

# 41<sup>ST</sup> IEEE INTERNATIONAL PERFORMANCE COMPUTING AND COMMUNICATIONS CONFERENCE



## IPCCC 2022

NOVEMBER 11<sup>TH</sup> - 13<sup>TH</sup>  
AUSTIN, TEXAS, USA



## Message from the IPCCC 2022 General Co-Chairs

On behalf of the organization committee, it is our great pleasure to welcome you to the 41st IEEE International Performance, Computing, and Communications Conference (IPCCC 2022) in Austin, Texas, USA. After two years of fully virtual conferences, we are excited to have a hybrid meeting. We are pleased to continue the tradition of IEEE IPCCC, a premier conference on the performance of computer and communication systems, to offer a high-quality technical program in a friendly setting that facilitates close interactions among participants.

We would like to thank many people who have contributed to this year's IPCCC program. Likewise, we wish to thank the paper authors for their interest and for choosing IPCCC as the channel to present their quality research. We are grateful to the members of the Technical Program Committee and the additional reviewers for providing quality reviews. We would also like to thank the IPCCC 2022 Organizing Committee. Their efforts make the conference a success. We also appreciate the guidance of the IPCCC 2022 Steering Committee. It has been a privilege for us to work with such a marvelous group of dedicated professionals.

Last but not least, we would like to thank the IEEE Computer Society and the IEEE Computer Society Technical Committee on Computer Communications (TCCC) for their continuing sponsorship of IPCCC.

On behalf of the conference Executive Committee, we welcome you to IPCCC 2022 in Austin or wherever you are. We do hope that you will find IPCCC 2022 to be an enriching and enjoyable experience!

Enjoy IPCCC 2022!

■ Ningfang Mi & Nils Aschenbruck, IPCCC 2022 General Co-Chairs

## Message from the IPCCC 2022 Technical Program Co-Chairs

Welcome to the 41st edition of the IEEE International Performance Computing and Communications Conference (IPCCC 2022)! This year, we are glad to be able to host the conference in Austin, Texas, USA physically, whereas some of the sessions will be remote due to the existing travel restrictions. IPCCC2022 received 109 legitimate paper submissions (96 full, 11 short, 2 poster papers). Out of these submissions, 26 papers were accepted as full papers (acceptance ratio of 23.9%). Each paper was thoroughly reviewed by at least 3 reviewers. In addition, 29 papers were accepted as short papers and 5 as poster papers. Full papers, short papers, and poster papers are all included in the IPCCC conference proceedings.

We would like to express our sincere gratitude to all who have contributed to the IPCCC 2022 program. First, we thank the authors of all paper submissions, regardless of papers' acceptance statuses, for their efforts and submitting their quality research work to IPCCC. Second, we are grateful for the support of 118 Technical Program Committee (TPC) members for their fair, timely, and constructive reviews. The work of the authors and the TPC members contribute to the quality of the conference. Third, we thank the IPCCC 2022 Organizing Committee and Steering Committee for their support. Finally, we would like to welcome all attendees to the conference and we greatly appreciate your participation. We hope you will find the IPCCC 2022 program interesting, we know this year's conference will provide great experiences to all attendees.

■ Gürkan Solmaz & Xiuzhen (Susan) Cheng, IPCCC 2022 Technical Program Co-Chairs

THE INTERNATIONAL PERFORMANCE, COMPUTING AND COMMUNICATIONS CONFERENCE IS THE PREMIER IEEE CONFERENCE PRESENTING RESEARCH IN THE PERFORMANCE OF COMPUTER AND COMMUNICATIONS SYSTEMS. FOR FOUR DECADES IPCCC HAS BEEN A RESEARCH FORUM FOR ACADEMIC, INDUSTRIAL AND GOVERNMENT RESEARCHERS.

