouini Mugen Peng
11:30 – 12:30	Paper Presentation Session I	
12:30 – 13:30	Virtual Lunch Break	
13:30 – 15:00	Plenary Talks 3-5 (30 min each)	Ying-Chang Liang Walid Saad Vincent Fusco
15:00 – 15:20	Invited Talk	Lajos Hanzo
15:20 – 15:40	Virtual Coffee Break	
15:40 – 16:40	Invited Talks (20 min each)	Wonbin Hong Asimina Kiourt Toktam Mahmoodi
16:40 – 17:40	Paper Presentation Session II	
	Closing	

Note: The time indicates British Standard Time (GMT+1)

Day 2: Friday, 21st August 2020

Time	Activity	Speaker
09:15 – 09:30	Opening and Welcome	
09:30 – 10:00	Plenary Talk 1	Martina Gerken
10:00 – 10:30	Plenary Talk 2	Xiangfei Chen
10:30 – 10:50	Virtual Networking and Coffee Break	Workshop on Engineering Pedagogy Session - I
10:50 – 11:30	Invited Talks (20 min each)	Yuan Shen Hongbin Liu
11:30 – 12:30	Paper Presentation Session I	
12:30 – 13:30	Virtual Lunch Break	Demo 1: Connected Robot in 5G Era
13:30 – 14:50	Invited Talks (20 min each)	Mazier Nekovee Lei Xing XueFeng Liu Shiwen Yang
14:50 – 15:10	Virtual Coffee Break	
15:10 – 15:40	Plenary Talk 3	Cynthia Furse
15:40 – 16:00	Invited Talk	Ching Man
16:00 – 16:20	Demo 2: 5G Testbed	
16:40 – 17:40	Paper Presentation Session II	Workshop on Engineering Pedagogy Session - II
17:40 – 18:00	Virtual Award Ceremony	

Note: The time indicates British Standard Time (GMT+1)

Detailed Program

Plenary Talks – Thursday 20th August 2020

Rahim Tafazolli <i>University of Surrey, UK</i> Title: What Next: Faster and Farther Intelligently	09:30 – 10:00
Tie Jun Cui <i>Southeast University, China</i> Title: Information Metasurfaces for Intelligent Sensing and Wireless Communications	10:00 – 10:30
Ying-Chang Liang <i>University of Electronic Science and Technology (UESTC), China</i> Title: Symbiotic Radio Networks for 6G and Beyond	13:30 – 14:00
Walid Saad <i>Virginia Tech, USA</i> Title: Can Terahertz Communications Provide Highly Reliable and High-Rate Low Latency Communications in 6G Networks?	14:00 – 14:30
Vincent Fusco <i>Queen's University Belfast, UK</i> Title: The Role of Circular Arrays in Physical Layer Secure Wireless Communications	14:30 – 15:00

Plenary Talks – Friday 21st August 2020

Martina Gerken <i>Kiel University, Germany</i> Title: Magnetolectric Sensing for Biomedical Applications	09:30 – 10:00
Xiangfei Chen <i>NanJing University, China</i> Title: A Possible Way to Large-scale Photonic Integrated Circuits - The Combination of Precision Photonic Integration and Photonic Wire Bonding	10:00 – 10:30
Cynthia Furse <i>University of Utah, USA</i> Title: Finding Faults on Live Wires: Planes to Trains and Everything In Between	15:10 – 15:40

Invited Talks –Thursday 20th August 2020

Xiaoli Chu <i>University of Sheffield, UK</i> Title: Dynamic Network Slicing and Resource Allocation in Mobile Edge Computing Systems	10:30 – 10:50
Mohamed-Slim Alouini <i>King Abdullah University of Science & Technology, Saudi Arabia</i> Title: Smart Villages: When Affordability Meets Connectivity	10:50 – 11:10
Mugen Peng <i>Beijing University of Posts and Telecommunications (BUPT), China</i> Title: Fog Radio Access Network (F-RAN): Architecture, Techniques, and Applications	11:10 – 11:30
Lajos Hanzo <i>University of Southampton, UK</i> Title: When pareto-optimal networking and quantum-computing meet	15:00 – 15:20
Wonbin Hong <i>Pohang University of Science and Technology (POSTECH), South Korea</i> Title: Recent trends in millimeter-wave based Beyond 5G mobile antennas: Challenges and possible approaches	15:40 – 16:00
Asmina Kiourti <i>Ohio State University, USA</i> Title: Electromagnetics for Next-Generation Body Area Sensing	16:00 – 16:20
Toktam Mahmoodi <i>King's College London, UK</i> Title: Connected Automated Driving - the role of Machine Learning in Cooperated Driving	16:20 – 16:40

