



WoWMoM 2015

14-17 June, Boston, USA

Sponsored by IEEE Computer Society, Missouri University Of Science and Technology, and IEEE Technical Committee on Computer Communications (TCCC)



Message from the General Chair

Welcome to Boston—the *City on the Hill*; the *Hub of the Universe*—and welcome to the IEEE International Symposium on a World of Wireless, Mobile and Multimedia Networks (WoWMoM), the intellectual hub and melting pot of ideas from researchers and practitioners interested in all aspects of wireless, mobile, and multimedia pervasive communications. Sponsored by the IEEE Computer Society and its Technical Committee on Computer Communications (TCCC), and co-sponsored by Missouri University of Science and Technology, the 16th WoWMoM is held in the United States, in Boston, on the Boston University campus. During its history, the reputation of WoWMoM has rapidly grown and it has become one of the premier conferences in the field of wireless, mobile, and multimedia networking.

The WoWMoM's track record of excellence continues this year. Thanks to the tireless efforts of the technical program co-chairs—Professors Luciano Bononi of University of Bologna (Italy) and Guevara Noubir of Northeastern University (US)—WoWMoM 2015 is packed with an excellent mix of technical sessions. In addition, the program is supplemented by a PhD forum session, demonstrations, and five exciting pre-conference workshops on autonomic communications, Internet-of-Things, video, cognitive radio, and smart vehicles.

On behalf of the WoWMoM steering committee and on behalf of all attendees, we thank Guevara and Luciano, the workshops chair—Professor Kaushik Chowdhury of Northeastern University (US)—and all members of the technical and workshop committees for producing such a wonderful program. We thank Dr. Prithwish Basu of Raytheon BBN Technologies (US) and Professor Fernando Boavida of Universidade de Coimbra (Portugal) for organizing a timely panel, Professor Majid Ghaderi of University of Calgary (Canada) for organizing the PhD forum session, and Dr. Joerg Widmer of IMDEA Networks (Spain) for organizing the demonstrations.

On behalf of all attendees, I would like to thank the WoWMoM steering committee, Dr. Marco Conti and Professor Sajal K. Das, for their invaluable advisory roles. Thanks are also due to Dr. Victoria Manfredi for her hard work as publications chair, and Professors Bo Sheng and Honggang Wang for their efforts as local arrangements co-chairs. Thanks to Dr. Flavio Esposito and Yue Frank Gao for serving as publicity co-chairs, and special thanks to Flavio for his dedication and tireless efforts as WoWMoM'15 webmaster as well.

Last but not least, I wish to express my deep appreciation to Professor Yonghe Liu for his service as finance and registration chair, and the many members of IEEE for their logistical help, especially Stacie Demicco and Hazel Harrison.

In closing, I welcome you to WoWMoM 2015, whether this is your first time or 16th time around. I hope that you will enjoy the program and the city of Boston, that you will make the most out of your participation, and that you will come back to WoWMoM for many years to come!

Ibrahim Matta
WoWMoM 2015 General Chair

Message from the TPC Co-Chairs

Welcome to IEEE WoWMoM 2015!

The IEEE International Symposium on a World of Wireless, Mobile and Multimedia Networks established itself as a leading forum for the presentation and exchange of ideas and results among researchers and practitioners in the field of wireless, mobile, and multimedia systems.

WoWMoM 2015 was fortunate to attract very high interest among the community, with the main conference receiving 349 submissions (234 after filtering out of scope and incomplete submissions including 217 full papers, and 22 work in progress papers) from more than 57 countries spanning all continents. These figures indicate that WoWMoM has become a worldwide reference event in the field. The high number of submissions provided an excellent opportunity for a high-quality program, but also called for a demanding and laborious paper evaluation process. The 89 members of the Technical Program Committee worked efficiently and responsibly under tight time constraints to produce a total of 699 reviews and 226 meta reviews that provided the basis for the final paper selection.

As a result of this process, 46 regular papers were finally selected for presentation at the main conference, an acceptance rate of 21%. A set of 7 work-in-progress papers were also accepted. Given the large number of submitted manuscripts and the tight time and space constraints, many strong submissions could not be accepted.

The main program of WoWMoM 2015 covers three days and includes two streams of parallel sessions. The program is further enriched by two keynote presentations offered by world-leaders in the field, Dr. Michael Luby Vice President of Technology at Qualcomm, and Professor Prasant Mohapatra Vice Chancellor of University of California Davis. The main program is complemented by an Industry Panel, a Posters & Demos session, and a diverse set of high-quality workshops.

We are grateful to all authors who trusted us with their work; without them there would be no conference. The final result would not have been possible without the dedication and hard work of many colleagues. We would like to thank the members of the Technical Program Committee, for their sense of responsibility and responsiveness under very tight deadlines. Special thanks to the General Chair Professor Ibrahim Matta, and members of the organizing committee in particular Dr. Kaushik Chowdhury, Dr. Flavio Esposito, Dr. Yue Frank Gao, Dr. Victoria Manfredi.

Luciano Bononi and Guevara Noubir
IEEE WoWMoM 2015 Technical Program Co-Chairs

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WoWMoM 2015 Technical Program Committee

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WoWMoM 2015 Program

Sunday June 14th		Monday June 15th		Tuesday June 16th		Wednesday June 17th			
8:30-9:00	Registration	8:30-9:00	Registration & Welcome	8:30-9:30	Keynote II: Smart-Sensing using Smart-Sensors, Prof. Prasant Mohapatra, Vice Chancellor, UC Davis		8:30-10:00	7A: Network Analysis & Diagnosis	7B: Opportunistic Networks & Prediction Mechanisms
9:00-10:00	IoT-SoS (CGS 421) AOC (CGS 423) SmartVehicles (CGS 521) VidEv (CGS 523) CORAL (CGS 527)	9:00-10:00	Keynote 1: Michael Luby VP Technology at Qualcomm	9:30-10:00	Coffee Break		10:00 - 10:30	Coffee Break	
10:00-10:30	Coffee Break	10:00-10:30	Coffee Break	10:00-11:30	4A: Dynamic Spectrum Access	4B: Internet of Things	10:30-12:00	8A: Resource Management & QoS/QoE Provisioning	8B: Topology-Aware Networking
10:30-12:00	Sessions - all workshops	10:30-12:00	1A: Video Streaming 1B: Mobility & Handover Management	11:30-1:00 PM	Lunch Break		12:00 - 1:30 PM	Lunch Break	
12:00-1:30 PM	Lunch Break	12:00-1:30 PM	Lunch Break	1:00-2:30 PM	Panel: Security & Privacy in the Internet of Things		1:30-3:00 PM	9A: Modeling, Measurements & Performance Analysis	9B: Video Broadcast & Distribution
1:30-3:00 PM	Sessions - all workshops	1:30-3:00 PM	2A: Dynamic Offloading & Scheduling 2B: Mobility Management in WSNs	2:30-3:00 PM	Coffee Break				
3:00-3:30 PM	Coffee Break	3:00-3:30 PM	Coffee Break	3:00-4:30 PM	5A: Localization & Positioning	5B: Security & Privacy Issues			
3:30-5:30 PM	CORAL only	3:30-5:00 PM	3A: WSN Data Dissemination & Gathering 3B: Content Centric Architectures for Multimedia	4:30-5:00 PM	Coffee Break				
	RECEPTION (6-8pm)	5:00-6:30 PM	Work in Progress & Demo Session	5:00-6:30 PM	Session 6: PhD Forum				
					DINNER (7-9:30pm)				