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■ All Program Times are Central Standard Time ■

### ANNOUNCING IPCCC 2023

**San Diego / Anaheim, California, USA**

**November-December 2023**

**PAPER ABSTRACT DUE: June 15th, 2023**

**FULL PAPER DUE: June 30th, 2023**

**ACCEPTANCE NOTIFICATION: August 15th, 2023**

**CAMERA READY DUE: August 30th, 2023**

FOR CONFERENCE DETAILS AS THEY BECOME AVAILABLE  
PLEASE CHECK [IPCCC.ORG](http://IPCCC.ORG)

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# IPCCC 2022 Day One - Friday, November 11<sup>TH</sup>

■ Registration Opens: 13:00 CST ■ Opening Remarks & Introduction: 13:30-14:00 CST

Session I.0: Keynote Speaker: 14:00-15:15 CST ■ Chair: Ningfang Mi [Room 400]

## AI-Based Control and Orchestration in the Open RAN: Architectures, Algorithms, Testbeds

Tommaso Melodia - William Lincoln Smith Professor at Northeastern

Break: 15:15-15:30

### Session I.1: Network Optimization

15:30-16:45 CST ■ Chair: Ruozhou Yu [Room 400]

**Toward a Shared Sense of Time for a Network of Batteryless, Intermittently-powered Nodes:** Vishal Deep, Mathew L. Wymore, Daji Qiao and Henry Duwe (Iowa State University, USA)

**\*The Effects of a Performance Enhancing Proxy on TCP Congestion Control Over a Satellite Network:** Mingxi Liu, Yongcheng Liu, Zhifei Ma, Zachary Porter, Saahil Claypool, Mark Claypool, Jacob Tutlis (Worcester Polytechnic Institute, USA); Jae Chung and Feng Li (Viasat, USA)

**\*Tropical Geometric Route Decision-making in Simulated Lunar Gateway Communications:** Jacob A. Cleveland, Alan Hylton, Robert Short (NASA Glenn Research Center, USA)

Break: 16:45-17:00

### Session I.2A: Network Optimization, Security & Privacy (Virtual) – 17:00-19:00 CST ■ Chair: Matthias Wübbeling

[Zoom A Link: [tinyurl.com/IPCCC2022-ZoomA](https://tinyurl.com/IPCCC2022-ZoomA) | Code: ipccc2022]

### Session I.2B: System Optimization (Virtual)

17:00-19:00 CST ■ Chair: Feng Wang

[Zoom B Link: [tinyurl.com/IPCCC2022-ZoomB](https://tinyurl.com/IPCCC2022-ZoomB) | Code: ipccc2022]

**FATSS: Filter-assisted Tuple Space Search for Packet Classification:** Jiayao Wang, Ziling Wei, Baosheng Wang, Jincheng Zhong and Shuhui Chen (National University of Defense Technology, China)

**Privacy-preserving Closest Point Determination Based on Ciphertext Comparison:** Yahan Hu, Kewei Lv, Jie Ma, Bin Qi (University of Chinese Academy of Sciences, China)

**TForm-RF: An Efficient Data Augmentation for Website Fingerprinting Attack:** Yongxin Chen, Yongjun Wang, Luming Yang, Yuchuan Luo and Mantun Chen (National University of Defense Technology, China)

**zk-PCN: A Privacy-Preserving Payment Channel Network Using zk-SNARKs:** Wenxuan Yu, Minghui Xu, Dongxiao Yu and Xiuzhen Cheng (Shandong University, China); Qin Hu (Indiana University-Purdue University Indianapolis, USA); Zehui Xiong (Singapore University of Technology & Design, Singapore)

**An Efficient Adaptive Denoising Sketch for Per-flow Traffic Measurement:** Chen Lou and Hongli Xu (University of Science and Technology of China, China); Yu-e Sun, He Huang, Yang Du and Guojia Gao (Soochow University, China); Shigang Chen (University of Florida, USA)

**\*HEX-BLOOM: An Efficient Method for Authenticity and Integrity Verification in Privacy-preserving Computing:** Ripon Patgiri and Malaya Dutta Borah (National Institute of Technology Silchar, India)

**\*A Multi-controllers Architecture for Software-defined Underwater Acoustic Sensor Networks:** Yaliang Shi, Xiwen Huang, Qihang Jiang and Qiuling Yang (Hainan University, China)

**\*A Novel Approach to Energy Efficiency Optimization in NOMA-aided V2X Networks:** Liqing Shan and Fenghui Zhang (Southeast University, China)