Invited Talks – Friday 21st August 2020

Yuan Shen <i>Tsinghua University, China</i> Title: Cooperative detection using mobile multi-agent systems	10:50 – 11:10
Hongbin Liu <i>King's College London, UK</i> Title: Robotic Haptic Sensing and Interaction in Medicine	11:10 – 11:30
Mazier Nekovee <i>University of Sussex, UK</i> Title: Smart and reconfigurable meta-surfaces for scalable and energy-efficient THz beam-forming towards 6G	13:30 – 13:50
Lei Xing <i>Nanjing University of Aeronautics and Astronautics, China</i> Title: Recent Development of Liquid Antennas for Wireless Communications	13:50 – 14:10
XueFeng Liu <i>Nanjing University of Science and Technology (NJUST), China</i> Title: Recent Research Advancement in Near Field PIMI Scattering Spectra of Nano Objects for Bio Macromolecular Sensing	14:10 – 14:30
Shiwen Yang <i>University of Electronic Science and Technology (UESTC), China</i> Title: A Review of Recent Advances in Four-Dimensional (4D) Antenna Arrays	14:30 – 14:50
Ching Man <i>Analogue Devices, USA</i> Title: Sensing and Imaging, applications using 3D Time-of-Flight (ToF) technology for object distance sensing, detection, recognition and classification	15:40 – 16:00

Technical Demonstrations

Friday 21st August 2020

Web Link: <https://uofglasgow.zoom.us/j/92487582524>

Connected Robot in 5G Era

12:30 – 13:30

In this session, we will first introduce our 5G robotic testbed developed in University of Glasgow. Then, we will show the live demo of remote operation between UK and China. Finally, the conference attendees would be able to control a robotic arm using their own mobile phone (an APP needs to be installed to your mobile phone)

Friday 21st August 2020

Web Link: <https://uofglasgow.zoom.us/j/92487582524>

5G Testbed

16:00 – 16:20

The Glasgow 5G testbed team will present an overview of the 5G testbed along with its technical specifications. The different network architectures and combinations for various use cases will be explored. The team will then showcase the indoor testbed that operates on OpenAirInterface5G distribution on x86 based Linux and USRPs. Use cases that utilize this testbed will then be demonstrated including Pop Up Network and a Multi Hop Emergency Network.

Paper Presentation Session I Thursday 20th August 2020

Note: if you have any difficulty in accessing the technical session, please go to the main conference zoom link to get support.

Session 1 a – Antennas for 5G and Beyond I

11:30 – 12:30

Session Chair: Liying Li

Web Link: <https://uofglasgow.zoom.us/j/95851034914>

Time	Paper Title	Authors
11:30	A Compact Multiband Multi-Mode Frequency Reconfigurable Antenna for Portable Devices	Adnan Ghaffar; Xue Jun Li; Wahaj Abbas Awan; Niamat Hussain
11:42	An Asymmetric Semi-Circular Meandered Line Monopole Antenna for 28 GHz 5G Communications	Farooq A. Tahir
11:54	Design and Analysis of Ku-Band Unit Cells for Reflectarray Antennas	Muhammad Inam Abbasi; Muhammad Yusof Ismail
12:06	Circularly Polarized Two Port MIMO Cylindrical DRA for 5G Applications	Ajay Kumar Dwivedi; Anand Sharma; Ashutosh Kumar Singh; Vivek Singh
12:18	Multiband Reconfigurable MIMO Antenna for GSM/GPS/GLONASS Wireless Terminals	Aqsa Ahmad; Farooq A. Tahir

Session 1 b – Blockchain System

11:30 – 12:30

Session Chair: Kelum Gamage

Web Link:

<https://uofglasgow.zoom.us/j/93596538151?pwd=WWxLdDIsN1R3R01ESDVNaEY4eE5CUT09>

Time	Paper Title	Authors
11:30	/	/
11:42	A Block Access Control in Wireless Blockchain Networks	Yixin Li; Bin Cao; Liang Liang; Lei Zhang; Mugen Peng; Muhammad Ali Imran
11:54	A Lightweight Permission-Based Blockchain for IoT Environments	Andrew Connelly; Syed Ali Raza Zaidi; Muhammad Zeeshan Shakir; Hamed Ahmadi
12:06	Compressive Sensing Based Grant-Free Random Access for Massive MTC	Yikun Mei; Zhen Gao; De Mi; Pei Xiao; Mohamed-Slim Alouini
12:18	/	/

Session 1 c – Heterogeneous Devices and Systems I

11:30 – 12:30

Session Chair: Vahid Nabaei

Web Link:

<https://uofglasgow.zoom.us/j/94976472035?pwd=ZlFhRHVFR0RSdJrWGEzSkxcW56dz09>

Time	Paper Title	Authors
11:30	High Precision Laser Ranging Based on STM32	Zongkang Li; John Marsh; Lianping Hou
11:42	Effects of Metamaterial Loading on Miniaturization of Loop and Open Loop Microstrip Filters	Saughar Jarchi; Mohsen Khalily; Rahim Tafazolli
11:54	ENG and NZRI Characteristics of Decagonal-Shaped Metamaterial for Wearable Applications	Kabir Hossain; Thennarasan Sabapathy; Muzammil Jusoh; Ping Jack Soh; Raghava Nallanthighal; Symon Podilchak; Dominique Schreurs; Qammer H Abbasi
12:06	Experimental Demonstration of Four-Channel Tunable in-Series DFB Laser Array with 100-GHz Spacing	Zhenxing Sun; Rulei Xiao; Gen Lv; Zhirui Su; Yating Zhou; Xiangfei Chen
12:18	/	/

Session 1 d – Wireless Communication I

11:30 – 12:30

Session Chair: Frederic Surre

Web Link:

<https://uofglasgow.zoom.us/j/94120980044?pwd=aDFjaXgvZWVvNDBiMS9UUKFDT24xZz09>

Time	Paper Title	Authors
11:30	Novel Small-Scale NOMA Communication Technique Using Auxiliary Signal Superposition	Joel Poncha Lemayian; Jehad Hamamreh
11:42	Numerical Investigation of OAM Based Indoor Communication in a Corridor with Electrical Conducting Walls	Lei Wang; Michael Wulff; Cheng Yang; Woocheon Park; Christian Schuster
11:54	Algorithm for Handover Decision Based on TOPSIS	Siddharth Goutam; Srija Unnikrishnan; Archana Karandikar
12:06	An Efficient Packet Scheduling Algorithm for URLLC Systems	Md. Ismail Husain; Md. Emdadul Haque; Faisal Tariq
12:18	A New Sampling Approach for Beam Shaping Through Superposition of Taylor Distributed Composing Functions	Awab Muhammad; Muhammad Umar Khan; Rifaqat Hussain; Farooq A. Tahir

Session 1 e – Heterogeneous Devices and Systems II 11:30 – 12:30

Session Chair: Kia Dashtipour

Web Link:

<https://uofglasgow.zoom.us/j/4598881523>

Time	Paper Title	Authors
11:30	Study on the High-Power DFB Semiconductor Laser Based on Sampled Moiré Grating	Shengping Liu; Yuxin Ma; Min Chen; Yong Zhao; Yuechun Shi; Xiangfei Chen
11:42	A Dual-Wavelength DFB Laser Based on Reconstruction-Equivalent-Chirp Technology for Millimeter-Wave Generation	Bocheng Yuan; Jianqin Shi; Wenxuan Qi; Yunshan Zhang; Lianyan Li; Ning Xu; Xiangfei Chen
11:54	A Quasi-Optical THz Imaging System Using a Oneport Vector Network Analyser	Zimo Zhao; Michael Farage; Chong Li
12:06	Hybrid Asymmetric Nanostructures for the Mid-Infrared	Ifeoma Mbomson
12:18	/	/

Session 1 f – Machine Learning for Networks & Systems I 11:30 – 12:30

Session Chair: Yao Sun

Web Link: <https://uofglasgow.zoom.us/j/9570447632>

Time	Paper Title	Authors
11:30	Travelers-Tracing and Mobility Profiling Using Machine Learning in Railway Systems	Syed Muhammad Asad; Kia Dashtipour; Sajjad Hussain; Qammer H Abbasi; Muhammad Ali Imran
11:42	Machine Learning Based Approach for Indoor Localization Using Ultra-Wide Bandwidth (UWB) System for Industrial Internet of Things (IIoT)	Fuhu Che; Abbas Ahmed; Qasim Zeeshan Ahmed; Syed Ali Raza Zaidi; Muhammad Zeeshan Shakir
11:54	Load-Aware Cell Switching in Ultra-Dense Networks: An Artificial Neural Networks Approach	Attai Ibrahim Abubakar; Metin Ozturk; Rao Naveed Bin Rais; Sajjad Hussain; Muhammad Ali Imran
12:06	Federated Machine Learning in Vehicular Networks: A Summary of Recent Applications	Julien Le Kernec; Duncan Bremner; Muhammad Ali Imran; Kang Tan
12:18	Human Activity Classification with Radar Signal Processing and Machine Learning	Julien Le Kernec; Francesco Fioranelli; Shufan Yang; Mu Jia; Shaoxuan Li; Olivier Romain

Paper Presentation Session II Thursday 20th August 2020

Note: if you have any difficulty in accessing the technical session, please go to the main conference zoom link to get support

