

**PROGRAM AT A GLANCE**

| WOCC, Friday, May 5, 2023   |  |  |   |
|---|--|--|---|
| Keynote Sessions, Room 240  |  |  |   |
| 10:30–12:30   | <b>K1</b><br><b>Keynote Session</b><br><i>(Chair: Jessica Jiang)</i><br><b>Room 240</b><br><a href="#">Keynote Zoom Link</a>                         | <a href="#">Prof. William Shieh, IEEE Fellow and OSA Fellow, Westlake University / University of Melbourne.</a><br><b><i>“High-Capacity Optical Communications”</i></b>                                |   |
| 11:30–12:30   | <b>K2</b><br><b>Keynote Session</b><br><i>(Chair: Meilong Jiang)</i><br><b>Room 240</b><br><a href="#">Keynote Zoom Link</a>                         | <a href="#">Dr. Ozge Kovmen, Senior Director, Qualcomm, USA.</a><br><b><i>“5G Advanced Opportunities, Challenges, and Vision for 6G”</i></b>   |   |
| 12:30–13:30 Lunch   |  |  |   |
| 13:00 Welcome Remarks, Room 240,<br>Prof. Atam P Dhawan, Interim Provost and Senior Executive Vice President, NJIT              |  |  |   |
| 13:30–15:10   | <b>W1</b><br><b>Emerging Wireless Technologies</b><br><i>Chair: Xiao-Feng Qi, University of Delaware &amp; Phase Sensitive Innovations, Room 225</i> | <b>O1</b><br><b>Advances in Optical Networking</b><br><i>Chair: Kevin Lu, Stevens Institute of Technology</i><br><b>Room 230</b>   | <b>M1</b><br><b>Emerging Applications of Machine Learning and AI</b><br><i>Chair: Ying Tang, Rowan University</i><br><b>Room 235</b>      |
| 15:10–15:30 Break   |  |  |   |
| 15:30–17:30   | <b>W2</b><br><b>Coding and Modulation</b><br><i>Chair: Tao Han, NJIT</i><br><b>Room 225</b>  | <b>O2</b><br><b>Optical Communications and Photonic devices</b><br><i>Chair: Liang Zhang, George Mason University</i><br><b>Room 230</b>   | <b>M2</b><br><b>Advance in Machine Learning and its Application</b><br><i>Chair: Jiacun Wang, Monmouth University,</i><br><b>Room 235</b> |
| WOCC, Saturday, May 6, 2023   |  |  |   |
| 10:30–10:40 Best Paper Award Ceremony, Room 240<br>Kevin Lu, Stevens Institute of Technology, <a href="#">Keynote Zoom Link</a> |  |  |   |
| 10:40–11:40   | <b>K3</b><br><b>Keynote Session</b><br><i>(Chair: Zhanyang Zhang, Room 240)</i><br><a href="#">Keynote Zoom Link</a>                                 | <a href="#">Prof. Xiaodong Wang, IEEE Fellow, Columbia University.</a><br><b><i>“Integrated Sensing and Communication (ISAC): A Radar-enabled Backscatter Communication (RadBackCom) Approach”</i></b> |   |
| 11:40–12:40   | <b>K4</b><br><b>Keynote Session</b><br><i>(Chair: Mengchu Zhou, Room 240)</i><br><a href="#">Keynote Zoom Link</a>                                   | <a href="#">Dr. Larry Zhou, AT&amp;T Fellow, AT&amp;T, USA.</a><br><b><i>“Wireline and Wireless Convergence”</i></b>   |   |
| 12:40–13:30 Lunch   |  |  |   |
| 13:30–15:10   | <b>W3</b><br><b>Wireless for Autonomous Systems</b><br><i>Chair: Marcus Wong, OPPO</i><br><b>Room 225</b>  | <b>O3</b><br><b>Emerging Applications of Networks</b><br><i>Chair: Yuanqiu Luo, Futurewei Technologies</i><br><b>Room 230</b>  | <b>M3</b><br><b>Machine Learning for Communication</b><br><i>Chair: Yao Ma, New Jersey Institute of Technology,</i><br><b>Room 235</b>    |
| 15:10–15:30 Break   |  |  |   |
| 15:30–17:30   | <b>W4</b><br><b>Advanced MIMO and Beamforming Technologies</b><br><i>Chair: Ang Gao, Northwestern Polytechnical University</i><br><b>Room 225</b>    |  |   |
| K – Keynote<br>(Room 240)   | W – Wireless Networks and Communications (Room 225)  | O – Optical Communications and Networks Symposium (Room 230)   | ML and AI in Communications (Room 235)  |

**WOCC Technical Sessions – Friday, May 05, 2023, 13:30 – 15:10**

**W1 Emerging Wireless Technologies, Room 225**

[Session Zoom Link](#)

Chair Xiao-Feng Qi  
University of Delaware  
& Phase Sensitive Innovations

*C-RAN at Millimeter Wave and Above: Full Beam-space Radio Access Architecture (Invited)*

Xiao-Feng Qi; Janusz Murakowski, Garrett Schneider and Dennis W. Prather  
University of Delaware & Phase Sensitive Innovations, Inc.