**\*Eliminating Communication Bottlenecks in Consensus Protocols Using NDN:** Yuxi Sun, Wang Yang and Lihuan Hui (Central South University, China)

**\*MODLSTM: A Method to Recognize DoS Attacks on Modbus/TCP:** Hao Zhang, Yuandong Min, Sanya Liu, Hang Tong and Yaopeng Li (Central China Normal University, China)

**\*Data Query Routing Algorithm with Cluster Bridge for Wireless Sensor Network:** Jianpo Li, Kun Liu and Jun Wang (Northeast Electric Power University, China)

**Max-Min Fairness Based Scheduling Optimization Mechanism on Switches:** Xijia Lu, Xingwei Wang, Jie Jia, Min Huang and Xue Wang (Northeastern University, China)

**SIFOL: Solving Implicit Flows in Loops for Concolic Execution:** Yicheng Zeng, Jiaqian Peng, Zhihui Zhao, Zhanwei Son, Hongsong Zhu and Limin Sun (China Academy of Science, China)

**HetGLM: Lateral Movement Detection by Discovering Anomalous Links with Heterogeneous Graph Neural Network:** Xiaoqing Sun and Jiahai Yang (Tsinghua University, China)

**Libra: A Stateful Layer-4 Load Balancer with Fair Load Distribution:** Xingong Guo, Longlong Zhu and Dong Zhang (Fuzhou University, China); Chunming Wu (Zhejiang University, China)

**RCM: Residue-aware Consolidation for Heterogeneous MLaaS Cluster:** Kefeng Wu, Xiongfeng Hu, Yibo Jin and Zhuzhong Qian (Nanjing University, China); Chunlei Xu and Mingming Zhang (Jiangsu Electric Power Company, China)

**\*A Trusted Distributed Crowdsourcing Framework Based on User Preferences:** Shulin Sun, Lijun Sun, Xinran Ma, ZhenZhen Pan and Hongxin Jin (Qing Dao University of Science and Technology, China)

**\*Trace Characterization-based Cache Replacement Policy:** Byeong Kil Lee and Shafayat Anik (University of Colorado at Colorado Springs, USA)

**\*UltraCDC: A Fast and Stable Content-defined Chunking Algorithm for Deduplication-based Backup Storage System:** Peng Zhou, Zhenyu Wang and HaoTong Zhang (South China University of Technology, China); Wen Xia (Harbin Institute of Technology, China)

**\*DTS: A Dual Transport Switching Scheme for RDMA-based Applications:** Yuxin Chen, Zhiqiang He and Bei Hua (University of Science and Technology of China, China); Dongyang Wang and Gang Lu, Junhong Ye and Feng Jin (Tencent Inc., China)

**\*Data Query Routing Algorithm with Cluster Bridge for Wireless Sensor Network:** Jianpo Li, Kun Liu and Jun Wang (Northeast Electric Power University, China)

### Session I.3: Poster Session – 19:00-20:30 CST ■ Chair: Venugopel Mani [Room 406]

**Dynamic Reinforcement Learning-based Scheduling for Energy-efficient Edge-enabled LoRaWAN:** Jui Mhatre and Ahyoung Lee (Kennesaw State University, USA)

**Exploring Adversarial Attacks on Neural Networks: An Explainable Approach:** Justus Renkhoff, Wenkai Tan, Yongxin Liu and Houbing H Song (Embry-Riddle Aeronautical University, USA); Alvaro Velasquez (Air Force Research Laboratory, USA); William Wang (Purdue University, USA); Jian Wang (The University of Tennessee at Martin & Embry-Riddle Aeronautical University, USA); Shuteng Niu (Bowling Green State University, USA); Lejla Fazlic and Guido Dartmann (Trier University of Applied Sciences, Germany)

**Performance Evaluation of Resource Management Schemes for Cloud Native Platforms with Computing Containers:** Yuqi Fu, Naseem Machlovi and Ying Mao (Fordham University, USA); Jiayin Wang (Montclair State University, USA); Long Cheng (North China Electric Power University, China); Qingzhi Liu (Wageningen University, The Netherlands)

