2020 29th Wireless and Optical Communications Conference (WOCC 2020)

Newark, New Jersey, USA
1 – 2 May 2020
Program
2020 29th Wireless and Optical Communications Conference (WOCC)

Big Data Analytics and Machine Learning Methods

Data-driven Surplus Material Prediction in Steel Coil Production
Ziyan Zhao (China, USA), Xiaoyue Yong (Shanghai Baosight Software Co., Ltd, China), Shixin Liu (Northeastern University, China), Mengchu Zhou (New Jersey Institute of Technology, USA)

Research on Hainan Trusted Digital Infrastructure Construction Framework
Chong Shen (Hainan University, China), Kun Zhang (Hainan University & Hainan Tropical Ocean University, China), Keliu Long (Hainan University, China)

Computing Systems and Performance

Decentralized Continuous Game for Task Offloading in UAV Cloud
Ang Gao (Northwestern Polytechnical University, China), Geng Tianli (Northwestern Polytechnical University, China), Yansu Hu (Chang’ an University, China), Wei Liang (Northwestern Polytechnical University, China), Weijun Duan (The Northwestern Polytechnical University, China)

Benchmarking Network Performance in Named Data Networking (NDN)
Yaoqing Liu (Fairleigh Dickinson University, USA), Anthony Dowling (Clarkson University, USA), Lauren Huie (Air Force Research Lab, USA)

Data Visualization for Wireless Sensor Networks Using ThingsBoard
Matthew Henschke (College of Staten Island / CUNY, USA), Xinzhou Wei (New York City College of Technology of City University of New York, USA), Xiaowen Zhang (College of Staten Island / CUNY & Graduate Center / CUNY, USA)

Fiber Transmission and System

Nonlinear GN model for coherent optical communications systems with hybrid fiber spans
Ioannis Roudas (Montana State University-Bozeman, USA), Xin (Jessica) Jiang (College of Staten Island, USA), Jaroslaw Kwapisz (Montana State University, USA)

Mitigating the signal distortion in multilevel Manchester-based optical communications systems using optical equalization technique
Festus Idowu oluwasajo (University of Nottingham, USA), Dong-Nhat Nguyen (Czech Technical University in Prague, Czech Republic), Nafizah Khan (University of Nottingham Malaysia Campus, Malaysia), Amin Malekmohammadi (The University of Nottingham, Malaysia)

Dual Frame OFDM with Optical Phase Conjugation
Usha Choudhary (Malaviya National Institute of Technology, India), Vijay Janyani (Malaviya National Institute of Technology - MNIT, India), M Arif Khan (Charles Sturt University, Australia)

Antenna, Filter and Modulation

Efficient Methods and Architectures for Mean and Variance Estimations of QAM Symbols
Guosen Yue (FutureWei Technologies, Inc., USA), Xiao-Feng Qi (Futurewei Technologies, Inc., USA)

Automatic Modulation Classification and SNR Estimation Based on CNN in Physical-layer Network Coding
Xuesong Wanq (UCAS, China), Yuna He (UCAS, China), Yan Sun (CSU, China), Yueying Zhan (Technology and Engineering Center for Space Utilization, Chinese Academy of Science, China)

Non-coherent autocovariance receiver for DPSK-k modulation invariant to channel distortions
Gerardo Ramirez (CINVESTAV, Mexico), Fernando Peña (Tecnológico de Monterrey, Mexico), Ramon Parra-Michel (Cinvestav Unidad Guadalajara, Mexico), Valeri Ya Kontorovich (Cinvestav ipn mx, Mexico)
Future Internet Architecture and Security

Empowering Named Data Networks for Ad-Hoc Long-Range Communication
Yaoqing Liu (Fairleigh Dickinson University, USA), Laurent Njilla (Air Force Research Laboratory, USA), Anthony Dowling (Clarkson University, USA), Wan Du (University of California, Merced, USA) .......................................................... 68

DASC: A Privacy-Protected Data Access System with Cache Mechanism for Smartphones
Wenyun Dai (Fairleigh Dickinson University, USA), Longbin Chen (IBM, USA), Ana Wu (Butterfly Network Inc, USA), Md L Ali (Rider University, USA) .......................................................... 74

Detecting host location attacks in SDN-based networks
Sonali Sen Baidya (Texas Tech University, USA), Rattikorn Hewett (Texas Tech University, USA) .......................................................... 80