*Enhancing 5G Core with Multi-Access Edge Computing*

Ho-Cheng Lee, Fuchun Joseph Lin, Jyh-Cheng Chen, Chien Chen and Patrick Wang  
National Yang Ming Chiao Tung University, Taiwan

*DRL-based Joint Optimization for Energy Efficiency Maximization in UAV-NOMA Networks*

Shuhua Liu, Ang Gao and Qinyu Wang  
Northwestern Polytechnical University, China;  
Yansu Hu  
Chang'an University, China

*Deep Interference Recognition for Spread Spectrum Communications using Time-Frequency Transformer*

Yi Wei  
Zhejiang University, China;  
Xiaoxiao Zhuo  
Shanghai Institute of Microsystem and Information Technology, Chinese Academy of Sciences, China

**O1 Advances in optical networking, Room 230**

[Session Zoom Link](#)

Chair: Kevin Lu  
Stevens Institute of Technology

*A Novel Multi-Objective Routing Scheme based on Cooperative Multi-Agent Reinforcement Learning for Metaverse Services in Fixed 6G*  
Xueming Zhou, Bomim Mao, and Jiajia Liu  
Northwestern Polytechnical University, China

*On the Generalization of Machine-Learning-aided QoT Estimation in Optical Networks (invited)*

Hanyu Gao, SYSU, China;  
Liang Zhang, George Mason University, USA;  
Xiaoliang Chen, Sun Yat-Sen University, USA;  
Zhaohui Li, Sun Yat-sen University, China

*Slotted Aloha for Optical Wireless Communications in Internet of Underwater Things*

Milica Petkovic, University of Novi Sad, Serbia;  
Sotiris A. Tegos and, Panagiotis D. Diamantoulakis  
Aristotle University of Thessaloniki, Greece; Dejan Vukobratović, University of Novi Sad, Serbia;  
Erdal Panayirci, Kadir Has University, Turkey;  
Čedomir Stefanović  
Aalborg University, Denmark;  
George K. Karagiannidis  
Aristotle University of Thessaloniki, Greece

*Recent progress in optical access and home networking standards (invited)*

Frank Effenberger  
Futurewei Technologies, USA

**M1 Emerging Applications of Machine Learning and AI, Room 235**

[Session Zoom Link](#)

Chair: Ying Tang,  
Rowan University

*Hierarchical Deep Reinforcement Learning with Experience Sharing for Metaverse in Education (Invited)*

Ryan Hare and Ying Tang  
Rowan University, USA

*Introduction to AI Techniques for Forecasting Epidemic Dynamics*

Lijing Wang (Invited)  
New Jersey Institute of Technology, USA

*Hands-on Active Learning Approach to Teach Artificial Intelligence/Machine Learning to Elementary and Middle School Students*

Neelu Sinha; Ryan F Evans; Mackenzie Carbo  
Fairleigh Dickinson University, USA

*Deep Learning for the Detection of Emotion in Human Speech: The Impact of Audio Sample Duration and English versus Italian Languages (Invited)*

Alexander Wurst; Michael Hopwood; Sifan Wu; Fei Li; Yu-Dong Yao  
Stevens Institute of Technology, USA