**Performance Evaluation of an Out-of-Order RISC-V CPU: A SPEC INT 2017 Study:** Amin Sarihi and Abdel-Hameed A Badawy (New Mexico State University, USA); Michael A Schoenfelder (SiFive, USA)

**DeepThrottle: Deep Reinforcement Learning for Router Throttling to Defend Against DDoS Attack in SDN:** Shuhan Che, Yi Shen and Chunming Wu (Zhejiang University, China); Congqi Shen (Zhejiang Lab, China)

# IPCCC 2022 Day Two - Saturday, November 12<sup>TH</sup>

Registration Opens: 08:30 CST

## Session 2.1A: Machine Learning (Virtual)

07:30-09:00 CST ■ Chair: Neil Nelson

[Zoom A Link: [tinyurl.com/IPCCC2022-ZoomA](https://tinyurl.com/IPCCC2022-ZoomA) | Code: ipccc2022]

### LSEGN: Encode Local Topology Structure in Graph Neural

**Networks:** Ming Xu, Baoming Zhang, Meng Cao, Hualei Yu and Chong-Jun Wang (Nanjing University, China)

### KylinTune: DQN-based Energy-efficient Model for Browser in

**Mobile Devices:** Hao Xu, Long Peng, Xiaodong Liu, Menglin Zhang, Jun Ma and Jie Yu, Zibo Yi (National University of Defense Technology, China)

**\*An Enhanced Representation Method for Pedestrian Trajectory Prediction Based on Adaptive GCN:** Lizong Zhang, Yutao Jiang, Bei Hu, Zhe Liu and Guisong Liu (University of Electronic Science and Technology of China, China)

**\*MFIP: Multi-Factor Interlinked Point-of-Interest Recommendation in Location-Based Social Network:** Qiaojie Lu, Nan Wang and Kun Li (Heilongjiang University, China)

**\*Video Traffic Identification with a Distribution Distance-based Feature Selection:** Shuaili Liu, Licheng Zhang, Peifa Sun, Yingshuo Bao and Lizhi Peng (University of Jinan, China)

**\*A Scalable Nested Blockchain Framework with Dynamic Node Selection Approach for IoT:** Xiaofeng He, Yuchao Zhang and Xiaotian Wang (Beijing University of Posts and Telecommunication, China)

**Empirical Estimation of ETSI ITS-G5 Performance Over an IPv6-based Platform:** Ashkan Gholamhosseini, Jochen Seitz (Ilmenau Technical University, Germany)

## Session 2.1B: Cloud and Edge Computing (Virtual)

07:30-09:00 CST ■ Chair: Xiuzhen (Susan) Cheng

[Zoom B Link: [tinyurl.com/IPCCC2022-ZoomB](https://tinyurl.com/IPCCC2022-ZoomB) | Code: ipccc2022]

**A Secure and Efficient Data Deduplication Scheme with Dynamic Ownership Management in Cloud Computing:** Ma Xuewei, Wenyan Yang, Yuesheng Zhu and Zhiqiang Bai (Peking University, China)

**SMPI: Scalable Serverless MPI Computing:** Yuxin Yuan, Xiao Shi, Zhengyu Lei, Xiaohong Wang and Xiaofang Zhao (Chinese Academy of Sciences, China)

**HRCache: Edge-end Collaboration for Mobile Deep Vision Based on H.264 and Approximated Reuse:** Xiaohui Wei, Xiukun Wei, Xingwang Wang, Yundi Wang and Yan Niu (Jilin University, China)

**FedMC: Federated Reinforcement Learning on the Edge with Meta-critic Networks:** Derun Zou, Jianhui Duan, Ruichen Li, Yeting Xu, Wenzhong Li and Sanglu Lu (Nanjing University, China); Xusheng Liu and Lintan Sun (State Grid Corporation of China, China)

**Keep Clear of the Edges: An Empirical Study of Artificial Intelligence Workload Performance and Resource Footprint on Edge Devices:** Kun Suo, Tu N. Nguyen, Yong Shi, Jing He and Chih-Cheng Hung (Kennesaw State University, USA)

**\*Energy Efficiency on Edge Computing: Challenges and Vision:** Tyler Holmes, Charlie McLarty, Yong Shi, Patrick Bobbie and Kun Suo (Kennesaw State University, USA)