Session 2 a – Antennas for 5G and Beyond II 16:40 – 17:40

Session Chair: Abdullah Al-Khalidi

Web Link: <https://uofglasgow.zoom.us/j/5844843084>

Time	Paper Title	Authors
16:40	Highly Isolated Compact Tri-Band MIMO Antenna with Trapezoidal Defected Ground Plane for 5G Communication Devices	Muhammad Usman; Kioumars Pedram; Yuanwei Zhu; Chao Yu; Anding Zhu
16:52	Dual Circular Polarisation Receive Antenna Element for Ka-Band Satellite Communications	Salvatore Liberto; George Goussetis; Nakul Haridas
17:04	Millimeter-Wave MIMO Array of a Compact Grid Antenna for 5G Wireless Networks and Beyond	Syeda Fizzah Jilani; Qammer H Abbasi; Akram Alomainy
17:16	Beam- Width Reconfigurable Antenna for 5G MMW Applications	Farzana Arshad
17:28	3D Printable Phase Transformation Meta-Structure for Resonant Cavity Antennas	Sujan Shrestha; Bahare Mohamadzade; Affan Baba; Raheel M Hashmi

Session 2 b – Wireless Sensor Networks 16:40 – 17:40

Session Chair: Wasim Ahmad

Web Link:

<https://uofglasgow.zoom.us/j/93550450302?pwd=RU40bkozaTJtRUxwU2UweUFMMU5zUT09>

Time	Paper Title	Authors
16:40	Joint Routing and Channel Assignment for Throughput Maximization in Mobile Wireless Sensor Networks	Mahmoud Nuimat; Ammar Gharaibeh; Ala Khalifeh
16:52	Evaluation of Energy Consumption and Delay in Different Modes of Data Aggregation for Wireless Sensor Networks	Bushra Qayyum
17:04	Energy Optimisation Through Path Selection for Underwater Wireless Sensor Networks	Kenechi Omeke; Michael Mollel; Lei Zhang; Qammer H Abbasi; Muhammad Ali Imran
17:16	/	/
17:28	/	/

Session 2 c – Antenna Design I

16:40 – 17:40

Session Chair: Rupam Das

Web Link: <https://uofglasgow.zoom.us/j/98501883711>

Time	Paper Title	Authors
16:40	Linear to Circular Asymmetric Transmission Based on Chiral Metasurface	Urooj Qamar; Atika Faryal; Farooq A. Tahir
16:52	A Compact Size Implantable Antenna for Bio-Medical Applications	Nabeel Malik; Paul Sant; Tahmina Ajmal; Masood Ur-Rehman
17:04	Performance of Skin-Contact Meandered Bowtie Antenna with AMC Exposed to Sweat-like Liquid for Health Monitoring	Nazirah Othman; Noor Asmawati Samsuri; Mohamad Kamal A. Rahim
17:16	Design of 1-Bit Digital Subwavelength Metasurface Element for Sub-6 GHz Applications	Jalil ur Rehman Kazim; Masood Ur-Rehman; Muath Al-Hasan; Ismail Ben Mabrouk; Muhammad Ali Imran; Qammer H Abbasi
17:28	Graphene-Based Ultra Wideband Antennas	Isidoro Labiano; Akram Alomainy

Session 2 d – Heterogeneous Devices and Systems III

16:40 – 17:40

Session Chair: Imran Ansari

Web Link: <https://uofglasgow.zoom.us/j/93950376464>

Time	Paper Title	Authors
16:40	Design of Integrated Polarization Mode Controllers	Sia ML Andersson; Lianping Hou; John Marsh; Corrie Farmer
16:52	EML Based on Lumped Configuration, Identical Epitaxial Layer and HSQ Planarization	Ali Al-Moathin; Lianping Hou; Eugenio Di Gaetano; John Marsh
17:04	The Fabrication of Thin-Film Micro-LED Arrays Using Tape-Assisted Laser Lift-off: Towards Rigid and Flexible Micro-Displays	Zhangxu Pan; Chan Guo; Jiucheng Liu; Jiantai Wang; Yanfen Gong; Zheng Gong
17:16	Photoacoustic Microscopy of Optical Absorption Distribution of Micron-Sized Copper Balls	Zhiying Xia; Xu Bin; Yang Zhang; Kai Gu; Xuefeng Liu; Jichuan Xiong
17:28	Fast and Accurate Range-Doppler Estimation in Multi-Target Wideband Automotive FMCW Radar	Ali Moussa; Wei Liu

Session 2 e – Sensor Applications I

16:40 – 17:40

Session Chair: Bo Liu

Web Link:

<https://uofglasgow.zoom.us/j/98702559529?pwd=WHBTNIZ5aTFuL1gwdFVtZGIYbzFLQT09>

Time	Paper Title	Authors
16:40	Facile and Cost Effective Paper Based Triboelectric Nanogenerators for Self Powered Environmental Sensing System	Muhammad Umaid Bukhari; Memoon Sajid; Muhammad Qasim Mehmood; Muhammad Zubair; Kashif Riaz
16:52	Foldable, Eco-Friendly and Low-Cost Microfluidic Paper-Based Capacitive Droplet Sensor	Muhammad Hamza Zulfiqar; Muhammad Mubasher Saleem; Muhammad Zubair; Muhammad Qasim Mehmood; Kashif Riaz
17:04	Facile and Low-Cost Sensor System for Exploration of Non-Invasive Glucose Measurement	Umer Hassan, Jr.; Muhammad Hamza Zulfiqar; Memoon Sajid; Mujeeb-ur- Rehman; Kashif Riaz
17:16	An Intelligent Range Gate Pull-off (RGPO) Jamming Method	Rui Jia; Tianxian Zhang; Yuanhang Wang; Yanhong Deng; Lingjiang Kong
17:28	A Flexible and Compact Metamaterial UHF RFID Tag for Remote Sensing in Human Health	Muzammil Jusoh; Thennarasan Sabapathy; Qammer H Abbasi; Ping Jack Soh; Hasliza A Rahim; Mohd Najib Mohd Yasin