**WOCC Technical Sessions – Friday, May 05, 2023, 15:30 – 17:30**

| <p><b>W2 Coding and Modulation, Room 225</b><br/> <a href="#">Session Zoom Link</a></p>   | <p><b>O2 Optical Communications and Photonic Devices, Room 230</b><br/> <a href="#">Session Zoom Link</a></p>  | <p><b>M2 Advance in Machine Learning and its Application, Room 235</b><br/> <a href="#">Session Zoom Link</a></p>   |
|---|--|---|
| <p>Chair: Tao Han<br/>                     Stevens Institute of Technology</p>  | <p>Chair: Liang Zhang,<br/>                     George Mason University</p>  | <p>Chair: : Jiacun Wang,<br/>                     Monmouth University</p>   |
| <p><i>Combined Signal Representations for Modulation Classification Using Deep Learning: Ambiguity Function, Constellation Diagram, and Eye Diagram (Invited)</i><br/> <a href="#">Abdullah Samarkandi, Alhussain Almarhabi, Hatim, Alhazmi and Yu-Dong Yao</a><br/>                     Stevens Institute of Technology, USA</p> | <p><i>Free Space Optics as Full Duplex Fronthauling for Drone-Assisted Mobile Networks (Invited)</i><br/> <a href="#">Xiang Sun, Liangkun Yu, and Abee Alazzwi</a><br/>                     University of New Mexico, USA</p>  | <p><i>Hybrid Disassembly Line Optimization with Reinforcement Learning (Invited)</i><br/> <a href="#">Jay Wang; XiwangGuo; Guipeng Xi; Shujin Qin</a><br/>                     Monmouth University, USA</p>   |
| <p><i>Estimate BLER for Coded Modulation Based on Finite Block Coding (Invited)</i><br/> <a href="#">Eva C. Song* and Guosen Yue†</a><br/>                     *Walmart Inc. and †Google LLC</p>  | <p><i>An Efficient Pulse Position Modulation Scheme to Improve the Bit Rate of Photoacoustic Communication</i><br/> <a href="#">Md Shafiqul Islam, Mohamed Younis and Muntasir Mahmud</a><br/>                     University of Maryland Baltimore County, USA<br/> <a href="#">Fow-Sen Choa</a><br/>                     UMBC, USA</p>   | <p><i>Performing Effective Generative Learning from a Single Image Only (Invited)</i><br/> <a href="#">Qihui Xu, Jinshu Chen, Jiacheng Tang, Qi Kang</a><br/>                     Tongji University, Shanghai, China<br/> <a href="#">Mengchu Zhou</a><br/>                     New Jersey Institute of Technology,</p>   |
| <p><i>Construction of Shortened Systematic PAC Codes Based on Monte-Carlo Algorithm (Invited)</i><br/> <a href="#">Ziqi Qiu and Yejun He</a><br/>                     Shenzhen University, China</p>  | <p><i>Novel resonance manipulation method in coupled resonators using "coupling structure technique" for Quantum coherence effect and optical communication applications (Invited)</i><br/>                     Benjamin B Dingel<br/>                     Nasfine Photonics Incorporated, USA &amp; School of Science and Engineering<br/>                     Ateneo de Manila University, Philippines</p> | <p><i>Fruit Fly Optimization Algorithm for Hybrid Disassembly Line Balancing Problem</i><br/> <a href="#">XiaoYu Niu, XiWang Guo (Invited)</a><br/>                     Petrochemical University Fushun, China<br/> <a href="#">Jiacun Wang</a><br/>                     Monmouth University Wes Long Branch<br/> <a href="#">Shujin Qin</a><br/>                     Normal University Shangqiu, China<br/> <a href="#">ChenYang Fan</a><br/>                     Petrochemical University Fushun, China</p> |
| <p><i>Improved Stack Decoding for PAC Codes (Invited)</i><br/> <a href="#">Li Zhang, Haina Liu and Yejun He</a><br/>                     Shenzhen University, China</p>   |  | <p><i>Photovoltaic Power Generation Prediction Based on In-depth Learning for Smart Grid Integration</i><br/> <a href="#">Zhengshi Wang; Yuyin Li; Anguo Wang; You Wu; Tao Han; Yao Ge</a><br/>                     Zhejiang University, China</p>  |