**\*Pricing in the Open Market of Crowdsourced Video Edge Caching: A Newcomer Perspective:** Xueqing Wang, Liang Wan, Zhiwen Yu, Yao Zhang and Weibo Chu (Northwestern Polytechnical University, China); Zichuan Xu (Dalian University of Technology, China)

**\*Cross-domain Resemblance Detection Based on Meta-learning for Cloud Storage:** Baisong Li, Wenlong Tian, Zhongming Fu, Xuming Ye, Renjiao Duan and Yusheng Li (University of South China, China); Ruixuan Li (Huazhong University of Science and Technology, China); Weijun Xiao (Virginia Commonwealth University, USA); Zhiyong Xu (Suffolk University, USA)

Break: 09:00-09:30

## Session 2.2 Best Paper Candidates – 09:30-10:30 CST ■ Chair: Gürkan Solmaz [Room 400]

[Zoom C Link: [tinyurl.com/IPCCC2022-ZoomC](https://tinyurl.com/IPCCC2022-ZoomC) | Code: ipccc2022]

**An Abnormal Traffic Detection Method for IoT Devices Based on Federated Learning and Deep Separable Convolutional Neural Network:** Qinyu Xia (Wuhan Textile University, China); Shi Dong (Zhoukou Normal University, China)

**PickyMan: A Preemptive Scheduler for Deep Learning Jobs on GPU Clusters:** Chen Chen, Yingwen Che, Zhaoyun Chen and Jianchen Han (National University of Defense Technology, China); Guangtao Xue (Shanghai Jiao Tong University, China)

Break: 10:30-10:45

## Session 2.3: 40th Anniversary - Former IPCCC Chairs Panel Session

10:45-12:00 CST ■ Moderator: Nasr Ullah

**Dr. Richard Oliver**, Formerly University of New Mexico

**Dr. Song Fu**, University of North Texas

**Dr. Guoliang (Larry) Xue**, Arizona State University

**Dr. Yu Wang**, Temple University

**Dr. Roy Jenevein**, Formerly University of Texas at Austin

**Dr. Adel-Hameed Badawy**, New Mexico State University

**Dr. Linda Wilson**, Texas Lutheran University

**Dr. Jo Dale Carothers**, Weintraub IP Group

**Dr. Jeff Rodriguez**, University of Arizona

**Dr. Golden Richard**, Louisiana State University

Lunch: 12:00-13:30 (The Reverber)

## Session 2.4: System Optimization – 13:30-15:00 CST ■ Chair: Roy Jenevein [Room 400]

**\*MARS: Malleable Actor-critic Reinforcement Learning Scheduler:** Betis Baheri, Qiang Guan and Jacob Tronge (Kent State University, USA); Bo Fang and Ang Li (Pacific Northwest National Laboratory, USA); Vipin Chaudhary (Case Western Reserve University, USA)

**\*NOMA-based Power Control for Machine-Type Communications: A Mean Field Game Approach:** Amani Benamor (University of Sfax, Tunisia); Oussama Habachi (Laboratory of Informatics, Modeling and Optimization of the Systems, France); Ines Kammoun (National Engineering School of Sfax & University of Sfax, Tunisia); Jean Pierre Cances (University of Limoges, France)

**\*Optimal Incentive Mechanisms for Fair and Equitable Rewards in PoS Blockchains:** Abdulhadi Sahin, Kemal Akkaya and Sukumar Ganapati (Florida International University, USA)

**\*Iterative Qubits Management for Quantum Index Searching in a Hybrid System:** Wenrui Mu and Ying Mao (Fordham University, USA); Long Cheng (North China Electric Power University, China); Qingle Wang (Louisiana State University, USA); Weiwen Jiang (George Mason University, USA); Pin-Yu Chen (IBM Research, USA)

Break: 15:00-15:30

## Session 2.5: Cloud and Edge Computing – 15:30-16:30 CST ■ Chair: Ningfang Mi [Room 400]

**Higher-order Markov Graph based Bug Detection in Cloud-based Deployments:** Qing Cao and Haoran Niu (University of Tennessee, USA)

