



5G Way Forward to 6G

International Symposium on Wireless Personal Multimedia Communications

Aarhus University, Herning, Denmark
30 October- 2 November 2022

Sunday October 30, 2022

Time	Activity	Location
8:00	Registration	BTECH Herning Room 8002 (Auditorium) Birk Centerpark 15, 7400 Herning
8:30	Welcome	Room 8002 (Auditorium)
9:00- 13:00	Tutorial Session 1 Quantum Communications, Cryptography, Networking, and Sensing Dr. Kwang Cheng Chan , Professor (IEEE Fellow), University of South Florida, USA	Room 2052
	Tutorial Session 2 Modelling deterministic wired/wireless TSN networks in NS-3 Dr. Rute C. Sofia / Dr. Manel Khelifi / Dr. Victor BANOS Gonzales , FORTISS GMBH, German	Room 2036
11:00-11:15	Coffee Break	AU Canteen
13:00	Lunch	AU Canteen
14:00-17:30	Tutorial Session 3 Finite Word Length Effects in Digital Filters: A Tutorial Review Dr. Peter Koch , Associate Professor, Aalborg University, Denmark	Room 2052
	Tutorial Session 4 Open RAN-based 5G Second Phase Networks: from Radio Resource Management to the Cost/Revenue Trade-off Dr. Fernando J. Velez , Instituto de Telecomunicações and Universidade da Beira Interior, Department of Electromechanical Engineering, Faculty of Engineering, Portugal	Room 2036
15:30	Coffee Break	AU Canteen
18:00	Reception and Culture Program	Room 8002 (Auditorium)
20:00	End of Day	

Monday October 31, 2022

Time	Activity	Location
8:00	Registration	MCH Kongrescenter Lobby Østergade 37, 7400 Herning
9:00	Welcome from Anders Frederiksen , Head of Department, BTECH, Aarhus University, Denmark	MCH Theatre
9:15	Introductory talk by Rajmee Prasad , President CTIF Global Capsule, Aarhus University, Herning, Denmark	MCH Theatre
9:30	Introduction to Yokosuka Research Park (YRP) by Shingo Ohmori , Advisor, YRP R&D Promotion Committee, Japan	MCH Theatre
9:45	Introduction to NICT by Naoto Kadowaki , Vice President - NICT, Japan	MCH Theatre
10:00	Keynote Session 1 Chair- Ramjee Prasad 6G – The next hyper-connected experience for all Howard Benn , Samsung Electronics R&D Institute, United Kingdom	MCH Theatre
10:45	Coffee Break	MCH Lobby
11:00	Keynote Session 2 Chair- Pavlos Lazardis Can You Have the 6Senses Feeling? A Perspective into the Future of Haptic and Multimodal Communication Mona Ghassemian , Huawei Advanced wireless Technology Lab	MCH Theatre
11:45	Keynote Session 3 Chair-Pavlos Lazardis Communication for Artificial Intelligence: Wireless Robotics Kwang-Cheng Chen , University of South Florida, USA	MCH Theatre
12:30	Lunch	MCH Kongrescenter Theatre Basement Restaurant
13:30	Invited Speaker 1 Chair- Fernando J. Velez 6G Services and Security Anand Raghawa Prasad , Partner at Deloitte Tohmatsu Cyber (DTCY), Tokyo, Japan	MCH Theatre
14:00	Invited Speaker 2 Chair-Fernando J. Velez Sustainable spectrum management for 6G Marja Matinmikko , Research Director of Infotech Oulu Institute, Oulu University, Finland	MCH Theatre

Monday October 31, 2022

Time	Activity	Location
14:30	<p>Technical Session 1- Chair- Agata Manolova</p> <p>Adaptive Collaborative Relaying in High Mobility Environment Satoshi Denno, Takuma Fujii and Yafei Hou (Okayama University, Japan)</p> <p>An Analog Self-interference Canceller Applicable to 5G NR-based In-band Full-duplex Supporting 100 MHz Bandwidth Signal Takeshi Matsumura (National Institute of Information and Communications Technology (NICT) & Kyoto University, Japan)</p> <p>Cost Revenue Trade-off for the 5G NR Small Cell Network in the Sub-6 GHz Operating Band Bahram Khan (Instituto de Telecomunicações, Portugal & Universidade da Beira Interior, Portugal); Nidhi (Aarhus University, Denmark); Rui R. Paulo (Instituto de Telecomunicações, Portugal); Albena Mihovska (Aarhus University, Denmark); Fernando J. Velez (University of Beira Interior & Instituto de Telecomunicações, Portugal)</p> <p>Utilizing Cognitive Radio and Reinforcement Learning for Multiple Preamble Detection in 5G-PRACH Syeda Sundus Zehra (Sir Syed University of Engineering and Technology & IEEE WIE, Pakistan); Rehan Qureshi (UIT University, Pakistan); Muhammad Aamir (Sir Syed University of Engineering & Technology, Pakistan); Maurizio Magarini (Politecnico di Milano, Italy)</p>	Room 5a
	<p>Technical Session 2- Chair- Ernestina Cianca</p> <p>Electrically Small, Metamaterial-inspired Monopole Antennas for WLAN Applications Christos Milias (Aarhus University & MyDefence, Denmark); Rasmus Andersen (My Defence, Denmark); Pavlos Lazaridis (University of Huddersfield, United Kingdom (Great Britain)); Zaharias D. Zaharis (Aristotle University of Thessaloniki, Greece); Bilal Muhammad and Albena Mihovska (Aarhus University, Denmark); Jes Kristensen and Dan Hermansen (MyDefence, Denmark)</p> <p>Performance Evaluation of Polarization Sensitive Array Based DOA Estimation Bowen Wang (China Telecom Research Institute, China); Nanxi Li (China Telecom, China); Hang Yin (China Telecom Research Institute, China); Jianchi Zhu (China Telecom, China); Xiaoming She, Jianxiu Wang and Peng Chen (China Telecom Research Institute, China)</p> <p>Design of 3-Bit Reflection Type Digital Phase Shifter for Regional ISM Band Hafsa Talpur (Mehran University of Engineering and Technology Jamshoro, Pakistan); Badar Muneer (Mehran University of Engineering and Technology, Pakistan); Bhawani Chowdhry (Mehran University of Eng & Technology, Jamshoro, Pakistan); Rabia Shaikh (Mehran University of Engineering & Technology Jjamshoro, Pakistan); Albena Mihovska (Aarhus University, Denmark)</p> <p>Waveform Analysis of DFT-spread OFDM with Phase Rotation and $\pi/2$-4PAM for Efficient Wireless Transmission Hikaru Kawasaki (National Institute of Information and Communications Technology, Japan); Takeshi Matsumura (National Institute of Information and Communications Technology (NICT) & Kyoto University, Japan)</p> <p>Throughput Evaluation of UL-NOMA Systems with Successive Interference Cancellation and Repetition Masahiro Yamazoe, Masafumi Moriyama and Takashi Matsuda (National Institute of Information and Communications Technology, Japan); Takeshi Matsumura (National Institute of Information and Communications Technology (NICT) & Kyoto University, Japan)</p>	Room 4c

