2019

COMMUNICATIONS SYSTEMS INTEGRATION AND MODELING TECHNICAL COMMITTEE

CSIM-TC

NEWSLETTER

November 2019

Burak Kantarci (Chair)
Nizar Zorba (Vice-chair)
Angelos Antonopoulos (Secretary)

Table of Contents

1. About CSIM

The Communications Systems Integration and Modeling technical committee focuses its activities on simulation, analytical tools and measurement of communications links and networks. CSIM has been sponsoring activities on traffic modeling, performance and integration of next generation wireless and wireline networks.

CSIM sponsors its traditional bi-annual workshop CAMAD, as well as special issues in the IEEE Communications Magazine and in the IEEE Journal on Selected Areas in Communications. CSIM is very active in ICC and in GLOBECOM and was one of the co-founders of MILCOM. CSIM has its roots on the Communications Systems Engineering technical committee and its past chairs are:

2018- now – Burak Kantarci

2015-2018 – Christos Verikoukis

2013-2015 – Stefano Giordano

2011-2013 – Harry Skianis

2009-2011 – Fabrizio Granelli

2007-2009 – Pascal Lorenz

2005-2007 – Nelson L.S. da Fonseca

2002-2005 – Mike Devetsikiotis

2000-2002 – Mohammad Ilyas

1999-2000 – Hussein Mouftah

1996-1999 – Guy Omydar

1994-1996 – Bill Tranter

For more information: http://csim.committees.comsoc.org/

2. Awards/Distinctions for CSIM members

Editorial appointments

- Dr. Mubashir Husain Rehmani, CSIM member and Assistant Lecturer at the Department of Computer Science of Cork Institute of Technology (CIT) has been appointed as Column Editor for Book Reviews in IEEE Communications Magazine.

Link: https://www.comsoc.org/publications/magazines/ieee-communications-magazine/editorial-board

- Dr. Angelos Antonopoulos (CSIM secretary) was appointed as Associate Editor for the Elsevier Computer Networks Journal. Computer Networks is a highly reputable journal established as one of the first publication venues in the field in the late 1980s as "Computer Networks and ISDN Systems". In 1998, Computer Networks published the original paper by Sergey Brin and Lawrence Page "The Anatomy of a Large-Scale Hypertextual Search Engine" that introduced Google, "a prototype of a large-scale search engine which makes heavy use of the structure present in hypertext." In the last year, Computer Networks has reached an impact factor of 3.1, and according to Google Scholar metrics, it is now the 17th most impactful publication venue (including all conferences and journals) in the area of communication and networking, above venues like ACM Mobicom and IEEE/ACM Transactions on Networking.

Link: https://www.journals.elsevier.com/computer-networks/editorial-board

Reviewer Recognition

Dr. Angelos Antonopoulos (CSIM secretary) and Dr. Mubashir Husain Rehmani (CSIM member) have been received the Top Peer Reviewer 2019 Award by Publons in Computer Science. This award is given to the person who made his place in 1% of reviewers in Computer Science on Publons global reviewer database, determined by the number of peer reviews performed during the 2018-19 award year.

Awards and Distinctions

- Dr. Prodromos-Vasileios Mekikis (CSIM member) was awarded by Technical University of Catalonia with the Special Doctoral Award for his thesis with title: "Design and Stochastic Analysis of Emerging Large-Scale Wireless-Powered Sensor Networks". The thesis was under the supervision of Prof. Luis Alonso and Dr. Christos Verikoukis.

Link: https://doctorat.upc.edu/en/thesis/special-doctoral-award/2019-call-folder/2019-call?set_language=enhttps://doctorat.upc.edu/en/thesis/special-doctoral-award/2019-call-folder/2019-call?set_language=en


UNIVERSITAT POLITÈCNICA DE CATALUNYA BARCELONATECH

La Universitat Politècnica de Catalunya ha acordat atorgar a
The Universitat Politècnica de Catalunya has decided to grant

Prodromos Vasileios Mekikis

el Premi Extraordinari de Doctorat a la tesi presentada el curs 2016-2017, dins l'àmbit Enginyeria de les TIC.
the Special Doctoral Award for the thesis submitted in the 2016-2017 academic year, in the field ICT Engineering.