Keynote 1: Converged Internet and Broadcast Media Delivery
Speaker: Michael Luby, Vice President, Technology, Qualcomm, Inc.
Monday June 15th 9:00 AM (CGS 129)

Keynote 2: Smart-Sensing using Smart-Sensors
Speaker: Prasant Mohapatra, University of California, Davis.
Tuesday June 16th - 8:30AM (CGS 129)

Panel: Privacy and Security in the Internet of Things
Panelists:

Prithwish Basu, Raytheon BBN Technologies, Cambridge MA, USA (Panel Chair)
Fernando Boavida, Universidade de Coimbra, Portugal (Panel Chair)
Thomas Little, Boston University, Boston MA, USA
Partha Pal, Raytheon BBN Technologies, Cambridge MA, USA
Torsten Braun, University of Bern, Switzerland
Jorge Sá Silva, University of Coimbra, Portugal
Tuesday June 16th – 1:00 - 2:30pm (CGS 129)

Opening Reception
Sunday June 14th – 6-8pm
The BU Castle: 225 Bay State Rd, Boston, MA 02215

Dinner Banquet
Tuesday June 16th – 7-9:30pm
Trustee Ballroom & Lounge: 1 Silber Way, 9th Floor, Boston, MA 02215

Monday June 15th

Registration (8:30 – 9:00am): CGS Lobby

Welcome & Keynote 1 (9:00 – 10:00am)

Room: CGS 129 (Jacob Sleeper Auditorium)

Coffee break (10:00 – 10:30am): The 5th floor alcove

SESSION 1A: Video Streaming (10:30am – 12:00pm)

Chair: Torsten Braun, Room: CGS 505

Green Video Delivery in LTE-based Heterogeneous Cellular Networks

Apostolos Galanopoulos (University of Thessaly, Greece); George Iosifidis (Yale University, USA); Antonios Argyriou (University of Thessaly, Greece); Leandros Tassiulas (Yale University, USA)

QoE-aware optimization for video delivery and storage

Alisa Devlic (Royal Institute of Technology (KTH), Sweden); Pavan Kumar Kamaraju (University Of Maryland Baltimore County & Royal Institute Of Technology KTH, USA); Pietro Lungaro (Royal Institute of Technology (KTH), Sweden); Zary Segall (KTH Royal Institute of Technology, Sweden); Konrad Tollmar (Royal Institute of Technology (KTH), Sweden)

Mobile HTTP-based streaming using flexible LTE base station control

Izhak Rubin (University of California at Los Angeles, USA); Stefania Colonnese (Università La Sapienza di Roma, Italy); Francesca Cuomo (University of Rome Sapienza, Italy); Federica Calanca (University of Rome Sapienza, Italy); Tommaso Melodia (Northeastern University, USA)

SESSION 1B: Mobility & Handover Management (10:30am – 12:00pm)

Chair: Jérôme Härri, Room: CGS 527

Network architecture supporting seamless flow mobility between LTE and WiFi networks

Dhathri R. Purohith and Aditya Hegde (IIT Madras, India); Krishna M. Sivalingam (Indian Institute of Technology Madras, India)

A Hybrid Centralized-Distributed Mobility Management Architecture for Network Mobility

Tien-Thinh Nguyen (EURECOM, France); Christian Bonnet (Institut Eurecom, France)

Handover triggering in IEEE 802.11 Networks

Nicolas Montavont (Institut Mines Telecom / Telecom Bretagne, France); Alberto P Blanc and Renzo Navas (Telecom Bretagne, France); German Castignani (University of Luxembourg / SnT, Luxemburg)

Lunch (12:00 – 1:30pm)

West Campus Dining Hall: 275 Babcock Street, Boston, MA 02215

SESSION 2A: Dynamic Offloading and Scheduling (1:30 – 3:00pm)

Chair: Vasilios Siris, Room: CGS 505

Offload (Only) the Right Jobs: Robust Offloading Using the Markov Decision Processes

Esa Hyttiä (Aalto University, Finland); Thrasyvoulos Spyropoulos (EURECOM, France); Joerg Ott (Aalto University, Finland)

Towards Optimal Priority and Deadline Driven Scheduling in Dynamic Wireless Environments

Viral Patel (State University of New York at Buffalo, USA); Nicholas Mastronarde (University at Buffalo, USA); Michael Medley (Air Force Research Laboratory, USA); John D. Matyjas (Air Force Research Laboratory, Rome, NY, USA)

Minimum Delay Scheduling with Multi-Packet Transmission in Wireless Networks

Ali Abbasi and Majid Ghaderi (University of Calgary, Canada)

SESSION 2B: Mobility Management in WSNs (1:30 – 3:00pm)

Chair: Nils Aschenbruck, Room: CGS 527

Lifetime Optimization with QoS of Sensor Networks with Uncontrollable Mobile Sinks

Francesco Restuccia and Sajal K. Das (Missouri University of Science and Technology, USA)

Analysis of Deployment and Movement Policies in Wireless Sensor and Robot Networks

Andrew Wichmann and Turgay Korkmaz (University of Texas at San Antonio, USA)

Water Flow Driven Sensor Networks for Leakage and Contamination Monitoring

Amitangshu Pal and Krishna Kant (Temple University, USA)

Coffee break (3:00 – 3:30pm): The 5th floor alcove

SESSION 3A: WSN Data Dissemination and Gathering (3:30 – 5:00pm)

Chair: Yonghe Liu, Room: CGS 505

Ripple: High-throughput, Reliable and Energy-efficient Network Flooding in Wireless Sensor Networks

Dingwen Yuan (Technische Universität Darmstadt, Germany); Matthias Hollick (Technische Universität Darmstadt & Secure Mobile Networking Lab, Center for Advanced Security Research Darmstadt, Germany)

Adaptive Broadcast Suppression for Trickle-Based Protocols

Thomas Meyfroyt, Milosh Stolikj and Johan J. Lukkien (Eindhoven University of Technology, The Netherlands)

Joint Compressive Data Gathering and Scheduling in Wireless Sensor Networks under the Physical Interference Model

Dariusz Ebrahimi and Chadi Assi (Concordia University, Canada)

SESSION 3B: Content-Centric Architectures for Multimedia (3:30 – 5:00pm)

Chair: Anand Seetharam, Room: CGS 527

Content-centric Routing in Wi-Fi Direct Multi-group Networks

Claudio E. Casetti, Carla-Fabiana Chiasserini and Luciano Curto Pelle (Politecnico di Torino, Italy); Carolina Del Valle (Instituto Tecnológico y de Estudios Superiores de Monterrey, Mexico); Yufeng Duan and Paolo Giaccone (Politecnico di Torino, Italy)

EdgeBuffer: Caching and Prefetching Content at the Edge in the MobilityFirst Future Internet Architecture