Monday October 31, 2022

Time	Activity	Location
14:30	<p>Technical Session 3 Chair- Vladimir K. Poulkov</p> <p>Video Transmission Trial by Wireless Multi-hop Network based on Wi-SUN FAN Reo Gakumi, Hiroko Masaki, Keiichi Mizutani and Hiroshi Harada (Kyoto University, Japan)</p> <p>Delivering 360-Degree Video With Viewport-Adaptive Truncation Tian Qiu, Ish K Jain and Raini Wu (University of California San Diego, USA); Dinesh Bharadia and Pamela Cosman (University of California, San Diego, USA)</p> <p>A Novel Routing Protocol based on Prediction of Energy Consumption and Link Stability in Mobile Internet of Thing (MIoT) Ahmed Nor (University Politehnica of Bucharest, Romania & Aswan University, Egypt); Seyed Salar Sefati (Politehnica University of Bucharest, Romania); Simona Halunga and Octavian Fratu (University Politehnica of Bucharest, Romania)</p> <p>Low-Latency Frame Forwarding Scheme Applicable to the Heterogeneous Channel Allocated Low-Energy Wireless Grid Structure Fumihide Kojima (National Institute of Information and Communications Technology, Japan)</p> <p>Smart LSTM-based IDS for Heterogeneous IoT (HetIoT) Shalaka S. Mahadik (Birla Institute of Technology and Science Pilani, Dubai, United Arab Emirates); Pranav M. Pawar (Birla Institute of Technology and Science Pilani, Dubai & BITS Pilani, Dubai, United Arab Emirates); Raja Muthalagu (Birla Institute of Technology and Science Pilani, Dubai Campus, United Arab Emirates); Neeli Rashmi Prasad (ITU, Center for TeleInfrastructure (CTIF), USA); Dnyanesh S Mantri (Pune University & Sinhgad Institute of Technology, Lonavala, India)</p>	Room 4a
15:45	Coffee Break	MCH Lobby
16:00	<p>Invited Speaker 3 Chair-Birger Andersen</p> <p>Trustworthiness and Digital Privacy in Healthcare Neeli Rashmi Prasad, SMARTAVATAR, USA</p>	MCH Theatre
16:30	<p>Technical Session 4 Chair- Octavian Fratu</p> <p>Automatic Modulation Classification using Graph Convolutional Neural Networks for Time-frequency Representation Krasimir Tonchev, Antoni Ivanov, Agata Manolova, Nikolay Neshov and Vladimir K. Poulkov (Technical University of Sofia, Bulgaria)</p> <p>Ablation Study of Deep Reinforcement Learning Congestion Control in Cellular Network Settings Haidlir Naqvi and Bayu Anggoroajati (Universitas Indonesia, Indonesia)</p> <p>Universal Vertical Applications Adaptation for Open RAN: A Deep Reinforcement Learning Approach Yi-Cheng Huang (National Chung Cheng University, Taiwan); Shao-Yu Lien (National Chung Cheng University, Taiwan); Chih-Cheng Tseng (National Ilan University, Taiwan); Der-Jiunn Deng (National Changhua University of Education, Taiwan); Kwang-Cheng Chen (University of South Florida, USA)</p> <p>A Proposal of an End-to-End DoA Estimation System Aided by Deep Learning Daniel Akira Ando, Toshihiko Nishimura, Takanori Sato, Takeo Ohgane, Yasutaka Ogawa and Junichiro Hagiwara (Hokkaido University, Japan)</p>	Room 4a