Session 2 f – Machine Learning for Networks & Systems II

16:40 – 17:40

Session Chair: Kaveh Delfanazari

Web Link: <https://uofglasgow.zoom.us/j/92185074687>

Time	Paper Title	Authors
16:40	Learning the Wireless Channel: A Deep Neural Network Approach	Guanxiong Shen; Muhammad R. A. Khandaker; Faisal Tariq
16:52	Using Machine Learning to Predict the Future Development of Disease	Lanxin Miao; Xuezhou Guo; Hasan Abbas; Khalid A. Qaraqe; Qammer H Abbasi
17:04	Continuous User Authentication Based on Deep Neural Networks	Anum Kiyani; Aboubaker Lasebae; Kamran Ali
17:16	A Novel Approach for Classifying Diabetes' Patients Based on Imputation and Machine Learning	Kaouthar Driss; Wadii Boulila; Jawad Ahmad
17:28	Elderly Care: Using Deep Learning for Multi-Domain Activity Classification	Francesco Fioranelli; Mu Jia; Julien Le Kernec; Shufan Yang; Olivier Romain; Shaoxuan Li

Paper Presentation Session III

Friday 21st August 2020

Note: if you have any difficulty in accessing the technical session, please go to the main conference zoom link to get support.

Session 3 a – Wireless Communication II

11:30 – 12:30

Session Chair: Ali Rizwan

Web Link: <https://uofglasgow.zoom.us/j/97802401435>

Time	Paper Title	Authors
11:30	Joint Channel and Spreading Factor Selection Algorithm for LoRaWAN Based Networks	Ala Khalifeh; Shefaa Shraideh; Khalid A. Darabkh
11:42	A Compact L-Shaped 16 Bit Polarization Independent Chipless RFID Tag	Usman Haider; Muhammad Noman; Hidayat Ullah; Farooq A. Tahir
11:54	Empirical Indoor Path Loss Models at 3.5GHz for 5G Communications Network Planning	Elijah Adegoke; Erik Kampert; Matthew D Higgins
12:06	EM Field Uniformity Analysis of RRA Reverberation Chamber	Jawad Yousaf; Hosang Lee; Muhammad Faisal; Han Junee; Wansoo Nah; Md Nazmul Hasan; Jun Gyu Yang
12:18	Multiband Stepped Impedance Resonator (SIR) Based Antenna for Future Wireless Applications	Muhammad Asfar Saeed; Sajjad Ur-Rehman; Masood Ur-Rehman; Syed Muhammad Zia; Muhammad Ammar Sohaib; Zaghham Abbas Aqeel

Session 3 b – Signal Processing

11:30 – 12:30

Session Chair: Kelum Gamage

Web Link:

<https://uofglasgow.zoom.us/j/97353476574?pwd=SEhWNIUrY3dqWVYxMjRibFc2Ymowdz09>

Time	Paper Title	Authors
11:30	Searching the Adversarial Example in the Decision Boundary	Haoyang Jiang; Julien Le Kerneq; Qingkui Song
11:42	An Iterative Filtering Algorithm for HEVC Intra Prediction Combined with Prediction Mode Characteristics	Zeng Li; Weiheng Sun; Shuhua Xiong; Pradeep Karn; Xiaohai He
11:54	Mobile Crowdsensing Based Architecture for Intelligent Traffic Prediction and Quickest Path Selection	Mohsin Raza; Ali Raza Barket; Ateeq Ur Rehman; Abdul Rehman; Inam Ullah
12:06	Visual Perception Enhancement for HEVC Compressed Video Using a Generative Adversarial Network	Ting Wang; Jingbo He; Shuhua Xiong; Pradeep Karn; Xiaohai He
12:18	Design of Infrared Imaging Data Acquisition and Transmission System Based on FPGA and USB3.0	Huimin Zhang; Maohai Hu; Jichuan Xiong; Xuefeng Liu

**Session 3 c – Machine Learning for Networks &
Systems III**

11:30 – 12:30

Session Chair: Wasim Ahmad

Web Link:

<https://uofglasgow.zoom.us/j/99730371803?pwd=SUJZQlh5YnAxZ0NMYy9abjN4QkR4UT09>

Time	Paper Title	Authors
11:30	DRaNN: A Deep Random Neural Network Model for Intrusion Detection in Industrial IoT	Shahid Latif; Zeba Idrees; Zhuo Zou; Jawad Ahmad
11:42	A Novel Random Neural Network-Based Fall Activity Recognition	Syed Yaseen Shah; Hadi Larijani; Ryan Gibson; Dimitrios Liarokapis
11:54	Multi-Agent Learning Empowered Collaborative Decision for Autonomous Driving Vehicles	Jiayu Cao; Supeng Leng; Ke Zhang
12:06	Evaluating Machine Learning Techniques on Human Activity Recognition Using Accelerometer Data	Sheeraz Ahmed; Rimsha Khan; Rubia Anjum; Muhammad Abbas; Fahad Bangash; Fatima Waheed
12:18	Machine Learning Driven Method for Indoor Positioning Using Inertial Measurement Unit	Xu Qiwei

Session 3 d – Vehicular Communication

11:30 – 12:30

Session Chair: Frederic Surre

Web Link: <https://uofglasgow.zoom.us/j/94120980044?pwd=aDFjaXgvZWVyNDBiMS9UkFDT24xZz09>

Time	Paper Title	Authors
11:30	Driving Behaviour Analysis in Connected Vehicles	Muhammad Abdul Basit; Hasan Ali Khattak; Sheeraz Ahmed; Asif Nawaz; Masood Habib; Khalid Zaman
11:42	Graph-Coloring Based Spectrum Sharing for V2V Communication	Shuang Xiao; Wenzao Li
11:54	Sensor Aided Beamforming in Vehicular Environment	Moh Chuan Tan; Minghui Li; Qammer H Abbasi; Muhammad Ali Imran
12:06	Quantifying the Effects of Communication Network Performance in Vehicle-to-Grid Frequency Regulation Services	Islam Safak Bayram
12:18	/	/

Session 3 e – MIMO Systems

11:30 – 12:30

Session Chair: Kia Dashtipour

Web Link: <https://uofglasgow.zoom.us/j/4598881523>

Time	Paper Title	Authors
11:30	A Low Complexity Linear Precoding Method for Massive MIMO	Salah Berra; Mahmoud A. M. Albreem; Muntadher Suhail Abed
11:42	Multiple MIMO with Antenna Number Modulation	Muhammet Kirik; Jehad Hamamreh
11:54	Low-Complexity Expectation Propagation Detection for Uplink MIMO-SCMA Systems	Zeina Mheich; Ibrahim Hemadeh; Zilong Liu; Pei Xiao
12:06	Recurrent Neural Network-Based Channel Prediction in mMIMO for Enhanced Performance in Future Wireless Communication	Joel Poncha Lemayian; Jehad Hamamreh
12:18	High Isolation 8x8 MIMO Antenna Design for 5G Sub-6 GHz Smartphone Applications	Matthew Bridges; Mohsen Khalily; Mohammad Abediankasgari; Demos Serghiou; Pei Xiao; Rahim Tafazolli

Session 3 f – Communication Systems Security

11:30 – 12:30

Session Chair: Yao Sun

Web Link: <https://uofglasgow.zoom.us/j/9570447632>

Time	Paper Title	Authors
11:30	Design and Rapid Assessment of Efficient on-Chip ESD Protection Strategy	Jawad Yousaf; Muhammad Faisal; Wansoo Nah; Hassan Saif
11:42	Detection of Malicious Consumer Interest Packet While Mitigating Content Poisoning Attack with Name-Key Based Forwarding and Multipath Forwarding Based Inband Probe	Adnan Qureshi; Nadeem Anjum
11:54	Preventing Identity Attacks in RFID Backscatter Communication Systems: A Physical-Layer Approach	Ahsan Mehmood; Waqas Aman; Muhammad Mahboob Ur Rahman; Muhammad Ali Imran; Qammer H Abbasi
12:06	Security Challenges in Cyber Systems	Ghazanfar A. Safdar; Tahera Kalsoom; Naeem Ramzan
12:18	Polarization-Insensitive Beam Splitters with Variable Split Ratios Based on Phase Gradient Metasurfaces	Haoran Ma; Zhe Shen; Ziyao Wang; Jiawei Peng

Paper Presentation Session IV

Friday 21st August 2020

Note: if you have any difficulty in accessing the technical session, please go to the main conference zoom link to get support.