Feixiong Zhang (Rutgers University & WINLAB, USA); Chenren Xu (Carnegie Mellon University & School of Computer Science, USA); Yanyong Zhang (Rutgers University, USA); K. K. Ramakrishnan (University of California, Riverside, USA); Shreyasee Mukherjee (WINLAB, Rutgers University, USA); Roy Yates and Thu Nguyen (Rutgers University, USA)

TCCN: Tag-Assisted Content Centric Networking for Internet of Things

Yuning Song, Huadong Ma and Liang Liu (Beijing University of Posts and Telecommunications, P.R. China)

Work in Progress & Demo Session (5:00 – 6:30pm)

CGS Hallway

Tuesday June 16th

Keynote 2 (8:30 – 9:30am)

Room: CGS 129 (Jacob Sleeper Auditorium)

Coffee break (9:30 – 10:00am): The 5th floor alcove

SESSION 4A: Dynamic Spectrum Access (10:00 – 11:30am)

Chair: Luca Bedogni, Room: CGS505

On 3-Dimensional Spectrum Sharing for TV White and Gray Space Networks

Luca Bedogni (University of Bologna & Department of Computer Science, Italy); Angelo Trotta and Marco Di Felice (University of Bologna, Italy)

More Flexible Radio Regulations: Investigating Random Spectrum Sampling Techniques for Temporal Occupancy Characterization

Sean Roche (The University of the West Indies, Trinidad and Tobago); Alexander M. Wyglinski (Worcester Polytechnic Institute, USA)

Floating Band D2D: Exploring and Exploiting the Potentials of Adaptive D2D-enabled Networks

Arash Asadi (IMDEA Networks Institute & University Carlos III of Madrid, Spain); Vincenzo Mancuso (IMDEA Networks Institute, Spain); Peter Jacko (Lancaster University, United Kingdom)

SESSION 4B: Internet of Things (10:00 – 11:30am)

Chair: Honggang Wang, Room: CGS 527

Scalability of Machine to Machine systems and the Internet of Things on LTE mobile networks

Jill Jermyn (Columbia University, USA); Roger Piqueras Jover, Ilona Murynets and Mikhail Istomin (AT&T Security Research Center, USA); Salvatore J. Stolfo (Columbia University, USA)

Ambient Control: A Mobile Framework for Dynamically Remixing the Internet of Things

Max Pagel and Darren Carlson (National University of Singapore, Singapore)

Prefix Coding of Hierarchical Categories for Publish-Subscribe in Mobile Wireless Environments

Bo Xu and Matei Stroila (HERE, USA)

Lunch (11:30am – 1:00pm)

West Campus Dining Hall: 275 Babcock Street, Boston, MA 02215

Panel: Security & Privacy in the Internet of Things (1:00 – 2:30pm)

Room: CGS 129 (Jacob Sleeper Auditorium)

SESSION 5A: Localization and Positioning (3:00 – 4:30pm)

Chair: Majid Ghaderi, Room: CGS 505

ReNLoc: An anchor-free localization algorithm for indirect ranging

Marios A Fanourakis (University of Geneva, Switzerland); Katarzyna Wac (University of Geneva & Quality of Life group, Switzerland)

Cooperation among Smartphones to Improve Indoor Position Information

Chen Qiu and Matt Mutka (Michigan State University, USA)

A Passive WiFi Source Localization System based on Fine-grained Power-based Trilateration

Zan Li and Torsten Ingo Braun (University of Bern, Switzerland); Desislava Dimitrova (ETH Zurich, Switzerland)

SESSION 5B: Security and Privacy Issues (3:00 – 4:30pm)

Chair: Pericle Perazzo, Room: CGS 527

Privacy-preserving Routing in Delay Tolerant Networks based on Bloom Filters

Evangelos Papapetrou and Vasileios Bourgos (University of Ioannina, Greece); Artemios G. Voyiatzis (SBA Research, Austria)

In the shadows we trust: A secure aggregation tolerant watermark for data streams

Arezou Soltani Panah, Ron van Schyndel and Timos Sellis (RMIT University, Australia); Elisa Bertino (Purdue University, USA)

The Verifier Bee: a Path Planner for Drone-Based Secure Location Verification

Pericle Perazzo (University of Pisa, Italy); Kanishka Ariyapala (University of Florence, Italy); Mauro Conti (University of Padua, Italy); Gianluca Dini (University of Pisa, Italy)

Coffee break (4:30 – 5:00pm): The 5th floor alcove

SESSION 6: Ph.D. Forum (5:00 – 6:30pm)

Room: CGS 129 (Jacob Sleeper Auditorium)

Comparing Alternative Approaches for Mobile Content Delivery in Information-Centric Networking

Feixiong Zhang (Rutgers University & WINLAB, USA)

A Cell Biology Inspired Data Packet Forwarding Scheme in Mobile Ad-hoc Networks

Sulochana Sooriyaarachchi (University of Moratuwa, Sri Lanka)

Towards an Evolvable Cellular Architecture

Jill Jermyn (Columbia University, USA)

Design of a lightweight Control Plane for supporting MAC and Routing in industrial WSNs

Dario Fanucchi (University Augsburg, Germany)

An Analytic Evaluation of the Trickle Algorithm: Towards Efficient, Fair, Fast and Reliable Data Dissemination

Thomas Meyfroyt (Eindhoven University of Technology, The Netherlands)

Dinner Banquet (7:00 - 9:30pm)

Trustee Ballroom & Lounge: 1 Silber Way, 9th Floor, Boston, MA 02215

Wednesday June 17th

SESSION 7A: Network Analysis and Diagnosis (8:30 – 10:00am)

Chair: Krishna Kant, Room: CGS 505

NetTomo: A Tomographic Approach towards Network Diagnosis

Paritosh Ramanan, Goutham Kamath and Wen-Zhan Song (Georgia State University, USA)

WiFo: A Diagnostic Tool for IEEE 802.11 MAC

Hessan Fegghi (Hamilton Institute, National University of Ireland Maynooth, Ireland); David Malone (Maynooth University, Ireland)

On the Map Accuracy required for Network Simulations based on Ray Launching

Thomas Hänel, Matthias Schwamborn, Alexander Bothe and Nils Aschenbruck (University of Osnabrück, Germany)

SESSION 7B: Opportunistic Networks and Prediction Mechanisms (8:30 – 10:00am)

Chair: Francesca Cuomo, Room: CGS 527

Social Cognitive Heuristics for Adaptive Data Dissemination in Opportunistic Networks

Matteo Mordacchini (IIT, CNR, Pisa, Italy); Andrea Passarella and Marco Conti (IIT-CNR, Italy)

HiPCV: A History Based Learning Model for Predicting Contact Volume in Opportunistic Networks

Mehrab Shahriar (University of Texas at Arlington, USA); Yonghe Liu (The University of Texas at Arlington, USA); Sajal K. Das (Missouri University of Science and Technology, USA)

Mobile Network Resource Optimization under Imperfect Prediction

Nicola Bui and Joerg Widmer (IMDEA Networks Institute, Spain)

Coffee break (10:00 – 10:30am): The 5th floor alcove

SESSION 8A: Resource management and QoS/QoE provisioning (10:30am – 12:00pm)

Chair: Turgay Korkmaz, Room: CGS 505

Analysis of MAC-level Throughput in LTE Systems with Link Rate Adaptation and HARQ Protocols