Monday October 31, 2022

Time	Activity	Location
16:30	<p>Technical Session 4 Continued</p> <p>RadioResUNet: Wireless Measurement by Deep Learning for Indoor Environments Chang-Woo Pyo (NICT, Japan); Hirokazu Sawada (National Institute of Information and Communications Technology, Japan); Takeshi Matsumura (National Institute of Information and Communications Technology (NICT) & Kyoto University, Japan)</p> <p>Data-driven Interactive Crowd Management Systems for Metaverse Scenarios Dessislava Koshncharova (Technical University of Sofia, Bulgaria); Nidhi and Albenah Mihovska (Aarhus University, Denmark); Pavlina Koleva and Vladimir K. Poulkov (Technical University of Sofia, Bulgaria)</p> <p>Attendance Management System Using Face Recognition Vivek Kumar (Noida Institute of Engineering and Technology, India & Aarhus University, Denmark)</p>	Room 4a
	<p>Technical Session 5 Chair- Walter Konhäuser</p> <p>Green Business Model Innovation technology Competences - What Green Technology Competences are needed to do more and trusted Green Business Model Innovation Peter Lindgren (Aarhus University, Denmark)</p> <p>The emergence of green business modeling innovation ecosystem platform facilitating green digitalization with open-source software Per Valter (Østfold University College, Denmark); Peter Lindgren and Ramjee Prasad (Aarhus University, Denmark)</p> <p>Impact of Digital Technology on Business and Application Areas Sunil Kr Pandey (Institute of Technology & Science, India)</p> <p>Business model archetypes: a systematic literature review Rita Madsen and Peter Lindgren (Aarhus University, Denmark); Susanne Durst (Tallinn University of Technology, Estonia)</p> <p>A review of Artificial Intelligence in Foreign Language Learning Despoina N. Gkoutara and Ramjee Prasad (Aarhus University, Denmark)</p> <p>Coining Green Business Model for Highly Advanced Life-threatening Cybernetics in 5G & Beyond Networks Anita priyadarshini Durai pandian (Aarhus University, Denmark)</p>	Room 4c
16:30	<p>Technical Session 6 Chair- Fernando J. Velez</p> <p>5G New Radio Simulator for Wireless Communications Using Millimeter Wave Band Javier Otero Martinez (Universidad Carlos III de Madrid & UC3M, Spain); Ana Garcia Armada (Universidad Carlos III de Madrid, Spain)</p> <p>UWB Medium Access With Assistance of Pilot Narrow Band Radio Huan-Bang Li (National Institute of Information and Communications Technology, Japan); Takeshi Matsumura (National Institute of Information and Communications Technology (NICT) & Kyoto University, Japan)</p> <p>Dynamic Resource Allocation scheme for 5G Networks of Fronthaul-limited Shared Radio Units Yun Wen (Fujitsu Limited, Japan); Takaharu Kobayashi (FUJITSU LIMITED, Japan); Teppei Oyama (Fujitsu, Japan); Takashi Seyama (FUJITSU LIMITED, Japan); Takashi Dateki (Fujitsu Ltd., Japan)</p>	Room 5a

Monday October 31, 2022

Time	Activity	Location
16:30	Technical Session 6 Continued Interference Analysis for Spectrum Sharing of Multiple Local 5G gNBs by Different Operators in a Building Homare Murakami and Hirokazu Sawada (National Institute of Information and Communications Technology, Japan); Takeshi Matsumura (National Institute of Information and Communications Technology (NICT) & Kyoto University, Japan) Network tool for hybrid analysis with External and Internal Scanning for Vulnerability Assessment of Network Nodes Liubomir Nenov (9 FEG Alphonse de Lamartine, Bulgaria); Ivan Zlatanov (InterConsult Bulgaria, Bulgaria); Agata Manolova (Technical University of Sofia, Bulgaria) An Improved Genetic Algorithm based Routing Protocol for Multimedia Data Transmission Fozia Hanif (University of Karachi, Pakistan); Rehan Shams (Sir Syed University of Engineering & Technology, Pakistan); Samia Masood Awan (NED University of Engineering and Technology, Pakistan); Muhammad Amir (Sir Syed University of Engineering and Technology, Pakistan)	Room 5a
18:30	WPMC Steering Board Meeting and Dinner (only for Steering Board Members) Chair- Ramjee Prasad	Room 6b
19:00	Dinner (only for paid participants)	Room 4b

Please note that 1 November is election day in Denmark. Since MCH serves as an election polling place, expect more traffic and crowds within the building.



Tuesday November 1, 2022

Time	Activity	Location
8:00	Registration	MCH Kongrescenter Lobby
9:00	Keynote Session 4 Chair-Paulo P. Monteiro On Restructuring Radio Access Network (RAN) Towards Beyond 5G: Concept of A Scalable and Reconfigurable RAN Fumiyuki Adachi , Tohoku University, Japan	MCH Theatre
9:45	Keynote Session 5 Chair-Paulo P. Monteiro On the way to the Tactile Internet Ana Garcia Armada , University Carlos III of Madrid, Spain	MCH Theatre
10:30	Coffee Break	MCH Lobby
11:00	Invited Speaker 4 Chair- Peter Koch 6G's view of one6G An Xueli , HUAWEI Technologies, Munich, Germany	MCH Theatre
11:30	Invited Speaker 5 Chair- Peter Koch Generation of Precision Reference Clocks Utilizing Digital Techniques; Uma Shankar Jha , L3Harris Technologies, USA	MCH Theatre
12:00	Invited Speaker 6 Chair- Peter Koch Passenger Based Energy Optimization on Airports Walter Konhäuser , Oktett64 GmbH, Germany	MCH Theatre
12:30	Lunch	MCH Restaurant
13:30	Technical Session 7 Chair- Ambuj Kumar Received Path Power Prediction for Millimeter-wave Using LSTM under Indoor Environment Takato Yamazaki and Kohei Ohno (Meiji University, Japan) Low-Complexity Quantum Channel Phase Estimation Austin Bristow and Kwang-Cheng Chen (University of South Florida, USA) Genetic Algorithm Based Channel Pattern Selection for Spatial Modulation Using Slots of Leaky Coaxial Cable Kenta Nagayama, Erika Kouda, Junjie Zhu, Yafei Hou and Satoshi Denno (Okayama University, Japan) A Combination of Successive Interference Cancellation and Repetition for UL-NOMA Systems Masafumi Moriyama, Masahiro Yamazoe and Takashi Matsuda (National Institute of Information and Communications Technology, Japan); Takeshi Matsumura (National Institute of Information and Communications Technology (NICT) & Kyoto University, Japan) On Numerical Robustness of Bi-quad Structures using Fixed-Point Approximate Multiplication Peter Koch, Jan Østergaard, and Ove Andersen, Aalborg University, Denmark Power-efficient Joint Resource Allocation and Decoding Error Probability for Multiuser Downlink MISO with Finite Block Length Codes Jalal Jalali (University of Antwerp-imec, Belgium); Atefeh Rezaei (Tarbiat Modares University, Iran); Ata Khalili (Friedrich-Alexander-University Erlangen, Germany); Jeroen Famaey (University of Antwerp & Imec, Belgium) A Combination of Successive Interference Cancellation and Repetition for UL-NOMA System Masafumi Moriyama, Masahiro Yamazoe and Takashi Matsuda (National Institute of Information and Communications Technology, Japan); Takeshi Matsumura (National Institute of Information and Communications Technology (NICT) & Kyoto University, Japan)	Room 4c