Photonic Device

Symbol Error Rate Analysis of 8-state Stokes Vector Modulation for Large Capacity Data Centers
Mario V Bnyamin (CUNY Graduate Center, USA), Mark Feuer (College of Staten Island, CUNY, USA), Xin (Jessica) Jiang (College of Staten Island, USA) .......................................................... 86

Characteristics of a frequency-doubled solid-state laser with tunable pulse width
Yajiang Li (Beijing Institute of Technology, China), Jianguo Xin (Beijing Institute of Technology, China) .......................................................... 92

Machine Learning and AI for Wireless Communication

Reservoir Computing Meets Wi-Fi in Software Radios Neural Network-based Symbol Detection using Training Sequences and Pilots
Lianjun Li (Virginia Tech, USA), Lingjia Liu (Virginia Tech, USA), Jianzhong Zhang (Samsung, USA), Jonathan D Ashdown (Air Force Research Laboratory, USA), Yang Yi (Virginia Tech, USA) .......................................................... 96

Blind Source Separation with L1 Regularized Sparse Autoencoder
Jason Dabin (Naval Information Warfare Center Pacific, USA), Alexander M. Haimovich (New Jersey Institute of Technology, USA), Justin Mauger (Naval Information Warfare Center Pacific, USA), Annan Dong (New Jersey Institute of Technology, USA) .......................................................... 102

Identification of ISM Band Signals Using Deep Learning
Mingju He (Stevens Institute of Technology, USA), Shengliang Peng (Huaqiao University, China), Huaxia Wang (Stevens Institute of Technology, USA), Yu-Dong Yao (Stevens Institute of Technology, USA) .......................................................... 107

MAC Protocol Identification Using Convolutional Neural Networks
Yu Zhou (Stevens Institute of Technology, USA), Shengliang Peng (Huaqiao University, China), Yu-Dong Yao (Stevens Institute of Technology, USA) .......................................................... 111

LDPC Code Classification using Convolutional Neural Networks
Bradley Comar (US DoD, USA) .......................................................... 115

Deep Learning Based Emerging Technology

A Convolutional Neural Network Approach to Improving Network Visibility
Bruce Hartpence (RIT, USA), Andres Kwasinski (Rochester Institute of Technology, USA) .......................................................... 121
Photonic Network and Free Space Communication

Outdoor Optical Wireless Communication: potentials, standardization and challenges for Smart Cities
Véronique M Georlette (University of Mons, Belgium), Véronique Moeyaert (Université de Mons (UMONS) & Faculté Polytechnique, Belgium), Sébastien Bette (University of Mons - Faculty of Engineering, Belgium), Nicolas Point (Multitel Innovation Center, Belgium) 127

Rain Effects on FSO and mmWave Links: Preliminary Results from an Experimental Study
Elizabeth Verdugo (PUC RIO, Brazil & Politecnico di Milano, Italy), Roberto Nebuloni (Ieit - Cnr, Italy), Lorenzo Luini (Politecnico di Milano, Italy), Carlo Riva (Politecnico di Milano, Italy), Luiz da Silva Mello (CETUC-PUC-Rio & Inmetro, Brazil), Giuseppe Roveda (Huawei Microwave Centre, Italy) 133

An Adaptive DPPM for Efficient and Robust Visible Light Communication Across the Air-Water Interface
Md Shafiqul Islam (University of Maryland Baltimore County, USA), Mohamed Younis (University of Maryland Baltimore County, USA) 139

Satellite and Future Wireless Networks

Process-Oriented Optimization for Beyond 5G Cognitive Satellite-UAV Networks
Chengxiao Liu (Tsinghua University, China), Wei Feng (Tsinghua University, China), Yunfei Chen (University of Warwick, United Kingdom (Great Britain)), Chen-Xiaq Wan (Southeast University & Heriot-Watt University, China), Xiangling Li (Tsinghua University, China), Ning Ge (Tsinghua University, China) 145

Dual Splash Plate Parabolic Stacked Antenna for Satellite Communication System Consolidation
Clive Sugama (Colorado State University, USA), V. Chandrasekar (Colorado State University, USA) 151

Optimal UAV Positioning for a Temporary Network Using an Iterative Genetic Algorithm
Nicholas Ceccarelli (SUNY University at Buffalo, USA), Paulo A Reis (Southeastern Louisiana University, USA & CAPES, Brazil), Shamik Sengupta (University of Nevada, Reno, USA), David Feil-Seifer (University of Nevada, Reno, USA) 156