Raffaele Bruno, Antonino Masaracchia and Andrea Passarella (IIT-CNR, Italy); Stefano Mangione (Università di Palermo, Italy)

Service Differentiation for Improved Cell Capacity in LTE Networks

Mattia Carpin and Andrea Zanella (University of Padova, Italy); Kashif Mahmood (Telenor, Norway); Jawad Rasool (Telenor ASA, Norway); Ole Grøndalen (Telenor, Norway); Olav Norvald Østerbø (Telenor Corporate Development, Norway)

Sharing low-cost wireless infrastructures with telecommunications operators for backhauling 3G services in deprived rural areas

Francisco Javier Simó Reigadas (Universidad Rey Juan Carlos, Spain); Esteban Municio and Eduardo Morgado (Rey Juan Carlos University, Spain); Eva M. Castro and Andrés Martínez (Universidad Rey Juan Carlos, Spain)

SESSION 8B: Topology-Aware Networking (10:30am – 12:00pm)

Chair: Thrasyvoulos Spyropoulos, Room: CGS 527

Navigo: Interest Forwarding by Geolocations in Vehicular Named Data Networking

Giulio Grassi (University Pierre et Marie Curie, France); Davide Pesavento (Université Pierre et Marie Curie, France); Giovanni Pau (UPMC Sorbonne Universités & UCLA, France); Lixia Zhang (University of California at Los Angeles, USA); Serge Fdida (UPMC Sorbonne Universités, France)

Lightweight Clustering of Spatio-Temporal Data in Resource Constrained Mobile Sensing

Ghulam Murtaza (University of New South Wales & Network Research Lab, Australia); Andreas Reinhardt (TU Clausthal, Germany); Salil S Kanhere (The University of New South Wales, Australia); Sanjay Jha (University of NSW, Australia)

Coop-DMAC: A Cooperative Directional MAC Protocol for Wireless Networks

Peng Wang, Marina Petrova and Petri Mähönen (RWTH Aachen University, Germany)

Lunch (12:00am – 1:30pm)

West Campus Dining Hall: 275 Babcock Street, Boston, MA 02215

SESSION 9A: Modeling, Measurements and Performance Analysis (1:30 – 3:00pm)

Chair: Joerg Widmer, Room: CGS 505

Real-Time Internet Traffic Classification using Deep Learning

Vikas Verma (ERICSSON RESEARCH INDIA, India)

Impact of Country-scale Internet Disconnection on Structured and Social P2P Overlays

Ding Ding and Mauro Conti (University of Padua, Italy); Renato Figueiredo (University of Florida, USA)

Smartphone users' mobile network's quality provision and VoLTE intend: Six-months field study

Katarzyna Wac (University of Geneva & Quality of Life group, Switzerland); Gerardo Pinar, Mattia Gustarini and Jerome Marchanoff (University of Geneva, Switzerland)

SESSION 9B: Video Broadcast & Distribution (1:30 – 3:00pm)

Chair: Bo Sheng, Room: CGS 527

Reliable Videos Broadcast with Network Coding and Coordinated Multiple Access Points

Pouya Ostovari (Temple University & Computer and Information Sciences, USA); Jie Wu (Temple University, USA)

U-TV: User-centric Scalable DTV broadcast over Heterogeneous Wireless Networks

Chetna Singhal and Swades De (Indian Institute of Technology Delhi, India); Hari Gupta (Indian Institute of Technology, Delhi, India)

Work-In-Progress Papers

Multi-level Sample Importance Ranking based Progressive Transmission Strategy for Time Series Body Sensor Data

Ming Li (California State University, USA); Yu Cao (The University of Massachusetts Lowell, USA); Balakrishnan Prabhakaran (University of Texas at Dallas, USA)

An Analysis of Opportunistic Forwarding for Correlated Wireless Channels

Anand Seetharam (California State University Monterey Bay, USA); Jim Kurose (University of Massachusetts at Amherst, USA)

Impact of Network Monitoring in IEEE 802.15.4e-based Wireless Sensor Networks

Dario Fanucchi (University Augsburg, Germany); Barbara Staehle (Fraunhofer ESK, Germany); Rudi Knorr (Fraunhofer Institute for Embedded Systems and Communication Technologies (ESK), Germany)

Magemite: Character Inputting System Based on Magnetic Sensor

Yuyang Ke, Yan Xiong, Yiqing Hu, Xudong Gong and Wenchao Huang (University of Science and Technology of China, P.R. China)

Towards an Incentive-aware Cross Layer Simulation Model for Multihop Video Dissemination

Matthias Wichtlhuber (Technische Universität Darmstadt, Germany); Mahdi Mousavi, Hussein Al-Shatri, Anja Klein and David Hausheer (TU Darmstadt, Germany)

An Integrated Simulation Environment for Wireless Sensor Networks

Mariosorio Prist, Andrea Moneriù and Sauro Longhi (Università Politecnica delle Marche, Italy); Federico Giuggioloni (Università di Bologna, Italy); Alessandro Freddi (Università Politecnica delle Marche, Italy)

Autonomous Mobile Agent based Intrusion Detection Framework in Wireless Body Area Networks

Geethapriya Thamarasu and Zhiyuan Ma (University of Washington Bothell, USA)

Demos

Transition-enabled Event Dissemination for Pervasive Mobile Multiplayer Games

Björn Richerzhagen, Marc Schiller, Max Lehn, Denis Lapiner and Ralf Steinmetz (Technische Universität Darmstadt, Germany)

A Demonstration for Content Delivery on Wi-Fi Direct Enabled Devices

Claudio E. Casetti, Carla-Fabiana Chiasserini and Luciano Curto Pelle (Politecnico di Torino, Italy); Carolina Del Valle (Instituto Tecnológico y de Estudios Superiores de Monterrey, Mexico); Yufeng Duan and Paolo Giaccone (Politecnico di Torino, Italy)

WARPsim: A Code-Transparent Network Simulator for WARP Devices

Andreas Schumacher, Martin Serror and Christian Dombrowski (RWTH Aachen University, Germany); James Gross (Royal Institute of Technology (KTH), Sweden)

A Software Tool for Coverage Planning through Different Applications of Optimal Spatial Interpolation

Nikos Perpinias, Alexandros Palaios, Janne Riihijärvi and Petri Mähönen (RWTH Aachen University, Germany)

APP and PHY in Harmony: Demonstrating Scalable Video Streaming Supported by Flexible Physical Layer Control

Denny Stohr and Matthias Schulz (Technische Universität Darmstadt, Germany); Matthias Hollick (Technische Universität Darmstadt & Secure Mobile Networking Lab, Center for Advanced Security Research Darmstadt, Germany); Wolfgang Effelsberg (University of Mannheim, Germany)

Anticipatory Quality Adaptation for Mobile Video Streaming: Reaching Perfect Fluency by Channel Prediction

Stefan Valentin (Huawei Technologies, France); Sami Mekki (France Research Center, Huawei Technologies, France)

WoWMoM 2015 Workshop Program

1. Internet of Things- Smart Objects and Services (IoT-SoS)
 - a. Program
 - b. Committee
 - c. Message from the Chairs

2. Autonomic and Opportunistic Communications (AOC)
 - a. Program
 - b. Committee
 - c. Message from the Chairs

3. Smart Vehicles (SmartVehicles)
 - a. Program
 - b. Committee
 - c. Message from the Chairs

4. Video Everywhere (VidEv)
 - a. Program
 - b. Committee
 - c. Message from the Chairs

5. COgnitive Radio Applications and aLgorithms (CORAL)
 - a. Program
 - b. Committee
 - c. Message from the Chairs

Workshop Program (IoT-SoS 2015)
Room: CGS 421

8:30 – 9:00: Registration

9:00 – 9:05: Opening Remarks (Nilanjan Banerjee and Salvatore Distefano)

9:05 – 10:00:

Keynote Presentation: "Sonar Inside Your Body: Toward Implantable Sensor Networks"

Dr. Tommaso Melodia,

Department of Electrical and Computer Engineering

Northeastern University.