Tuesday November 1, 2022

Time	Activity	Location
13:30	<p>Technical Session 8 Chair- Neeli Rashmi Prasad</p> <p>UAV Deployment for MU-MIMO Capacity Maximization in UAV-assisted Cellular Networks with Millimeter-wave Beamforming Shunsuke Fujio (FUJITSU LIMITED, Japan); Kazuyuki Ozaki (Fujitsu Limited, Japan)</p> <p>Challenges for Volumetric Measurements Toward Radio Environment Map Construction for UAV Communications Antoni Ivanov (Technical University of Sofia, Bulgaria); Bilal Muhammad (Aarhus University, Denmark); Krasimir Tonchev (Technical University of Sofia, Bulgaria); Alben Mihovska (Aarhus University, Denmark); Vladimir K. Poulkov (Technical University of Sofia, Bulgaria)</p> <p>An Improved Q-Learning Based Handover Scheme in Cellular-Connected UAV Network Jihai Zhong and Li Zhang (University of Leeds, United Kingdom (Great Britain)); Jonathan Serugunda (Makerere University, Uganda); Prabhat R Gautam (University of Leeds, United Kingdom (Great Britain)); Sheila N. Mugala (Makerere University, Kampala & Makerere University, Uganda)</p> <p>Positioning Performance of LEO Mega Constellations in Deep Urban Canyon Environments Harshal More (Tor Vergata University, Italy); Ernestina Cianca (University of Rome Tor Vergata, Italy); Mauro De Sanctis (University of Rome "Tor Vergata", Italy & Peoples' Friendship University of Russia (RUDN), Russia)</p> <p>Efficient Antenna Tracking Algorithm for HAPS Ground Station in Millimeter-Wave Go Otsuru, Hiroyuki Tsuji and Ryu Miura (National Institute of Information and Communications Technology, Japan); Jun Suzuki (SKY Perfect JSAT Corporation, Japan); Yoshihisa Kishiyama (NTT DOCOMO, INC., Japan)</p> <p>Urban Air Mobility: Insights into Potentials and Challenges Luc Fynn Krull and Bilal Muhammad (Aarhus University, Denmark)</p>	Room 5a
	<p>Technical Session 9 Chair- Anand R. Prasad</p> <p>End-to-end security of networks with 5G segment Slawomir Kiklinski (Warsaw University of Technology, Poland); Milica Pejanovic-Djurisic (University of Montenegro & Research Centre for ICT, Montenegro)</p> <p>Public Private Data Partnerships enabling Privacy Technologies Aaloka Anant (CTIF Global Capsule, Denmark); Ramjee Prasad (Aarhus University, Denmark)</p> <p>Robustness of Quantum Key Distribution Against Quantum Phase Error and a New Attack Strategy Austin Bristow and Kwang-Cheng Chen (University of South Florida, USA)</p> <p>Security Assessment of Android-Based Mobile Terminals Zhiyuan Hu (vivo Mobile Communication Co., Ltd, China); Linghang Shi and Huijun Chen (vivo Mobile Communication Co., Ltd., China); Chao Li (vivo Mobile Communication Co., Ltd, China); Jinghui Lu (vivo Mobile Communication Co., Ltd., China)</p> <p>5G Attacks and Countermeasures Sebastian Angelo Bjerre, Mikkel Wøiedemann Klæbel Blomsterberg and Birger Andersen (Technical University of Denmark, Denmark)</p>	Room 5b

Tuesday November 1, 2022

Time	Activity	Location
13:30	<p>Special Session 2 Chair- Frank Y. Li</p> <p>Open-Source Enabled Beyond 5G Private Mobile Networks: From Concept to Prototype Razvan Mihai (University Politehnica of Bucharest, Romania); Razvan Craciunescu (University Politehnica of Bucharest & Future Networks Lab, Romania); Alexandru Martian (University Politehnica of Bucharest, Romania); Frank Y. Li (University of Agder, Norway); Cristian Patachia - Sultanoiu (Orange Romania SA & Technical University Gheorghe Asachi of Iasi, Romania); Marius Constantin Vochin (University Politehnica of Bucharest, Romania)</p> <p>Internet Connected Open-Source based 4G MIMO and 5G NSA Systems: Prototyping and Performance Jon Anders Skadberg Øgaard and Frank Y. Li (University of Agder, Norway); Geir Jevne (University of Agder); Kjetil Kjellstadli (& Telenor Maritime, Norway); Alexandru Martian (University Politehnica of Bucharest, Romania)</p> <p>Enabling Pseudo-Orthogonal Preambles, Clustering, and MIMO in Massive IoT Networks Carmen Florea (University Politehnica of Bucharest, Romania); Razvan Craciunescu (University Politehnica of Bucharest & Future Networks Lab, Romania); Frank Y. Li (University of Agder, Norway); Alexandru Vulpe (University Politehnica of Bucharest & Beam Innovation SRL, Romania); Marius Constantin Vochin (University Politehnica of Bucharest, Romania)</p> <p>Development and Initial Implementation of Large-scale Wireless Emulator Toward Beyond 5G Takeshi Matsumura (National Institute of Information and Communications Technology (NICT) & Kyoto University, Japan); Hirokazu Sawada, Toshiyuki Miyachi, Fumihide Kojima and Hiroaki Harai (National Institute of Information and Communications Technology, Japan); Ayaka Sakaguchi (KOKUYO Co., Ltd., Japan); Yoshihisa Nishigori (OTSL Inc., Japan); Hiroshi Harada (Kyoto University, Japan)</p> <p>Dynamic Offloading The Sdn Control Plane In Large Area Networks By Condition-Aware Migration Of Forwarding Devices Pantelimon-Teodor Tivig (University Politehnica of Bucharest & Luxoft Romania, Romania); Eugen Borcoci and Marius Constantin Vochin (University Politehnica of Bucharest, Romania)</p>	Room 4a
15:00	Coffee Break	MCH Lobby
15:30	<p>Special Session 3 Chair- Bilal Muhammad</p> <p>Application and Challenges of an IoT Bird Repeller System As a result of Bird Behavior Chayapol Kamyod (Mae Fah Luang University, Thailand); Suwannee Phetyawa (School of Information Technology, Thailand); Thongchai Yooyatiwong (Mae Fah Luang University, Thailand); Cheong Kim (Namseoul University, Korea (South))</p>	Room 4c