**WOCC Technical Sessions – Saturday, May 06, 2023, 13:30 – 15:10**

| <b>W3 Wireless for Autonomous Systems, Room 225</b><br><a href="#">Session Zoom Link</a>  | <b>O3 Emerging applications of networks, Room 230</b><br><a href="#">Session Zoom Link</a>  | <b>M3 Machine Learning for Communication, Room 235</b><br><a href="#">Session Zoom Link</a>  |
|---|---|--|
| <p>Chair: Marcus Wong<br/>OPPO</p>  | <p>Chair: Yuanqiu Luo<br/>Futurewei Technologies</p>  | <p>Chair: Yao Ma,<br/>New Jersey Institute of Technology</p>   |
| <p><i>Localization of Autonomous Underwater Vehicles using Airborne Visible Light Communication Links</i><br/> <u>Jaeed Bin Saif, Mohamed Younis, Fow-Sen Choa</u><br/> <b>University of Maryland, Maryland, USA</b><br/> <u>Akram Ahmed</u><br/> <b>King Fahd University of Petroleum and Minerals Dhahran, Saudi Arabia</b></p> | <p><i>Industrial PON System Architecture and Applications (Invited)</i><br/> <u>Xiao Yu, Hui Sun, Dezhi Zhang, and Jialiing Jin</u><br/> <b>China Telecom Research Institute</b></p>  | <p><i>Modulation Recognition using YOLOv5 on the WBSig53 Dataset</i><br/> <u>Bradley Comar</u><br/> <b>U.S. Department of Defense, USA</b></p>   |
| <p><i>Physical Layer Security Communications and Path Planning For UAV Base Stations (Invited)</i><br/> <u>Guanchong Niu and Qi Cao</u>, <b>Xidian University, China</b><br/> <u>Man-On Pun</u>, <b>The Chinese University of Hong Kong, Shenzhen, China</b></p>  | <p><i>On a Novel Content Edge Caching Approach based on Multi-Agent Federated Reinforcement Learning in Internet of Vehicles</i><br/> <u>Yangbo Liu and Bomin Mao</u><br/> <b>Northwestern Polytechnical University, China</b></p>  | <p><i>Using Mutual Information to Perform Modulation Recognition on the Sig53 Dataset</i><br/> <u>Bradley Comar</u><br/> <b>U.S. Department of Defense, USA</b></p>  |
| <p><i>Joint Optimization of Flight Path and Power Allocation in A UAV Relay-assisted Communication System</i><br/> <u>Lipei Liu, Rugui Yao, Ye Fan and Xiaoya Zuo</u><br/> <b>Northwestern Polytechnical University, China</b><br/> <u>Juan Xu, Chang'an University, China</u></p>  | <p><i>On the Deployment and Operation of Correlated Data-Intensive vNF-SCs in Inter-DC EONs (Invited)</i><br/> <u>Zuqing Zhu</u><br/> <b>University of Science and Technology of China,</b><br/> <u>Liang Zhang and Bijan Jabbari</u><br/> <b>George Mason University, USA</b></p>                        | <p><i>The effect of parameter uncertainty in the link on QoT estimation using GN-based analytical model</i><br/> <u>Jing Zhou</u><br/> <b>The Hong Kong Polytechnic University, Hong Kong</b></p>                |
| <p><i>Adaptive Delivery for High Definition Map Using A Multi-Arm Bandit Approach</i><br/> <u>Dawei Chen</u><br/> <b>InfoTech Labs, Toyota North America R&amp;D, USA</b><br/> <u>Haoxin Wang, Georgia State University, USA</u><br/> <u>Kyungtae Han</u><br/> <b>InfoTech Labs, Toyota North America R&amp;D, USA</b></p>        | <p><i>Phasor Analysis of the Symmetric Crisscrossed-assisted Coupled-Ring Reflector</i><br/> <u>Avram Gutierrez</u><br/> <b>Ateneo de Manila University, Philippine;</b><br/> <u>Benjamin B Dingel</u><br/> <b>Nasfine Photonics Incorporated, USA &amp; Ateneo de Manila University, Philippines</b></p> | <p><i>Automatic modulation recognition of communication signal based on wavelet transform combined with singular value and NCA-CNN</i><br/> <u>Yixin Ding</u><br/> <b>Beijing Jiaotong University, China</b></p> |
| <p><i>Lightweight and Anonymity-preserving Secure Group Communication Mechanism for Cooperative Driving</i><br/> <u>Wassila Lalouani</u><br/> <b>Towson University, USA</b><br/> <u>Mohamed Younis</u><br/> <b>University of Maryland Baltimore County, USA</b><br/> <u>Dayuan Tan, UMBC, USA</u></p>                             |   |  |

**WOCC Technical Sessions – Saturday, May 06, 2023, 15:30 – 17:10**

**W4 Advanced MIMO and Beamforming Technologies**

**Room 225**

[Session Zoom Link](#)

*Chair: Ang Gao*

*Northwestern Polytechnical University, China*

*Heterogeneous Multi-Agent Reinforcement Learning for Joint Active and Passive Beamforming in IRS Assisted Communications*

Ang Gao, Xinshun Sun, Yongshuai Xu, Wei Liang

**Northwestern Polytechnical University, Xi'an, China**

*A Simplified Message Passing Detection Algorithm for Massive MIMO System*

Jing Ye and Jianing Zhao

**Southeast University, China**

Fei Xu

**China Mobile Research Institute, China**

*Transformer-based CSI Feedback with Hybrid Learnable Non-Uniform Quantization for Massive MIMO Systems (Invited)*

Binggui Zhou

**Jinan University, China**

Shaodan Ma

**University of Macau, China**

Guanghua Yang

**Jinan University, China**

*Parametric Precoding Based on Improved Dynamic Gradient Descent in Multibeam Satellite Communications*

Jiayu Wang, Rugui Yao, Donghui Xu, Ye Fan and Xiaoya Zuo **Northwestern Polytechnical University, China**

**Note: each technical session will last for 100 minutes and will consist of up to 5 paper presentations. For a 5-paper session, each presentation will be allocated 20 minutes, including Q&A. For a 4-paper session, each presentation will be allocated 25 minutes, including Q&A.**