10:00 – 10:30: Coffee Break

10:30 – 12:00: Session 1. IoT Applications. (*Chair: Dr. Nilanjan Banerjee*)

[1] A Rational Mechanism for Coordinating Crowdsourced Resources for Geo-temporal Request Satisfaction, *Christine Basseem and Azer Bestavros (Boston University, USA)*

[2] Experiments with Security and Privacy in IoT Networks, *Mary R Schurgot and David Shinberg (LGS Innovations, USA); Lloyd Greenwald (LGS Innovations / Bell Labs, USA)*

[3] PhyNetLab: Architecture Design of Ultra-Low Power Wireless Sensor Network Testbed, *Aswin Karthik Ramachandran Venkatapathy, Moritz Roidl, Jan Emmerich and Andreas Riesner (TU Dortmund University, Germany); Michael ten Hompel (TU Dortmund, University of Technology & Fraunhofer-Institut Materialflow and Logistics, Germany)*

[4] Cost-efficient universal Approach for Remote Meter Reading Using Web Services and Computer Vision, *Henning Puttnies, Vlado Altmann, Frank Golatowski and Dirk Timmermann (University of Rostock, Germany)*

12:00 – 1:30: Lunch Break

1:30 – 2:45: Session 2. Wireless Systems. (*Chair: Dr. Mary R. Schurgot*)

[1] An IEEE 802.11ah Programmable Modem, *Raul Casas, Vakis Papaparaskeva and Xuehong Mao (Cadence Design Systems, USA); Rishi Kumar and Piyush Kaul (Cadence Design Systems, India); Samer Hijazi (Cadence Design Systems, USA)*

[2] Performance Analysis of IoT-Enabling IEEE 802.11ah Technology and its RAW Mechanism with Non-Cross Slot Boundary Holding Schemes, *Muhammad Qutab-ud-din and Ali Hazmi (Tampere University of Technology, Finland); Behnam Badihi, Anna Larmo and Johan Torsner (Ericsson Research, Finland); Mikko Valkama (Tampere University of Technology, Finland)*

[3] Highly Scalable Fair Contention Resolution Scheme Based on Idle Time, *Byung-Jae Kwak (Electronics and Telecommunications Research Institute, Korea); Junhyuk Kim (KAIST, Korea); Nah-Oak Song (Korea Advanced Institute of Science and Technology (KAIST), Korea); Kyounghe Kim and June-Koo Kevin Rhee (KAIST, Korea); Kapseok Chang (ETRI, Korea); Moon-Sik Lee (Electronics and Telecommunications Research Institute & Stanford University, Korea)*

2:45 – 2:50: Closing Remarks

3:00: End of Workshop

Workshop co-Chairs

Salvatore Distefano, Politecnico di Milano, Italy
Nilanjan Banerjee, University of Maryland, Baltimore County

Steering Committee

Claudio Cicconetti, INTECS
Enzo Mingozzi, University of Pisa
Jaudelice Cavalcante de Oliveira, Drexel University
Xiaohua Jia, City University of Hong Kong

Technical Program Committee

Ana Aguiar, University of Porto
Baris Atakan, Izmir Institute of Technology
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Hongwei Du, Harbin Institute of Technology Shenzhen Graduate School
Andrzej Duda, Grenoble Institute of Technology
Burhan Gulbahar, Ozyegin University
Yuan Guo, Wilson, Ham & Holman
Amin Hassanzadeh, Accenture Technology Labs
Antonio Iera, University Mediterranea of Reggio Calabria
Jussi Kangasharju, University of Helsinki
Joarder Kamruzzaman, Monash University
Olaf Landsiedel, Chalmers University of Technology
Giovanni Merlino, University of Messina
Jukka Nurminen, Aalto University
Andreas Reinhardt TU Clausthal
Christian Renner, University of Lübeck
Ryan Robucci, University of Maryland, Baltimore County
Nirmalya Roy, University of Maryland Baltimore County
Weisong Shi, Wayne State University
Muhammad Younas, Oxford Brookes University

Message from the Chairs

The Internet of Things (IoT) is a novel paradigm which is shaping the evolution of the future Internet. According to the vision underlying the IoT, the next step in increasing the ubiquity of the Internet is to connect inanimate objects. By providing objects with embedded communication capabilities and a common addressing scheme, a highly distributed and ubiquitous network of seamlessly connected heterogeneous devices is formed, which can be fully integrated into the current Internet and mobile networks. Thus, it allows for the development of new intelligent services available anytime, anywhere, by anyone and anything.

When human interaction is absent from the system dynamics, the vision is also referred to as Machine-to-Machine (M2M) communications. Many applications with high social and business impact fall under the IoT/M2M umbrella, including personal healthcare, smart grids, smart city, surveillance, home automation, intelligent transportation, and it is strongly expected that new applications will emerge once the enabling technologies reach a stable state. Presently, two of the most important challenges for the widespread use of IoT/M2M technologies are:

1. Architectures, protocols and algorithms for efficient interconnection of smart objects.
2. The creation of value-added services enabled by the interconnection of smart objects.

The aim of this workshop is to bring together practitioners and researchers from both academia and industry to discuss recent advances in theory, application, and implementation of the IoT/M2M technologies, protocols, algorithms, and services.

Salvatore Distefano, Politecnico di Milano, Italy

Nilanjan Banerjee, University of Maryland, Baltimore County

Workshop Program (AoC 2015)
Room: CGS 423

8:30 – 9:00: Registration

9:00 – 9:05: Opening Remarks

9:05 – 10:00:

Keynote Presentation: "Opportunistic Offloading on the Edge"
Thrasylvoulos Spyropoulos (EURECOM, France)

10:00 – 10:30: Coffee Break

10:30 – 12:00: Session 1: Modeling (*Chair: Dr. Matteo Mordacchini*)

[1] Characterizing Opportunistic Communication with Churn for Crowd-counting, *Ljubica Pajevic (KTH, Royal Institute of Technology, Sweden); Gunnar Karlsson (KTH Royal Institute of Technology, Sweden)*

[2] A Markov chain model for drop ratio on one-packet buffers DTNs, *Victor Ramiro (University of Toulouse & ISAE, France); Dinh Khanh Dang (University of Toulouse - ISAE, France); Gwilherm Baudic (ISAE - Université de Toulouse, France); Tanguy Perennou and Emmanuel Lochin (University of Toulouse - ISAE, France)*

[3] Inferring Content-Centric Traffic for Opportunistic Networking from Geo-location Social Networks, *Pavlos Sermpezis and Thrasylvoulos Spyropoulos (EURECOM, France)*