Tuesday November 1, 2022

Time	Activity	Location
15:30	<p>Special Session 3 Continued</p> <p>Coffee Product Reservation and Plantation Report System to improve value chain for Arabica producers Suepphong Chernbumroong (College of Arts Media and Technology, Thailand); Pradorn Sureephong and Pitchatada Inkaew (Chiang Mai University, Thailand)</p> <p>Convolutional Neural Network and Dropout Technique for Recognition of Thai Food Image Niti Natephakdee (MaeFahLuang University, Thailand); Supansa Chaising and Punnarumol Temdee (Mae Fah Luang University, Thailand)</p> <p>Online Problem Based Learning Framework for Promoting Digital Service Skills: Empirical Study of Local Entrepreneurs in Chiang Rai Province Santichai Wicha (MaeFahLuang University, Thailand); Annop Thananchana (Chiang Mai University, Thailand); Damrongpol Kamhangwong and Punnarumol Temdee (Mae Fah Luang University, Thailand)</p> <p>Real Time sales purchase data analysis: State of Art Kumud Saxena (NIET & AKTU, India)</p>	Room 4c
	<p>Special Session 9 Chair- Naoto Kadowaki</p> <p>Overview of Beyond 5G R&D Activities in NICT Naoto Kadowaki (National Institute of Information and Communications Technology, Japan)</p> <p>Latest R&D Activities on Wireless Systems Toward Beyond 5G and 6G Takeshi Matsumura (National Institute of Information and Communications Technology (NICT) & Kyoto University, Japan)</p> <p>R&D of Communication Systems for Non-terrestrial Networks toward Beyond-5G in NICT Hiroyuki Tsuji, Amane Miura, Alberto Carrasco-Casado and Morio Toyoshima (National Institute of Information and Communications Technology, Japan)</p> <p>Network Control System for Multilayered Network Access Using Terrestrial and Non-terrestrial Networks Mariko Sekiguchi, Amane Miura, Yuma Abe and Hiroyuki Tsuji (National Institute of Information and Communications Technology, Japan)</p> <p>Study of Spectrum Efficiency Improvement for High Throughput Satellite toward Realizing Flexible Network Go Otsuru, Amane Miura, Tomoshige Kan, Mariko Sekiguchi, Yuma Abe and Hiroyuki Tsuji (National Institute of Information and Communications Technology, Japan)</p> <p>NICT's R&D and Promotion Activities on the Testbed Development and Evolution toward Beyond 5G Systems and Services Fumihide Kojima (NICT, Japan)</p>	Room 5a
	<p>Technical Session 10 Chair- Ana Maria Dragulinescu</p> <p>Comparison of cm- and mm-Wave Channel Characteristics between Autonomous Mobile Robots in a Small I4.0 Manufacturing Facility Troels B. Sørensen, Rasmus Liborius Bruun, Rene Marcker and Preben Mogenssen (Aalborg University, Denmark)</p>	Room 5b

Tuesday November 1, 2022

Time	Activity	Location
15:30	Technical Session 10 Continued Scheduling of smart meter data access using Hungarian Algorithm Asma Farooq (Aalborg University, Denmark); Kamal Shahid (University of the Punjab, Lahore, Pakistan); Rasmus Olsen (Aalborg University, Denmark) Fine Time Measurement Based Synchronisation for Industrial Wireless/Wired Networks Sugandh Huthanahally Mohan (FORTISS GmbH, Germany); Rute C. Sofia (Fortiss, Germany & ISTAR, ISCTE-IUL, Portugal) Hybrid SUN-LoRa Network on a Low Altitude Platform for Remote Water Quality Monitoring Azril Haniz (National Institute of Information and Communications Technology, Japan); Takeshi Matsumura (National Institute of Information and Communications Technology (NICT) & Kyoto University, Japan); Haider Alobaidy (Universiti Kebangsaan Malaysia, Malaysia); Mehran Behjati (National University of Malaysia, Malaysia); Rosdiadee Nordin (Universiti Kebangsaan Malaysia, Malaysia); Nor Fadzilah Abdullah (Universiti Kebangsaan Malaysia & Centre for Automotive Research, FKAB, Malaysia); Mandeep Singh (UKM, Malaysia); Nordin Ramli (MIMOS Berhad, Malaysia)	Room 5b
	Special Session 1: Smart Health: Innovation and Technologies Chair- Bhawani Chowdhry Design & Development of Deep Learning Algorithm with Convolutional Neural Networks for Breast Cancer Classification Rajesh Singh (Mumbai, India); Ragini A. Mishra (University of Mumbai, India) Data Sharing and Electronic Medical Record Privacy Protection of Out-Patient-Department Using Blockchain Pradorn Sureephong, Pradya Komanee and Chantip Trongpanyachot (Chiang Mai University, Thailand) Popliteal height estimation in French elderly people for an ergonomic seat height design Aly Chkeir (University of Technology of Troyes, France) EMF and its Effect on Human Health due to IoT Infrastructure Hitesh Singh (HMRITM, Delhi, India) Food waste quantification; Methods and Benefits Sadia Anwar (Aarhus University, Denmark); Muhammad Shahbaz (University of Engineering and Technology Peshawar, Pakistan); Aamir Saeed (University of Engineering and Technology Peshawar, Pakistan); Ramjee Prasad (Aarhus University, Denmark)	Room 4a
17:00	Celebrating 150 PhD Students: Ramjee Prasad	MCH Theatre
19:00	GALA DINNER and Best Paper Award Ceremony	MCH Restaurant