16:40 – 17:40

Session 4 a – Sensor Applications II

Session Chair: Abdullah Al-Khalidi

Web Link: <https://uofglasgow.zoom.us/j/5844843084>

Time	Paper Title	Authors
16:40	Sagacious Intrusion Detection Strategy in Sensor Network	Shahzad Ashraf
16:52	Highly Accurate Metamaterial Sensor for Measurement of Permittivity of Nanoscale Materials	Abdul Samad
17:04	Smart Wristband for Gesture Recognition	Yuanjie Xia; Hadi Heidari; Rami Ghannam
17:16	A Wearable Health Monitoring System	Haolin Fei; Masood Ur-Rehman
17:28	Near-Infrared Deep Imaging of Biological Phantom by Polarization Parametric Imaging	Ya Jiao; Heng Zhang; LiShan Zhi; Min Sun; Xuefeng Liu; Jichuan Xiong

Session 4 b – Antenna Design II

16:40 – 17:40

Session Chair: Ali Rizwan

Web Link: <https://uofglasgow.zoom.us/j/99461818502>

Time	Paper Title	Authors
16:40	Fully-Transparent Transmission Surface for Outdoor-Indoor mmWave Coverage Enhancement	Vikrant Singh; Mohsen Khalily; Salman Behboudi Amlashi; J. David Carey; Rahim Tafazolli
16:52	Isolation Enhancement Between Waveguide Slot Arrays Using Quasi-Gap Waveguide Structure	Chao Gu; Vincent Fusco
17:04	1.3, 1.55 Mm Photodetector Based on Ge/GaAs Hetero-Integration Prepared by MOCVD	Mingquan Xiao; Shijie Gong; Xieeng Zheng; Yunjiang Jin
17:16	Mixed Coupled Quarter-Wavelength Resonator Filter Utilizing J/K Inverters and Coupling-Path Phases	M. Sufian Anwar; Hamza Nawaz; Arslan Kiyani; Muhammad Ali Babar Abbasi
17:28	Electrically Small Frequency Reconfigurable Antenna for Heterogeneous Applications	Wahaj Abbas Awan; Syeda Naqvi; Niamat Hussain; Abir Zaidi; Aqeel Hussain Naqvi; Ahsan Hameed

Session 4 c – Wireless Communication III

16:40 – 17:40

Session Chair: Adnan Zahid

Web Link:

<https://uofglasgow.zoom.us/j/96333244350>

Time	Paper Title	Authors
16:40	Adaptive Mode Selection and Power Allocation for D2D Underlay Cellular Networks with Dynamic Fading Channel	Mengwei Sun; Yuan Ding; George Goussetis
16:52	Impact of Spreading Factor on LoRaWAN Propagation in a Metropolitan Environment	Salaheddin Hosseinzadeh; Naeem Ramzan; Mehdi Yousefi; Krystyna Curtis; Hadi Larjani
17:04	Spectrum Sharing of Radar and Communication for Multi-Detection Working Mode	Yanhong Deng; Tianxian Zhang; Rui Jia
17:16	Emerging Technologies and Sensors That Can Be Used During the COVID-19 Pandemic	Sagar Suresh Kumar
17:28	A Miniaturized Printed UWB LPDA Antenna	Syed Hamza; Hidayat Ullah; Farooq A. Tahir

Session 4 d – Satellite Communication

16:40 – 17:40

Session Chair: Imran Ansari

Web Link: <https://uofglasgow.zoom.us/j/98709065167>

Time	Paper Title	Authors
16:40	Towards Holographic Beam-Forming Metasurface Technology for Next Generation CubeSats	Okan Yurduseven; Symon Podilchak; Mohsen Khalily
16:52	A Miniaturized FSS Based Band-Stop Filter for EMI Shielding Applications	Syed Muhammad Qasim Ali Shah; Fahad Ahmed; Noshawan Shoaib
17:04	3D Mapping Methods and Consistency Checks to Exclude GNSS Multipath/NLOS Effects	Jasmine Zidan; Osama Alluhaibi; Elijah Adegoke; Erik Kampert; Matthew D Higgins; Colin Ford
17:16	Ultra Wideband Terahertz Channel Propagation Measurements from 500 to 750 GHz	Demos Serghiou; Mohsen Khalily; Tim Brown
17:28	A Tri-Band Implantable Antenna for Biotelemetry Applications	Nabeel Malik; Paul Sant; Tahmina Ajmal; Masood Ur-Rehman

**Session 4 e – Heterogeneous Devices and
Systems IV**

16:40 – 17:40

Session Chair: Bo Liu

Web Link:

<https://uofglasgow.zoom.us/j/93038635136?pwd=c0VYUG04ZkQ0a3RJMDQ0Q1JhNkhtUT09>

Time	Paper Title	Authors
16:40	A Subspace Based Channel Mismatch Estimator for Time-Interleaved ADC Systems	Lun Ma
16:52	Multi-Dimensional Microscopic Imaging of Biological Tissues Based on Polarization Spectrum	Huizheng Tang; Heng Zhang; Juan Liu; Yongqiang Nie; Ji Wu; Bozhi Liu; Jichuan Xiong; Xuefeng Liu
17:04	Design of 2 μm Wavelength Polarization Mode Controllers	Shengwen Xie; Sia ML Andersson; Shengwei Ye; Zhichuan Niu; John Marsh; Lianping Hou
17:16	Compact AWG Based on Slot Arrayed Waveguides	Xiaotao Zhu; Wei Hong; Ningfeng Bai; Xiaohan Sun
17:28	/	/