12:00 – 1:30: Lunch Break

1:30 – 2:20: Session 2 - Opportunistic computation (*Chair: Dr. Matteo Mordacchini*)

[1] Computational Ferrying: Challenges in Deploying a Mobile High Performance Computer, *Alireza Monfared, Mostafa Ammar and Ellen Zegura (Georgia Institute of Technology, USA); David Doria and David Bruno (United States Army Research Laboratory, USA)*

[2] The design of a generalised approach to the programming of systems of systems, *Geoff Coulson, Gordon Blair, Yehia Elkhatib and Andreas U. Mauthe (Lancaster University, United Kingdom)*

2.20 – 3:10: Session 3 - Information processing (*Chair: Dr. Matteo Mordacchini*)

[1] Inter-Session Network Coding in Delay Tolerant Mobile Social Networks: an Empirical Study, *Neetya Shrestha and Lucile Sassatelli (I3S - Université Nice Sophia Antipolis/CNRS UMR 7271, France)*

[2] Socially-Aware Content Retrieval using Random Walks in Disruption Tolerant Networks, *Tuan Le and Haik Kalantarian (University of California, Los Angeles, USA); Mario Gerla (University of California at Los Angeles, USA)*

3:10: End of Workshop

Workshop co-Chairs

Lorenzo Valerio, IIT-CNR, Italy
Matteo Mordacchini, IIT-CNR, Italy

Steering committee

Marco Conti, IIT-CNR, Italy
Silvia Giordano, SUPSI, Switzerland
Ioannis Stavrakakis, University of Athens, Greece

Publicity Chair

Elisabetta Biondi, IIT-CNR, Italy

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Franco Zambonelli, University of Modena and Reggio Emilia, Italy
Gunnar Karlsson, KTH, Sweden
Hongyi Wu, University of Louisiana at Lafayette, USA
Jian-Nong Cao, Hong Kong Polytechnic University, HK
Jörg Ott, Aalto University, Finland
Katia Obraczka, University of California Santa Cruz, USA
Konstantinos Oikonomou, Ionian University, Greece
Kyunghan Lee, North Carolina State University, USA
Michela Papandrea, SUSPSI, Switzerland
Melek Önen, EURECOM, France
Nils Aschenbruck, University of Osnabrück, Germany
Roger Whitaker, Cardiff University, UK
Sebastian Zander, Swinbourne University of Technology, Australia
Serge Fdida, UPMC Sorbonne Universités, France
Thrasyvoulos Spyropoulos, EURECOM, France
Tristan Henderson, University of St Andrews, United Kingdom
Valerio Arnaboldi, IIT-CNR, Italy

Valtteri Niemi, University of Turku, Finland
Vania Conan, Thales Communication and Security, France

Message from the Chairs

A warm welcome to the ninth edition of the Workshop on Autonomic and Opportunistic Communications, AOC 2015.

As in the past editions, AOC aims at serving as a meeting point and a forum for exchanging ideas, discussing solutions, and sharing experiences among researchers, professionals, and application developers, both from industry and academia.

This year, we received fifteen submissions in response to the call for papers. With the help of the members of the Technical Program Committee, we selected seven papers to be presented in the workshop technical sessions. Besides the paper presentation sessions, the workshop program complemented by a keynote lecture.

This event would not have been possible without the enthusiastic and hard work of several colleagues. First of all, we would like to thank the TPC members, for their invaluable help in reviewing the papers submitted to AOC 2015, and the steering committee, for their continuous support. We wish to thank the publicity chair, Elisabetta Biondi (IIT-CNR, Italy), for greatly advertising the conference. We also wish to thank all the authors who submitted their papers to AOC 2015.

We gratefully acknowledge the support of the FP7 project MOTO. Finally, we wish to thank all authors for their contributions.

Lorenzo Valerio, IIT-CNR, Italy
Matteo Mordacchini, IIT-CNR, Italy

Workshop Program (SmartVehicles 2015)
Room: CGS 521

8:30 – 8:50: Registration

8:50 – 9:00: Opening Remarks

9:00 – 10:00:

Keynote Presentation: "Beyond Position: Scaling Challenges in Future Vehicular Networks"

Marco Gruteser, Rutgers University, USA

10:00 – 10:30: Coffee Break

10:30 – 11:45: Session 1: Communications & Data Dissemination (*Chair: Dr. Jérôme Härri*)

[1] Performance Evaluation of a Mixed Vehicular Network with CAM-DCC and LIMERIC Vehicles, *Bin Cheng and Ali Rostami (Rutgers University, WINLAB, USA); Marco Gruteser (WINLAB / Rutgers University, USA); John Kenney and Gaurav Bansal (Toyota InfoTechnology Center, USA); Katrin Sjoberg (Volvo, Sweden)*

[2] Taxi-Cab Cloud Architecture to Offload Data Traffic from Cellular Networks, *Kenneth U Ezirim (Graduate Center, City University of New York, USA); Shweta Jain (York College CUNY & Graduate Center of CUNY, USA)*

[3] Throughput Analysis of IEEE 802.11p-based Multi-Hop V2I Communications, *Ribal Atallah (Concordia University, Canada); Maurice J. Khabbaz (Notre-Dame University, Lebanon); Chadi Assi (Concordia University, Canada)*

12:00 – 1:30: Lunch Break

1:30 – 2:20: Session 2 - Traffic Estimation (*Chair: Dr. Raffaele Bruno*)

[1] Opportunistic Calibration of Smartphone Orientation in a Vehicle, *Bahador Khaleghi (Intelligent Mechatronic Systems (IMS), Canada); Akrem Saad El-ghazal and Allaa R. Hilal (University of Waterloo, Canada); Jason Toonstra and Ben Miners (Intelligent Mechatronic Systems (IMS), Canada); Otman Basir (University of Waterloo, Canada)*

[2] V2X Data Dissemination Delay for Vehicular Traffic Density Estimations, *Sosina Gashaw and Jérôme Härri (EURECOM, France)*

2.20 – 3:10: Session 3 – ITS Applications (*Chair: Dr. Salil Kanhere*)

[1] Min-Max Fair Car-Parking Slot Assignment, *Elisabetta Alfonsetti (KTH, USA); Pradeep Chathuranga Weeraddana (KTH, Stockholm, Sweden); Carlo Fischione (KTH, Sweden)*

[2] A Fail Safe Broadcast Protocol for Collaborative Intelligent Vehicles, *Yitian Gu, Shou-pon Lin and Nick Maxemchuk (Columbia University, USA)*