Acord de la Comissió Permanent de l'Escola de Doctorat de 26 de setembre de 2019.
Agreement of the Doctoral School's Standing Committee on 26 September 2019.

El rector / *The UPC rector*

- Dr. Mubashir Husain Rehmani (CSIM member) has received the best survey paper award from the Journal of Network and Computer Applications (JNCA) for the paper:

Applications of wireless sensor networks for urban areas: A survey


ELSEVIER

Journal of Network and Computer Applications

2018 Best Survey Paper

Awarded to:

Bushra Rashid, Mubashir Husain Rehmani

For the paper entitled :

Applications of wireless sensor networks for urban areas: A survey

Volume 60, January 2016, Pages 192-219

Mohammed Atiquzzaman

Prof. Mohammed Atiquzzaman
Editor-in-Chief

Telli Faez

Dr. Telli Faez
Publisher

In addition, his paper **M. S. Ali, M. Vecchio, M. Pincheira, K. Dolui, F. Antonelli and M. H. Rehmani, "Applications of Blockchains in the Internet of Things: A Comprehensive Survey," in *IEEE Communications Surveys & Tutorials*, vol. 21, no. 2, pp. 1676-1717, Secondquarter 2019** has been placed in Most Popular Articles of IEEE Xplore for the month of July 2019 and in Popular Documents of IEEE COMST for August 2019.

Link: https://ieeexplore.ieee.org/document/8580364

- Dr. Ashraf Matrawy (CSIM member) won the Best Poster Award at IEEE WiSEE conference for the paper A Convolutional Neural Network Based Solution for Pipeline Leak Detection, co-authored by Olakunle Ibitoye, Omair Shafiq and Ashraf Matrawy

Link: https://attend.ieee.org/wisee-2019/best-paper-awards/

- The research group of Prof. Pescapè at the University of Napoli has won the best paper award at the 4th IEEE International Conference on Computing, Communications and Security (ICCCS 2019) with the paper:

"MIRAGE: Mobile-app Traffic Capture and Ground-truth Creation" by Giuseppe Aceto, Domenico Ciuonzo, Antonio Montieri, Valerio Persico, Antonio Pescapè.

3. Past Events

CSIM's Flagship Event: IEEE CAMAD 2019

The IEEE International Workshop on Computer Aided Modeling and Design of Communication Links and Networks (CAMAD) 2019 took place on the 11-13 September 2019 in Limassol (Cyprus), and it was a very successful event, carried out over 3 days and bringing together researchers from several disciplines.

IEEE CAMAD 2019 was held as a stand-alone event in Limassol, Cyprus. This year IEEE CAMAD focused on Communication and Experimentation aspects of 5G Networking and beyond. IEEE CAMAD hosted 3 Workshops and 10 Special Sessions, bringing together a diverse group of scientists, engineers, manufacturers and providers to exchange and share their experiences and new ideas focusing on research and innovation results in the 5G domain. In addition to contributed papers, the conference also included a demo session, 3 keynote speeches and 2 tutorials.

The interesting ***keynotes*** were
Keynote 1: The Growing Field of Forecasting: Achievements and Limitations, by Prof. Spyros Makridakis (University of Nicosia)
Keynote 2: An overview of standardization efforts of a Blockchain based OSS-BSS Platform, by Dr. Shahar Steiff (PCCW Global)
Keynote 3: Performance Control, Reliability and Security in Wireless Sensor Networks and the Internet of Things, by Dr. Vasos Vassiliou (University of Cyprus)

The attractive ***tutorials*** were
Tutorial 1: Enabling Technologies for Crowd Sensing and Management, by Prof. Hossam Hassanein (Queen's University) and Prof. Nizar Zorba (Qatar University)
Tutorial 2: Ambient Assisted Living and Environments - The VINCI innovation, by Dr. Piotr Krawiec (ICI)