Wednesday November 2, 2022

Time	Activity	Location
8:00	Registration	MCH Kongrescenter Lobby Østergade 37, 7400 Herning
9:00	Keynote Session 6 Chair- Pavlos Lazaridis When homes are too smart for their own good: physical and computational modeling of smart homes Damla Turgut , Charles Millican Professor of Computer Science, University of Central Florida, USA	MCH Theatre
9:45	Keynote Session 7 Chair- Pavlos Lazaridis Deep Learning Applications for Medical Image Analysis Celia Shahnaz	MCH Theatre
10:30	Coffee Break	MCH Theatre
11:00	Invited Speaker 7 Chair- Uma S. Jha Enhanced Dependability of Wireless Body Area Network BAN for a New Standard IEEE802.15.6ma; Ryuji Kohno , IEEE Lifetime Fellow, Professor	MCH Theatre
11:30	Invited Speaker 8 Chair- Uma S. Jha Analysis of Sensor Attacks against Autonomous Vehicles; Birger Andersen , Aalborg University, Denmark	MCH Theatre
12:00	Invited Speaker 9 Chair- Uma S. Jha EU Central Project Bhawani Shankar Chowdhry , Professor, Mehran university of Engineering & Technology MUET, Pakistan	MCH Theatre
12:30	Lunch	MCH Restaurant
13:30	Invited Speaker WWRF Chair-Ana Maria Dragulinescu AI Based Ultra-Reliable Wireless Networked Control Systems in 6G Sinem Coleri , Professor-Department of Electrical and Electronics Engineering, Koc University, Turkey	Room 4a
14:00	Special Session 4-WWRF-Connecting Intelligence Chair-Ana Maria Dragulinescu LiDAR Translation Based on Empirical Approach between Sunny and Foggy for Driving Simulation Jinho Lee and Daiki Shiotsuka (The University of Tokyo & Emerging Design and Informatics Course, Graduate School of Interdisciplinary Information Studies, Japan); Toshiaki Nishimori (Mitsubishi Heavy Industries Machinery Systems Ltd., Japan); Kenta Nakao (Mitsubishi Heavy Industries, Japan); Shunsuke Kamijo (The University of Tokyo, Japan) Closing the Security Gaps in SOME/IP Through Implementation of a Host-Based Intrusion Detection System Andreas Casparsen, Daniel Sørensen, Jeppe Andersen, Jonas Christensen, Panagiotis Antoniou, Rolf Krøyer and Tatiana Madsen (Aalborg University, Denmark); Karsten Gjørup (MAXSYT Technologies, Denmark) The Effect of Coupling on Antenna Array Beamforming at Millimeter-Wave Frequencies Pablo H. Zapata Cano, Zaharias D. Zaharis and Haya Al Kassir (Aristotle University of Thessaloniki, Greece); Ioannis Mallioras (Maggioli SpA, Italy); Pavlos Lazaridis (University of Huddersfield, United Kingdom (Great Britain)); Traianos Yioultsis and Nikolaos V. Kantartzis (Aristotle University of Thessaloniki, Greece)	Room 4a

Wednesday November 2, 2022

Time	Activity	Location
13:16	<p>Special Session 4-WWRF-Connecting Intelligence Continued</p> <p>Log analysis for anomaly prediction in ground segment space systems Hristijan Petreski (Aarhus University & Software Competitiveness International, Germany); Paschalis Veskou (Software Competitiveness International S.A., Greece); Rui Santos (European Space Agency - ESOC, Germany); Ramjee Prasad (Aarhus University, Denmark)</p> <p>Development and Validation of Dataset for Intrusion Detection System over Real Traffic Shafqat Ali Siyyal, Faheem Yar Khuhawar and Muhammad Raza Shaikh (Mehran University of Engineering and Technology, Pakistan); Bhawani Chowdhry (Mehran University of Eng & Technology, Jamshoro, Pakistan); Muhammad Zakir Shaikh (MUET, Pakistan); Aftab Memon (Mehran University of Engineering & Technology, Pakistan); Ambuj Kumar (Aarhus University, Denmark); Muhammad Uqaili (Mehran University of Engineering & Technology Jamshoro Pakistan, Pakistan)</p> <p>STANDARDIZATION FOR HARMONY VIA CKNS [CKNS: Chitt (mind);Kaya (body);Nivesh (investment);Sthaan(abode)] Vishwanath Sinha (Academia & Malaviya National Institute of Technology Jaipur, India); Ramjee Prasad (Aarhus University, Denmark)</p>	Room 4a
13:30	<p>Special Session 2-b Chair-Ambuj Kumar</p> <p>An End-to-End LoRaWAN-based IoT Platform with Built-in Network Coverage Testing Capability Ana Maria Dragulinescu (University Politehnica of Bucharest, Romania); Ioana Marcu (University POLITEHNICA of Bucharest, Romania); Ciprian Zamfirescu (University Politehnica of Bucharest - Electronics, Telecommunications and Information Technology, Romania)</p> <p>Evaluation of Human Performance in Driving Scenarios Anamaria Dumitrescu (University Politehnica of Bucharest, Romania); Alexandru Vulpe (University Politehnica of Bucharest & Beam Innovation SRL, Romania); Razvan Craciunescu (University Politehnica of Bucharest & Future Networks Lab, Romania)</p> <p>Object Detection in Autonomous Vehicles Razvan A Bratulescu (PERONI, nr 16, BUCURESTI & BEIA Consult International, Romania); Robert-Ionut Vatasoiu and Sorina-Andreea Mitroi (Beia Consult International, Romania); George Suciu (Politehnica University of Bucharest & BEIA Consult International SRL, Romania); Marius Constantin Vochin (University Politehnica of Bucharest, Romania); Anais Sachian (BEIA Consult International, Romania)</p> <p>Building an Open Source Containerized 5G SA Network through Docker and Kubernetes Larisa Mihaela Tufeanu, Alexandru Martian, Marius Constantin Vochin and Constantin Laurentiu Paraschiv (University Politehnica of Bucharest, Romania); Frank Y. Li (University of Agder, Norway)</p>	Room 4c