3:10: End of Workshop

Workshop co-Chairs

Raffaele Bruno, IIT-CNR, Italy

Salil Kanhere, UNSW, Australia

John B. Kenney, Toyota InfoTechnology Center, USA

Publicity Chair

Valerio Arnaboldi, IIT-CNR, Italy

Technical Program Committee

Jose M. Barcelo-Ordinas, Universitat Politècnica de Catalunya, Spain

Gaurav Bansal, Toyota InfoTechnology Center, USA

Azzedine Boukerche, University of Ottawa, Canada

Maria Calderon, Universidad Carlos III de Madrid, Spain

David Eckhoff, University of Erlangen, Germany

Marco Di Felice, University of Bologna, Italy

Marco Fiore, IEIIT-CNR, Italy

Emma Fitzgerald, Lund University, Sweden

Raphael Frank, University of Luxembourg, Luxembourg

Javier Gozalvez, University Miguel Hernández, Spain

Jérôme Harri, EURECOM, France

Hannes Hartenstein, Karlsruhe Institute of Technology, Germany

Geert Heijenk, University of Twente, Netherlands

Susumu Ishihara, Shizuoka University, Japan

Daniel Jiang, Mercedes-Benz R&D North America, USA

Frank Kargl, Ulm University, Germany

Kun-chan Lan, National Cheng Kung University, Taiwan

Evangelos Mitsakis, Centre for Research and Technology Hellas, Greece

Radovan Miucic, Honda R&D, USA

Panagiotis Papadimitratos, KTH, Sweden

Yves Roudier, EURECOM, France

Robert Schmidt, Denso Automotive Dtl. GmbH, Germany

Katrin Sjöberg, Volvo, Sweden

Erik Ström, Chalmers University of Technology, Sweden

Alexey Vinel, Halmstad University, Sweden

Alberto Zanella, IEIIT-CNR, Italy

Message from the Chairs

It is indeed our great pleasure to welcome you to the 2th IEEE Workshop on Smart Vehicles: Connectivity Technologies and ITS Applications (SmartVehicles'15), which is held in conjunction with the 12th IEEE International Symposium on a World of Wireless Mobile and Multimedia Networks (WoWMoM'15).

The development of smart vehicles and more sustainable transportation systems has emerged as one of the most fundamental societal challenges of the next decade. More precisely, it is of paramount importance to develop innovative cooperative systems enabling users, vehicles and road infrastructures to exchange information in real time and in an autonomous manner, pervasive sensing systems to monitor the status of vehicles and the surroundings, big data analytics for the processing of sheer amount of data coming from the transportation infrastructure, middleware platforms for information management and sharing, and appropriate interaction interfaces between drivers and vehicles. The aim of this workshop is to bring together researchers, professionals and applications developer to presents recent developments, current research challenges and future directions in the use of networking, communications, data management, and applications to realize vehicular mobility systems that are more connected, sustainable and safe.

This year we received 14 submissions, and the members of the Technical Program Committee, identified 7 high quality papers for presentation in the workshop technical sessions. Finally, the workshop program includes an exciting and thought-provoking Keynote talk given by Marco Gruteser, an Associate Professor at Rutgers University and a member of WINLAB, who is highly recognized for his work on connected vehicles.

The organization of this workshop has been possible due to the hard work and dedication of many colleagues. Special thanks are due to the members of the Technical Program Committee and to all external referees for their invaluable contributions in completing the review process. We are also very grateful to all the authors for submitting their fine work to our workshop.

In the end, we truly hope that you will find the workshop program interesting and stimulating.

Raffaele Bruno, IIT-CNR, Italy

Salil Kanhere, UNSW, Australia

John B. Kenney, Toyota InfoTechnology Center, USA

Workshop Program (VidEv 2015)
Room: CGS 523

8:30 – 9:00: Registration

9:00 – 10:00:

Keynote Presentation: "Video everywhere will require dense networking"
Thomas DC Little (Boston University, USA)

10:00 – 10:30: Coffee Break

10:30 – 12:00: Session 1 (*Chair: Yousof Naderi*)

[1] An Adaptation Mechanism for Robust OTT Video Transmission, *Fakher Oueslati and Jean-Charles Grégoire (University of Quebec, INRS)*

[2] Multi-Source Mobile Video Streaming with Proactive Caching and D2D Communication, *Vasilios A. Siris and Dimitrios Dimopoulos (Athens University of Economics and Business)*

[3] LiTMaS: Live Road Traffic Maps for Smartphones, *S. M. Iftekhharul Alam, Sonia Fahmy and Yung-Hsiang Lu (Purdue University)*

12:00 – 1:30: Lunch Break

1:30 – 2:30: Session 2 (*Chair: Yousof Naderi*)

[1] Streaming 4K/UHD Video to the Rest of Us: Can Bandwidth Sharing Help?, *Isabel Montes, Jaymari Chua, Joseph Michelangelo Cruz, Augusto Remillano, II, Joseph Darwin Young, Roel Ocampo and Cedric Angelo Festin (University of the Philippines)*

[2] HEVC Decoder Optimization in Low Power Configurable Architecture for Wireless Devices, *Vasileios Magoulianitis and Ioannis Katsavounidis (University of Thessaly)*

2:30: End of Workshop

Workshop co-Chairs

Terence D. Todd, McMaster University, Canada

Michael Paterakis, Technical University of Crete, Greece

Polychronis Koutsakis, Technical University of Crete, Greece

Publicity co-Chairs

Aggelos Lazaris, University of Southern California, USA

Aikaterini Vlachaki, University of Alberta, Canada

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Alexios Balatsoukas-Stimming, EPFL, Switzerland

Technical Program Committee

Kuan-Ta Chen, Academia Sinica, Taiwan
Francesco De Natale, University of Trento, Italy
Magda El Zarki, University of California, Irvine, USA
Raouf Hamzaoui, De Montfort University, UK
Ekram Hossain, University of Manitoba, Canada
Alexandros Kaloxylos, University of Peloponnese, Greece
Dilip Krishnaswamy, IBM Research, India
C.-C. Jay Kuo, University of Southern California, USA
Ioannis Lambadaris, Carleton University, Canada
Victor Leung, University of British Columbia, Canada
Manoranjan Paul, Charles Sturt University, Australia
Andrew Perkis, The Norwegian University of Science and Technology, Norway
George C. Polyzos, Athens University of Economics and Business, Greece
Martin Reisslein, Arizona State University, USA
Amir Sayegh, TELUS, Canada
Mohammed Smadi, Blackberry Ltd, Canada
Christian Timmerer, Alpen-Adria-Universität Klagenfurt, Austria
Shuicheng Yan, National University of Singapore, Singapore
Sherali Zeadally, University of Kentucky, USA

Message from the Chairs

It is our sincere pleasure to welcome you to this 4th edition of the IEEE Workshop on Video Everywhere, taking place on June 14 in Boston, as part of the IEEE International Symposium on a World of Wireless, Mobile and Multimedia Networks (WoWMoM 2015).

According to recent estimations, mobile video traffic is expected to be two-thirds of the global mobile traffic by 2018. This creates a number of significant challenges that need to be addressed and overcome before the full potential of mobile video networking is reached.

This year, as in the past three years, we have again been fortunate to receive very high-quality submissions to our workshop. After a thorough reviewing process, VidEv 2015 includes five papers, which point out problems and propose important solutions for some of the aforementioned challenges. We believe and hope that the workshop will continue to bring together researchers from industry and academia in order to discuss their views on the future of mobile video.

We are also proud that once again this year we have an excellent keynote speaker who will start the workshop program: Prof. Thomas Little, from Boston University, will discuss the need for dense networking in order to achieve the goal of “Video Everywhere”.

We would like to sincerely thank all the TPC members for their invaluable help with the evaluation of the submitted papers. We extend our special thanks to Prof. Kaushik Chowdhury, who is the workshops’ chair for WoWMoM 2015 and was extremely helpful throughout our organizational activities.