IEEE CAMAD accepted 52 original papers this year out of a total of 107 papers submitted. All accepted papers were presented at the conference and all of them are included in the conference proceedings and IEEE digital library. The papers discussed on the following topics

- Wireless PHY layers for 5G: design, analysis, and optimization
- Wireless MAC protocols for 5G: design, analysis, and optimization
- 5G IoT networks, Platforms, Integration and Services
- 5G Multitenant Networks and End-to-End Network slicing

- Adaptive content distribution in on-demand services
- Backhaul/fronthaul for multi-tier ultra-dense heterogeneous small cell networks
- Cognitive and Cooperative Communications
- Commercial and Societal Impact of Networks, Data, and Adaptive Services
- Context and location-aware wireless services and applications
- Cross-layer design for massive MIMO and multiuser MIMO networks
- Circular economy for ICT
- Mobile social networks
- Security, Privacy and Trust by Design
- Mobility, location, and handoff management
- Multimedia QoS, and traffic management
- Multiple access in machine-to-machine communication
- Network estimation techniques
- Optical Communications & Fiber Optics for 5G
- Quality of Experience: Framework, Evaluation and Challenges
- Smart Grids: Communication, Modeling and Design
- Testbed, experiments and prototype implementations of systems & services for 5G
- Ultra low-latency and ultra high-reliability
- Validation of Simulation Models with Measurements
- Wireless body area networks and e-health services
- Wireless broadcast, multicast and streaming

Some pictures from the event

CAMAD general chair, Prof. Constandinos Mavromoustakis

Attendence to one of the sessions

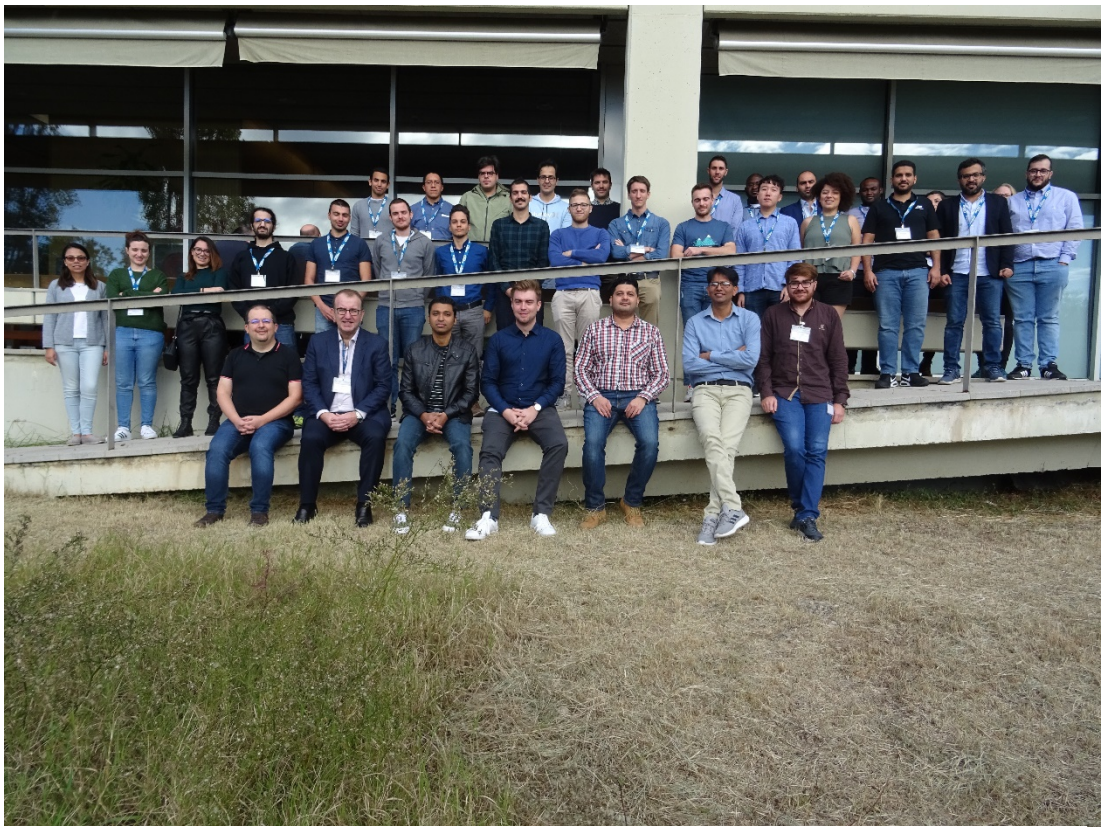
International Workshop on IoT Applications and Industry 4.0 (IoTI4 2019)