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Time	Activity	Location
13:30	<p>Special Session 2-b Continued Chair-Ambuj Kumar</p> <p>Deploying Use Case Specific Network Slices using An OSM Automation Platform Cosmin Contu (University Politehnica of Bucharest & Doctoral School of Electronics, Telecommunications and Information Technology, Bucharest, Romania); Andra Ciobanu, Eugen Borcoci and Marius Constantin Vochin (University Politehnica of Bucharest, Romania); Indika Anuradha Mendis Balapuwaduge (University of Agder, Norway); Razvan-Florentin Trifan (University Politehnica of Bucharest, Romania); Silviu Topoloi (Department of Telecommunications University Politehnica of Bucharest UPB, Romania)</p> <p>A FPGA Based Novel Control for Validation of The Five-Phase System Gobikannan Kulandaivel (Anna University, India); Elango Sundaram (Coimbatore Institute of Technology, India); Padmanaban Sanjeevikumar (Aalborg University, Denmark); Sharmeela Chenniappan (India)</p> <p>Learning Graph Convolutional Neural Networks to Predict Radio Environment Maps Krasimir Tonchev, Antoni Ivanov, Nikolay Neshov and Vladimir K. Poulkov (Technical University of Sofia, Bulgaria)</p>	Room 4c
13:30	<p>Technical Session 12 Chair- Alexandra Vulpe</p> <p>Sparse Code Multiple Access System Channel Estimation by Steepest Descent For 5G Uplink Jun-Da Chen and Chung-Lun Hsu (Jinwen University of Science and Technology, Taiwan)</p> <p>Investigation of Beyond 5G-based Physical Radio Node Emulation for Large-scale Wireless Emulator Takeshi Matsumura (National Institute of Information and Communications Technology (NICT) & Kyoto University, Japan); Hirokazu Sawada (National Institute of Information and Communications Technology, Japan)</p> <p>Power Amplifier Linearization Using Orthogonal Polynomial Identified in Frequency Domain Michiharu Nakamura (NICT, Japan); Keiichi Mizutani and Hiroshi Harada (Kyoto University, Japan); Takeshi Matsumura (National Institute of Information and Communications Technology (NICT) & Kyoto University, Japan)</p> <p>UAV communication aided by Intelligent Reflective Surfaces- A Performance Analysis in the context of Industry 4.0 Asim Ul Haq, Bilal Muhammad and Albena Mihovska (Aarhus University, Denmark)</p> <p>Vehicle API and Service Catalog for Next Generation Mobility Stefan Aust (NEC Communication Systems, Ltd., Japan)</p> <p>Use cases for 5G and beyond Razvan A Bratulescu (PERONI, nr 16, BUCURESTI & BEIA Consult International, Romania); George Suciu (Beia Consult International, Romania); Agnia Codreanu and Gjergji Gjoka (Beia Consul International, Romania); Marius Constantin Vochin (University Politehnica of Bucharest, Romania)</p> <p>Understanding sustainable, green and circular business model definitions and configurations Mirielle Torgersen (Aarhus University, Norway & Østfold University College, Denmark); Peter Lindgren (Aarhus University, Denmark); Gunnar Andersson (Østfold University College, Norway); Per Valter (Østfold University College, Denmark)</p>	Room 5b

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Time	Activity	Location
13:30	<p>Special Session 10 Chair- Morio Toyoshima</p> <p>D2D Communications and Field Examination Huan-Bang Li (National Institute of Information and Communications Technology, Japan); Lin Shan (National Institute of Information and Communications Technology (NICT), Japan); Takashi Matsuda and Ryu Miura (National Institute of Information and Communications Technology, Japan); Takeshi Matsumura (National Institute of Information and Communications Technology (NICT) & Kyoto University, Japan)</p> <p>Field Trials and Institutionalization of Dynamic Spectrum Sharing Technology in Japan Homare Murakami, Kentaro Ishizu, Kazuo Ibuka and Hikaru Kawasaki (National Institute of Information and Communications Technology, Japan); Takeshi Matsumura (National Institute of Information and Communications Technology (NICT) & Kyoto University, Japan); Fumihide Kojima (National Institute of Information and Communications Technology, Japan)</p> <p>A Cooperating System for Smart Personal Mobility and Indoor Intelligent Infrastructure Chang-Woo Pyo (NICT, Japan); Hirokazu Sawada (National Institute of Information and Communications Technology, Japan); Takeshi Matsumura (National Institute of Information and Communications Technology (NICT) & Kyoto University, Japan)</p> <p>The History and the latest topic on STABLE Masafumi Moriyama, Masahiro Yamazoe and Takashi Matsuda (National Institute of Information and Communications Technology, Japan); Takeshi Matsumura (National Institute of Information and Communications Technology (NICT) & Kyoto University, Japan)</p> <p>Field Trials for Cooperation between Public and Non-Public Networks Hikaru Kawasaki (NICT, Japan); Kazuo Ibuka (NICT, Japan); Takeshi Matsumura (NICT & Kyoto University, Japan)</p> <p>Memory polynomial model identification and conversion in frequency domain from other behavioral models Michiharu Nakamura (NICT, Japan); Keiichi Mizutani (Kyoto University, Japan); Hiroshi Harada (Kyoto University, Japan); and Takeshi Matsumura (NICT & Kyoto University, Japan)</p>	Room 5a
15:30	Coffee Break	MCH Lobby
16:00	<p>Special Session 5 Chair-Zaharias D Zaharis</p> <p>Deep Learning Approaches for Spectrum Sensing in Cognitive Radio Networks Sadaf Nazneen Syed, Pavlos Lazaridis, Faheem A. Khan, Qasim Zeeshan Ahmed, Maryam Hafeez and Violeta Holmes (University of Huddersfield, United Kingdom (Great Britain)); Ioannis Chochliouros (Hellenic Telecommunications Organization S.A. (OTE), Greece); Zaharias D. Zaharis (Aristotle University of Thessaloniki, Greece)</p>	Room 4c