Finally, we would like to thank the authors of all the submitted papers. We hope that all the workshop attendees will benefit from such a strong program through interactions with the other participants.

We look forward to meeting all the participants of VidEv and WoWMoM in Boston, and we hope that VidEv will continue for years to come.

Terence D. Todd, McMaster University, Canada
Michael Paterakis, Technical University of Crete, Greece
Polychronis Koutsakis, Technical University of Crete, Greece

Workshop Program (CORAL 2015)
Room: CGS 527

8:30 – 9:00: Registration

9:00 – 9:15: Introduction from the Workshop Chairs

9:15 – 10:00:

Keynote Presentation

Alexander M. Wyglinski (Worcester Polytechnic Institute, USA)

10:00 – 10:30: Coffee Break

10:30 – 12:00: Session 1 - Sensing I (*Chair: Dr. Yue (Frank) Gao*)

[1] An Experimental Study on the Statistical Properties of Radio Environment Noise
Alexandros Palaios, Hauke Dose, Janne Riihijärvi and Petri Mähönen (RWTH Aachen University, Germany)

[2] A Multi-Channel Spectrum Sensing Scheme with Filter Bank Realization for LTE Signals
Trung Thanh Nguyen (Faculty of Engineering, The University of Duisburg-Essen, Germany); Hanwen Cao (Huawei European Research Center, Germany); Theo Kreul (University of Duisburg-Essen, Germany); Thomas Kaiser (Universität Duisburg-Essen, Germany)

[3] Spectrum Sensing based on Maximum Eigenvalue Approximation in Cognitive Radio Networks
Adeel Ahmed, Yim-Fun Hu, Jim M. Noras and Prashant Pillai (University of Bradford, United Kingdom)

12:00 – 1:30: Lunch Break

1:30 – 3:00: Session 2 – Sensing II (*Chair: Dr. Antonio G. Marques*)

[1] Sub-Nyquist Rate Wideband Spectrum Sensing over TV white space for M2M Communications
Yuan Ma, Yue Gao and Clive Parini (Queen Mary University of London, United Kingdom)

[2] A Weighted Diversity Combining Technique for Cyclostationarity Detection Based Spectrum Sensing in Cognitive Radio Networks
Daiki Cho and Shusuke Narieda (National Institute of Technology, Akashi College, Japan)

[3] Unified Approach for Performance Analysis of Cognitive Radio Spectrum Sensing over Correlated Multipath Fading Channels
Salam Al-Juboori and Xavier N Fernando (Ryerson University, Canada)

3:00 – 3:30: Coffee Break

3:30 – 5:30: Session 3 – Spectrum Access (Chair: Dr. Luca Bedogni)

[1] Rendezvous in cognitive radio ad-hoc networks with asymmetric channel view
Akbar Hossain and Nurul I Sarkar (Auckland University of Technology, New Zealand)

[2] Fusion Based Spectrum Decision Framework for Cognitive Radio Users
Ahmad Naeem Akhtar (National University of Science and Technology (NUST), College of Telecommunication Engineering, Islamabad, Pakistan)

[3] Feasibility Study on Application of Impulse-UWB for Control Channel in Cognitive Radio Networks
Michael Doering, Anatolij Zubow and Adam Wolisz (Technische Universität Berlin, Germany)

[4] Underlay Multi-Hop Cognitive Networks with Orthogonal Access
Antonio G. Marques (Universidad Rey Juan Carlos, Spain); Sergio Molinero (King Juan Carlos University, Spain); Georgios B. Giannakis (University of Minnesota, USA)

5:30: End of Workshop

Workshop co-Chairs

Marco Di Felice, University of Bologna, Italy
Yue Frank Gao, Queen Mary University London, UK
Luca Bedogni, University of Bologna, Italy

Technical Program Committee

Ozgur Akan, Koc University
Onur Altintas, Toyota InfoTechnology Center
Edward Au, Marvell Semiconductor, Inc.
Gaurav Bansal, Toyota InfoTechnology Center
Berk Canberk, Istanbul Technical University
Dave Cavalcanti, Philips Research
Swades De, Indian Institute of Technology Delhi
Panagiotis Demestichas, University of Piraeus
Kelvin Dias, Federal University of Pernambuco
Zhiyong Feng, Beijing University of Posts and Telecommunications
Ali J. Ghandour, American University of Beirut
Dirk Grunwald, University of Colorado
Yezekael Hayel, LIA, University of Avignon
Ekram Hossain, University of Manitoba
Aravind Kailas, Algorithms, Models, and Systems Solutions, LLC
Yuan Luo, The Chinese University of Hong Kong
Petri Mähönen, RWTH Aachen University
Ivana Maric, Ericsson Research
Tommaso Melodia, Northeastern University
Michele Nogueira, Federal University of Paraná

Sara Pizzi, University "Mediterranea" of Reggio Calabria
Venkatesha Prasad, Delft University of Technology
Vinay Ribeiro, Indian Institute of Technology Delhi
Peyman Setoodeh, McMaster University
Violet Syrotiuk, Arizona State University
Angelo Trotta, University of Bologna
Anna Vizziello, University of Pavia
Rong Yu, Guangdong University of Technology
Wei Zhang, The University of New South Wales
Xing Zhang, Beijing University of Posts and Telecommunications

Message from the Chairs

It is our great pleasure to welcome you to the Third IEEE International Workshop on Emerging COgnitive Radio Applications and aLgorithms (CORAL 2015), held in Boston, MA, on June 14, 2015, in conjunction with the IEEE WoWMoM 2015 Conference.

We have a great technical program lined up on this fast emerging and potentially disruptive field of Cognitive Radio, bringing together researchers, practitioners, and students from both industry and academia. We are excited to have a forum facilitating the cross-pollination of ideas from both theoretical and practical perspective, and look forward to have your participation and feedback.

Confirming the success of the first two editions held in 2012 and 2013, this year's CORAL Workshop has attracted 22 submissions from authors of 12 countries, which testify the worldwide domain of interest of CORAL. A highly selective review process has allowed us to include 10 accepted papers, realizing a very high technical quality of the workshop program and the final acceptance rate at 45%. The program includes three technical paper presentation sessions, and a keynote speech given by Prof. Alexander M. Wyglinski. In addition, the workshop will award the best student's paper and the best paper, kindly sponsored by IEEE TC on Simulation (TCSIM).

We believe that the keynote and the workshop program will be an excellent opportunity to exchange ideas, and these opportunities will be provided as well in additional interaction forums for the attendees. We certainly hope that new directions will emerge from this year's workshop discussions, that will continue to define and re-shape the scope of the CORAL workshop moving forward to the future editions.

The organization of CORAL is a team effort. We really want to thank all the people who helped us in this organization, including all the WoWMoM Chairs and specifically the WoWMoM Workshops Chairs and the WoWMoM publicity, publication, local arrangements and registration chairs. We thank Prof. Alexander M. Wyglinski for having accepted to keep the keynote talk. Last but not least, we really want to thank all the colleagues who accepted to join the CORAL Technical Program Committee and the reviewers, for their excellent work and dedication, and all the authors who submitted their papers.



We look forward to welcoming you to

WoWMoM 2015

14-17 June, Boston, USA

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