Dr. Thomas Lagkas (International Hellenic University), CSIM member, co-chaired the International Workshop on IoT Applications and Industry 4.0 (IoTI4 2019) that was organized on May 30th-31st at the beautiful island of Santorini, Greece, co-located with IEEE DCOSS 2019. Eighteen very interesting presentations took place and selected invitations were sent for a special issue in the journal Information of MDPI.

The next edition of IoTI4 will take place in **May 2020 in Los Angeles CA, co-located with DCOSS 2020.**

IEEE ComSoc Autumn School on Network Slicing and Data-Driven Communication

IEEE ComSoc Autumn School is a part of the IEEE ComSoc School Series that was designed to help kick-start the careers of new professionals, Ph.D. candidates, and researchers in wireless communications. IEEE ComSoc School Series Programs consists of lectures by world leading professors, industry leaders and executives and feature a highly interactive classroom environment with an intense focus on learning the cutting-edge trends in communications technology, as well as laboratory tours, demonstrations, hands-on workshops and networking activities.



	Tuesday, 5 November	Wednesday, 6 November	Thursday, 7 November	Friday, 8 November
9.30-11.00	*Algorithmic Nuggets in Network Slicing and Resource Allocation* Prof. Stefan Schmit, University of Vienna, Austria	*The Road to 5G: An Overview of Challenges and Emerging AI Technologies in Telecommunications Industry* Dr. Saman Feghhi, Ericsson, Ireland	*Software Defined Networks and Network Function Virtualization: Theory and Practice* Prof. Fabrizio Granelli, University of Trento, Italy	*Wireless solutions for industry verticals* Dr. Diomidis Michalopoulos, Nokia Bell Labs, Germany
11.00-11.30	Coffee Break	Coffee Break	Coffee Break	Coffee Break
11.30-13.00	*Algorithmic Nuggets in Network Slicing and Resource Allocation* Prof. Stefan Schmit, University of Vienna, Austria	*Leveraging Machine Learning in Telecommunication Networks* Dr. Saman Feghhi, Ericsson, Ireland	*Software Defined Networks and Network Function Virtualization: Theory and Practice* Prof. Fabrizio Granelli, University of Trento, Italy	*Network slicing in theory and practice: Takeaways from the 5G-MoNArch project* Dr. Diomidis Michalopoulos, Nokia Bell Labs, Germany
13.00-14.00	Lunch Break	Lunch Break	Lunch Break	Lunch Break
14.00-15.30	Lab Visit	*Evolving management in network operators: SDN and telemetry* Dr. Victor Lopez, Telefonica, Spain	*An Intelligent End-to-end Network Slicing Orchestration for Verticals Industries* Dr. Vincenzo Sciancalepore, NEC, Germany	*Network Slicing in the Era of 5G and beyond* Prof. Adlen Ksentini, EURECOM, France
15.30-16.00	Coffee Break	Coffee Break	Coffee Break	Coffee Break
16.00-17.30	Lab Visit	*Applying Artificial Intelligence in Network Operators* Dr. Victor Lopez, Telefonica, Spain	*An Intelligent End-to-end Network Slicing Orchestration for Verticals Industries* Dr. Vincenzo Sciancalepore, NEC, Germany	*Network Slicing in the Era of 5G and beyond* Prof. Adlen Ksentini, EURECOM, France