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Time	Activity	Location
16:00	<p>Special Session 5 Continued Chair-Zaharias D Zaharis</p> <p>Deep Learning Approach for Optimal Angle-of-Arrival Estimation Using a mm-Wave Sensor Bisma Amjad, Qasim Zeeshan Ahmed, Pavlos Lazaridis, Maryam Hafeez and Faheem A. Khan (University of Huddersfield, United Kingdom (Great Britain)); Zaharias D. Zaharis (Aristotle University of Thessaloniki, Greece)</p> <p>QoE-Oriented Open Radio Access Networks for Virtual Reality Applications Georgios Kougioumtzidis (Technical University of Sofia, Bulgaria); Atanas Georgiev Vlahov (Technical University of Sofia & Research and Development and Innovation Consortium, Bulgaria); Vladimir K. Poulkov (Technical University of Sofia, Bulgaria); Zaharias D. Zaharis (Aristotle University of Thessaloniki, Greece); Pavlos Lazaridis (University of Huddersfield, United Kingdom (Great Britain))</p> <p>Patch Antenna Design using Artificial Intelligence Methods for 4G/5G Applications Lazaros Alexios Iliadis, Zaharias D. Zaharis and Sotirios Sotiroudis (Aristotle University of Thessaloniki, Greece); Panagiotis Sarigiannidis (University of Western Macedonia, Greece); Christos Christodoulou (The University of New Mexico, USA); Sotirios Goudos (Aristotle University of Thessaloniki, Greece)</p> <p>RF Propagation and Interferences Challenges for UAVs Swarm Detection and Positioning Octavian Fratu (University Politehnica of Bucharest, Romania); Ahmed Nor (University Politehnica of Bucharest, Romania & Aswan University, Egypt); Simona Halunga (University Politehnica of Bucharest, Romania); Zaharias D. Zaharis (Aristotle University of Thessaloniki, Greece)</p>	Room 4c
16:00	<p>Special Session 7 Chair-Paulo Henrique</p> <p>Resource Allocation-aware Efficient Interference Management Technique for Ultra-dense Femto Environment Wanying Guo (Sungkyunkwan University, Korea (South)); Isma Farah Siddiqui (Mehran University of Engineering and Technology, Pakistan); Bhawani Chowdhry (Mehran University of Eng & Technology, Jamshoro, Pakistan); Nawab Muhammad Faseeh Qureshi and Dong-Ryeol Shin (Sungkyunkwan University, Korea (South))</p> <p>Different Indoor Localisation Techniques using Smartphones Samuel Leitch, Waqas Bin Abbas, Qasim Zeeshan Ahmed, Maryam Hafeez and Pavlos Lazaridis (University of Huddersfield, United Kingdom (Great Britain))</p> <p>RFID based IoT Sensor Communication System with ESPAR Antenna Md. Moklesur Rahman and Heung-Gyoon Ryu (Chungbuk National University, Korea (South))</p> <p>Bayesian Neural Networks for 6G CONASENSE Services Paulo Sergio Rufino Henrique (SAS Spideo, France); Ramjee Prasad (Aarhus University, Denmark)</p> <p>Network-Independent Clock Offset Estimation Using Correlated Sensor Data Adham Taha, Mathias Thorsager, Sune Krøyer and Tatiana Madsen (Aalborg University, Denmark); Hans-Peter Schwefel (Aalborg University, Denmark & GridData GmbH, Germany)</p>	Room 5a

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Time	Activity	Location
	Special Session 7(b): Communications, Navigation, Services and Applications (CONASENSE) Chair-Rute C. Sofia From Green Business Models to Green Symbiosis Business Value Network Emma Ek (Aarhus University & Sotenäs Municipality, Sweden); Peter Lindgren (Aarhus University, Denmark); Per Valter (Østfold University College, Denmark) 3D Human Body Models Compression and Decompression Algorithm Based on Graph Convolutional Networks for Holographic communication Ivaylo Bozhilov, Krasimir Tonchev, Agata Manolova and Radostina Petkova (Technical University of Sofia, Bulgaria) Holographic Telepresence in Knowledge Transfer - Potential and Challenges in the Implementation Yana Tsankova and Agata Manolova (Technical University of Sofia, Bulgaria) Business Opportunities for Beyond 5G and 6G Networks Nidhi, Albenah Mihovska, Ambuj Kumar and Ramjee Prasad (Aarhus University, Denmark)	Room 5b
	Special Session 3b Chair-Satoshi Denno Employee Happiness Measurement System on Assigned Task in Agile Process Yootthapong Tongpaeng (Mae Fah Luang University, Thailand); Pradorn Sureephong and Piraya Wadwongyod (Chiang Mai University, Thailand) Distributed Control Scheme for Solar-Powered Serial Water Pumps based on Hidden Markov Model Roungsan Chairsricharoen (Mae Fah Luang University & School of Information Technology, Thailand); Wanun Srimaharaj (Payap University, Thailand) Improving Frequency Estimation via Sequential Bayesian Filtering with Firefly Algorithm Nattapol Aunsri (School of Information Technology, Mae Fah Luang University, Thailand) Standardization of Third-party Data in Electronic Health Records Ana Koren (FER, Croatia); Ramjee Prasad (Aarhus University, Denmark) Towards Efficient and Secure Framework for Devices and Informatics for Internet of Medical Things Ragini A. Mishra (University of Mumbai, India); Ramjee Prasad (Aarhus University, Denmark)	Room 4a
17:30	Closing Session	MCH Theatre