**\*PECS: A Pareto-Efficient and Envy-free Cloud Resource Scheduler:** Qing Cao (University of Tennessee, USA); Weisheng Si (Western Sydney University, Australia)

**\*D2FO: Distributed Dynamic Offloading Mechanism for Time-sensitive Tasks in Fog-cloud IoT-based Systems:** Ismail Atai, Tania Taami, Md Mainuddin and Daniel Schwartz (Florida State University, USA); Sadoon Azizi (University of Kurdistan, Iran)

\*DENOTES SHORT PAPER

• Esther's Follies Comedy Show 21:00-22:30 - 525 E. Sixth Street •

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# IPCCC 2022 Day Three ■ Sunday, November 13<sup>TH</sup>

■ Registration Closed ■

## Session 3.1: Machine Learning

08:15-10:00 CST ■ Chair: Nils Aschenbruck [Room 400]

**Reinforced Contrastive Graph Neural Networks (RCGNN) for Anomaly Detection:** Zenan Sun, Jingyi Su, Donghyun Jeon and Shuteng Niu (Bowling Green State University, USA); Alvaro Velasquez (Air Force Research Laboratory, USA); Houbing H Song (Embry-Riddle Aeronautical University, USA)  
**PaWLA: PPG-based Weight Lifting Assessment:** A B M Mohaimenur Rahma, Pu Wang and Weichao Wang (University of North Carolina at Charlotte, USA); Yu Wang (Temple University, USA)

**\*Deep Convolutional Autoencoder for Energy-efficient Smart Health Wearables In the Era of Big Data:** Qingxue Zhang (Purdue University School of Engineering and Technology, USA)

**\*Digital Twin in Safety-critical Robotics Applications: Opportunities and Challenges:** Sabur Baidya, Sumit Das, Mohammad Helal Uddin, Chase Kosek and Chris Summers (University of Louisville, USA)

**\*Reshi: Recommending Resources For Scientific Workflow Tasks on Heterogeneous Infrastructures:** Jonathan Bader, Alexander Groth, Dominik Scheiner, Jonathan Will and Odej Kao (Technical University of Berlin, Germany); Fabian Lehmann and Ulf Leser (Humboldt University of Berlin, Germany); Lauritz Thamsen (University of Glasgow, UK)

Break: 10:00-10:30

## Session 3.2: Network Security and Privacy

10:30 - 11:30 CST ■ Chair: Roy Jenevein [Room 400]

**APEX: Characterizing Attack Behaviors from Network Anomalies:** Kushan Sudheera Kalupahana Liyanage (University of Ruhuna & Nanyang Technological University, Singapore); Zixu Tian, Mun Choon Chan and Mohan Gurusamy (National University of Singapore, Singapore); Dinil Mon Divakaran (Trustwave, Singapore)

**\*Phishing Detection Based on Multi-feature Neural Network:** Shuaicong Yu, Changqing An, Ziyi Zhao and Jilong Wang (Tsinghua University, China); Tao Yu (Tsinghua University & Network, China); Tianshu Li (University of Toronto, Canada)

**\*Unsupervised Anomaly Detection in RS-485 Traffic Using Autoencoders with Unobtrusive Measurement:** Pawissakan Chiruphapa, Hiroshi Esaki and Hideya Ochiai (The University of Tokyo, Japan); Md Delwar Hossain (Nara Institute of Science and Technology, Japan)

■ End of IPCCC 2022 Conference ■

## IPCCC 2022 Virtual Sessions: Zoom Links and Shortcuts + Passcode

### Friday, November 11<sup>TH</sup>

#### Session 1.2A: Network Optimization, Security & Privacy

■ 17:00 CST

Full Link: <https://us06web.zoom.us/j/82832084249?pwd=W59HNE9PQ1dldlgvcjZeDlac1puUT09>

Shortcut Link: <https://tinyurl.com/IPCCC2022-ZoomA>

Passcode: ipccc2022

#### Session 1.2B: System Optimization ■ 17:00 CST

Full Link: <https://us06web.zoom.us/j/86568163458?pwd=bnpxYVYxR2ZR3lpREd6N3pLWEQ0QT09>