Session 4 f – IoT

16:40 – 17:40

Session Chair: Paulo Klaine

Web Link: <https://uofglasgow.zoom.us/j/99050712995>

Time	Paper Title	Authors
16:40	Societal Impact of IoT-Lead Smart Factory in the Context of Industry 4.0	Tahera Kalsoom; Naeem Ramzan; Shehzad Ahmed
16:52	IoT Enabled Smart Lighting System Using STM32 Microcontroller with High Performance ARM [®] Cortex [®] -M3 Core	Wu Siyu; Amir Mohamed Abdulghani; Shuja Ansari; Qammer H Abbasi; Muhammad Ali Imran
17:04	Concept Drift Detection with False Positive Rate for Multi-Label Classification in IoT Data Stream	Pingfan Wang; Nanlin Jin; Gerhard Fehringer
17:16	Quantifying the Impact of Customized Feedback on User Energy Consumption Behavior with Low-Cost IoT Setup	Reeba Raza; Naveed Ul Hassan
17:28	Blockchain Based Smart Model for Agricultural Food Supply Chain	Sabir Hussain Awan, Mr; Asif Nawaz; Sheeraz Ahmed; Hasan Ali Khattak; Khalid Zaman; Zeeshan Najam

Workshop on Superconducting Terahertz Devices (STD)

Friday 21st August 2020

12:50 – 17:30

Web Link: <https://uofglasgow.zoom.us/j/92185074687>

Note: if you have any difficulty in accessing the technical session, please go to the main conference zoom link to get support.

Time	Paper Title	Authors
12:50	Opening and Welcome	Kaveh Delfanazari & Kazuo Kadowaki
13:00	Recent Advances in THz Emission from High- Tc Superconducting IJJ Mesa Structure	Kazuo Kadowaki
13:30	The Terahertz Device from hybrids of superconductors and topological materials	Fedor Kusmartsev
14:00	Evaluation of terahertz emission from intrinsic Josephson junction stacks	Huabing Wang, Valery Koshelets, Reinhold Kleiner, and Peiheng Wu
14:30	Mutual Synchronization of Terahertz Emissions from Multiple Intrinsic Josephson Junction Mesas	Ken Hayama; Shuma Fujita; Yuya Kuriyama; Keiichiro Maeda; Manabu Tsujimoto; Itsuhiro Kakeya
14:50	/	/
15:10	Terahertz Emission from Thin Annular and Slitted Annular Bi2212 Microstrip Antennas	Richard A Klemm; Nahi Shouk; Sheila Bonnough; Ruqayyah Shouk
15:40	Competing steady states in intrinsic Josephson junctions	Alexei E. Koshelev
16:10	Development of Bi2212-THz emitter	Takanari Kashiwagi
16:30	Magnetization Dynamics Features in the SFS φ_0 Josephson Junction	Yury Shukrinov
16:50	Stacked Intrinsic Josephson Junction Bi2Sr2CaCu2O8 Terahertz Sources: Design Issues for Achieving High Power Output Close to Tc	Timothy M Benseman; Karen Kihlstrom; Alexei Koshelev; Ulrich Welp; Wai-Kwong Kwok; Kazuo Kadowaki
17:10	Guiding of Terahertz Photons in Superconducting Nano-Circuits	Samane Kalhor, Majid Ghanaatshoar, Kaveh Delfanazari
17:30	Closing	Kaveh Delfanazari

Workshop on Engineering Pedagogy

Friday 21st August 2020

10:30 – 11:00 & 16:20 – 17:20

Web Link: <https://uofglasgow.zoom.us/j/98832106187?pwd=bJJ1bWdZaGNEUmprU1hYSmZrR0FJUT09>

Note: if you have any difficulty in accessing the technical session, please go to the main conference zoom link to get support.

The Workshop on Engineering Education Pedagogy aims to share the expertise of leading academics in engineering pedagogy. The workshop will be delivered virtually and is organised by the **University of Glasgow, UK**. The workshop will cover topics pertaining the effectiveness of engineering education, including:

- Community engineering education.
- The implementation of active learning techniques.
- The application of ICT tools to facilitate remote learning.

Invited Talks

Prof. Euan Lindsay	10:30 – 11:00
<i>CSU Engineering Foundation Professor of Engineering Charles Sturt University, Australia. Title: High Quality Remote Laboratories</i>	
Prof. Caroline Baillie	16:20 – 16:50
<i>Professor of Praxis in Engineering and Social Justice Shiley-Marcos School of Engineering University of San Diego Title: Community Engineering Education.</i>	
Prof. Matthew W. Ohland	16:50 – 17:20
<i>Dale and Suzi Gallagher Professor and Associate Head of Engineering Education Purdue University, USA. Title: Forming and managing engineering student teams</i>	