Hybrid FSO/mmWave based Fronthaul CRAN Optimization for Future Wireless Communications
Nagwa Ibrahim (National Telecommunication Institute & Cairo, Egypt), Ashraf A Eltholth (National Telecommunication Institute, Egypt), Magdy El-Soudani (Faculty of Engineering, Egypt) 162

Routing Algorithm with High Credibility and Stability (RACS) in WWSN-based Internet of Medical Things
Kefeng Wei (Northeastern University, China), Lincong Zhang (Shenyang Ligong University, China), Lei Guo (Chongqing University of posts and telecommunications, Chongqing, China) 168

Visible Light Communication

A low complexity NOMA scheme in VLC systems using pulse modulations
Jian Song (Tsinghua University & Beijing National Research Center for Information Science and Technology & Key Laboratory of Digital TV System of Guangdong Province and Shenzhen City, Research Institute of Tsinghua University in Shenzhen, Shenzhen, China), Tian Cao (Tsinghua University, China), Hongming Zhang (Department of Electronic Engineering, Tsinghua University, China) 172

Spectrally Efficient Cooperative Visible Light Communication with Adaptive Power Sharing for a Generalized System
Umang Garg (BITS Pilani & Pennsylvania State University, USA), Nithin Rahav J K (TU Dresden, Germany), B. Sainath (BITS Pilani, India) 178

Throughput of Optical WDM with Wide LED Spectra and Imperfect Color-detecting Filters
Thiago Elias B Cunha (Eindhoven University of Technology, The Netherlands), Jean-Paul Linnartz (Technische Universität Eindhoven, The Netherlands), Xiong Deng (TU Eindhoven, The Netherlands) 184

Co-Channel Interference Management in Visible Light Communication
Mona Elsayed Hosney (National Telecommunication Institute, Egypt), Hossam A. I. Selmy (National Laser Institute Cairo University, Egypt), Khaled Elsayed (Cairo University, Egypt) 190
Emerging Network Technologies

Classification of QPSK Signals with Different Phase Noise Levels Using Deep Learning
Hatim Alhazmi (Stevens Institute of Technology, USA), Alhussain Almarhabi (Stevens Institute of Technology, USA), Abdullah Samarkandi (Stevens Institute of Technology, USA), Mofadal Alymani (Stevens Institute of Technology, USA), Mohsen H. Alhazmi (Stevens Institute of Technology, USA), Zikang Sheng (Stevens Institute of Technology, USA), Yu-Dong Yao (Stevens Institute of Technology, USA) ................................................................. 194

5G Signal Identification Using Deep Learning
Mohsen H. Alhazmi (Stevens Institute of Technology, USA), Mofadal Alymani (Stevens Institute of Technology, USA), Hatim Alhazmi (Stevens Institute of Technology, USA), Alhussain Almarhabi (Stevens Institute of Technology, USA), Abdullah Samarkandi (Stevens Institute of Technology, USA), Yu-Dong Yao (Stevens Institute of Technology, USA) .......................................................................................................................... 199

Deep Learning in 5G Wireless Networks - Anomaly Detections
Minh Doan (College of Staten Island, USA), Zhanyang Zhang (College of Staten Island/City University of New York & Graduate Center/City University of New York, USA) ........................................................................................................................................ 204

Latency Optimization-based Joint Task Offloading and Scheduling for Multi-user MEC System
Tiantian Yang (Chonqing University of Posts and Telecommunications, China), Rona Chai (Chonqing University of Posts and Telecommunications, China), Zhang Liping (Chongqing University of Posts and Telecommunications, China) ......................................................................................................... 210

Rician K-Factor Estimation Using Deep Learning
Mofadal Alymani (Stevens Institute of Technology, USA), Mohsen H. Alhazmi (Stevens Institute of Technology, USA), Alhussain Almarhabi (Stevens Institute of Technology, USA), Hatim Alhazmi (Stevens Institute of Technology, USA), Abdullah Samarkandi (Stevens Institute of Technology, USA), Yu-Dong Yao (Stevens Institute of Technology, USA) ........................................................................................................ 216

Network Coding for Integrated Access and Backhaul Wireless Networks
Wei Mao (Intel Corporation, USA), Murali Narasimha (Intel Corporation, USA), Meryem Simsek (Intel Labs & International Computer Science Institute, USA), Hosein Nikopour (Intel Corporation, USA) ......................................................................................................................... 220