Shortcut Link: <https://tinyurl.com/IPCCC2022-ZoomB>

Passcode: ipccc2022

### Saturday, November 12<sup>TH</sup>

#### Session 2.1A: Machine Learning ■ 07:30 CST

Full Link: <https://us06web.zoom.us/j/82832084249?pwd=W59HNE9PQ1dldlgvcjZeDlac1puUT09>

Shortcut Link: <https://tinyurl.com/IPCCC2022-ZoomA>

Passcode: ipccc2022

#### Session 2.1B: Cloud and Edge Computing ■ 07:30 CST

Full Link: <https://us06web.zoom.us/j/86568163458?pwd=bnpxYVYxR2ZR3lpREd6N3pLWEQ0QT09>

Shortcut Link: <https://tinyurl.com/IPCCC2022-ZoomB>

Passcode: ipccc2022

#### Session 2.2: Best Paper Candidates ■ 09:30 CST

Full Link: <https://us06web.zoom.us/j/85089801483?pwd=NXhv52JTZTFMkdEZG1IT3U3akdEUT09>

Shortcut Link: <https://tinyurl.com/IPCCC2022-ZoomC>

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CAMERA READY DUE: August 30th, 2023

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# IPCCC 2022: KEYNOTE SPEAKER

## AI-Based Control and Orchestration in the Open RAN: Architectures, Algorithms, Testbeds

### Tommaso Melodia

(William Lincoln Smith Professor at Northeastern University)

Friday, November 11<sup>TH</sup> ■ 14:00-15:15 CST

#### ABSTRACT

This talk will present an overview of our work on laying the basic principles to design open, program-mable, AI-driven, and virtualized next-generation wireless networks. We will cover in detail challenges and opportunities associated with the evolution of cellular systems into cloud-native softwarized architectures enabling fine grained control of end-to-end functionalities.

#### BIOGRAPHY

Tommaso Melodia is the William Lincoln Smith Professor with the Department of Electrical and Computer Engineering at Northeastern University in Boston. He is also the Founding Director of the Institute for the Wireless Internet of Things and the Director of Research for the Platforms for Advanced Wireless Research (PAWR) Project Office. He received his Laurea (integrated BS and MS) from the University of Rome - La Sapienza and his Ph.D. in Electrical and Computer Engineering from the Georgia Institute of Technology in 2007. He is an IEEE Fellow and recipient of the National Science

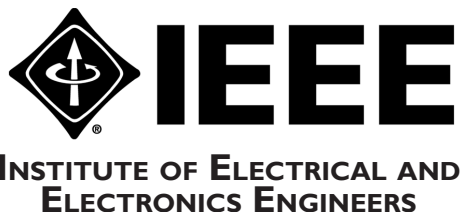
Foundation CAREER award. Professor Melodia is serving as Editor in Chief for Computer Networks, and has served as Associate Editor for IEEE Transactions on Wireless Communications, IEEE Transactions on Mobile Computing, IEEE Transactions on Multimedia, among others. He was the Technical Program Committee Chair for IEEE Infocom 2018, and General Chair for ACM MobiHoc 2020, IEEE SECON 2019, ACM Nanocom 2019, and ACM WUWNNet 2014. Prof. Melodia's research on modeling, optimization, and experimental evaluation of Internet-of-Things and wireless networked systems has been funded by the US National Science Foundation, several industrial partners, the Air Force Research Laboratory Office of Naval Research, DARPA, and the Army Research Laboratory.



Further information: <https://ece.northeastern.edu/wineslab/>

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- Cyber Physical Systems
- Data Centers
- Embedded Systems
- Fundamental Theory and Algorithms
- Internet of Things
- Internet Services and Network Management
- Mobile Ad Hoc, Sensor and Mesh Networks
- Multimedia Networking
- Many-core and Heterogeneous Computing
- Network Data Mining
- Network Information Assurance and Security
- Network Protocols
- Online Social Network Analysis
- Parallel and Distributed Systems
- Performance Evaluation and Modeling
- Security and Privacy
- Smart Grid and Intelligent Mission Critical Operations
- Smart Health Systems, Wearable, and Implantable Systems
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