Organizing Committee

Special thanks to the 2019 IEEE ComSoc Autumn School Organizers including members of the IEEE ComSoc Educational Services Board, Fabrizio Granelli, Chair, and the following organizers at CTTC:

Organizer: Christos Verikoukis, PhD
Local Organizing Committee: Adriano Pastore, PhD and Josep Fabrega, PhD
Local Arrangement: Ms. Montserrat Prat

Invited Speakers:

Dr. Saman Feghhi, Ericsson, Ireland
Prof. Fabrizio Granelli, University of Trento, Italy
Prof. Adlen Ksentini, EURECOM, France
Dr. Víctor López, Telefonica, Spain
Dr. Diomidis Michalopoulos, NOKIA Bell Labs, Germany
Prof. Stefan Schmit, University of Vienna, Austria
Dr. Vincenzo Sciancalepore, NEC, Germany

Technical Sponsors:

4. Ongoing Research Projects/Grants

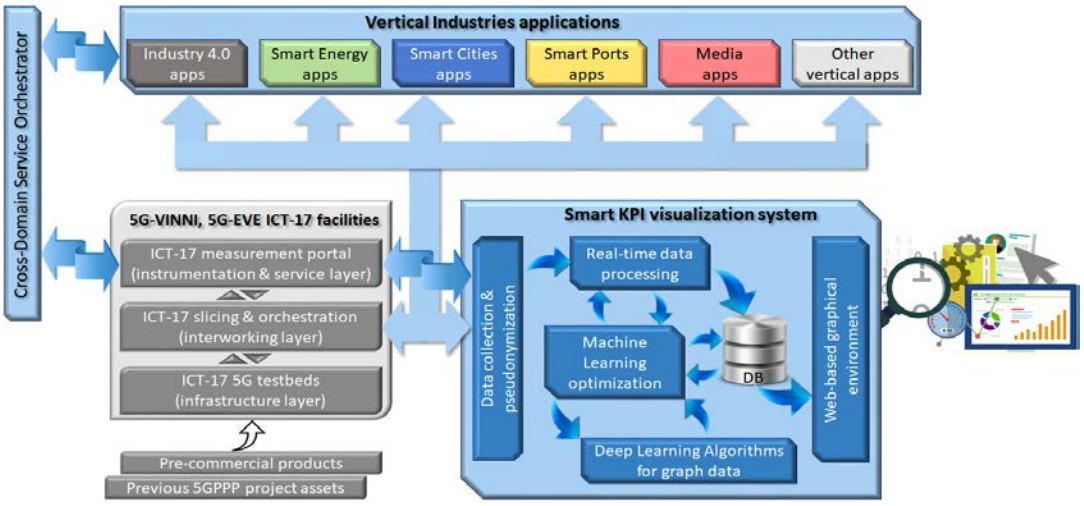
5G-SOLUTIONS: 5G Solutions for European Citizens

by A. Antonopoulos (CTTC, Spain), C. Verikoukis (CTTC, Spain), A. Di Giglio (TIM, Italy), H. Lonsethagen (Telenor, Norway), L. Christofi (EBOS, Cyprus)

Web: https://www.5gsolutionsproject.eu
Twitter: @5g-solutions_h2020
LinkedIn: 5G-SOLUTIONS Project

5G-SOLUTIONS is one of the ICT-19's flagship 5G-PPP projects supporting EC's 5G policy by implementing the last phase of the 5G cPPP roadmap. It started on 1st June 2019 and aims to prove and validate that the 5G capabilities provide prominent industry verticals with ubiquitous access to a wide range of forward-looking services with orders of magnitude of improvement over 4G, thus bringing the 5G vision closer to realisation. In particular, 5G-SOLUTIONS will provide:

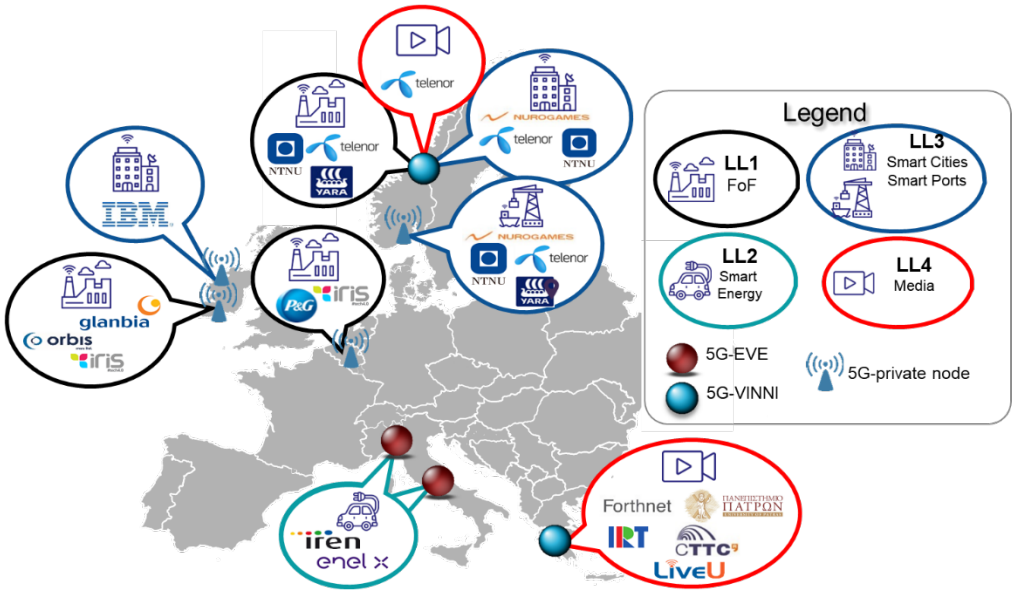
- Validation of >140 KPIs for 20 innovative use cases that require 5G performance capabilities and that are expected to have a high future commercialization potential.
- Technological enablers for facilitating the execution of the field trials in an automated way:
  - a unified cross-domain service orchestrator enabling multidomain slicing and 5G service lifecycle automation
  - an innovative smart KPI visualization system for facilitating the near real-time analysis, presentation, benchmarking and performance validation of reference 5G network KPIs against predefined target values
  - intent-based APIs for stimulating innovation and fostering the development, portability and provisioning of new innovative applications by SMEs
- Significant contribution to 5G standardization to a number of SDOs and open fora, such as 3GPP, ETSI, ITU-T, IETF, ONF, NGMN, TMForum, EBU, etc.



5G-SOLUTIONS Architecture

The step towards the 5G vision will be achieved through conducting advanced field trials of 20 innovative use cases, over 5G-EVE and 5G-VINNI facilities in Italy, Norway, Greece, Ireland and Belgium directly involving end-users across five significant industry vertical domains: Factories of the Future (LL1), Smart Energy (LL2), Smart Cities & Smart Ports (LL3) and Media & Entertainment (LL4). A 5th Living Lab will also be established to execute in a combined and concurrent manner multiple slices for those use cases from LL1-LL4 whose KPI requirements fall under the enhanced Mobile BroadBand (eMBB), multi-Machine Type Communications (mMTC) and Ultra Reliable Low Latency Communications (URLLC) service classes.

The purpose of the Living Labs is to validate the capabilities of both the 5G technology and the use cases of the vertical industries, subsequently enabling their commercial exploitation. The technological and business validation activities and their KPIs will be validated over three 3GPP releases.



5G-SOLUTIONS field trials

5. Upcoming Events

3rd Workshop on Intelligent Transportation and Connected Vehicles Technologies (ITCVT 2020)

Conference website: https://noms2020.ieee-noms.org/
Workshop website: https://emergingtechnet.org/ITCVT2020/

Following the theme of NOMS 2020 on Management in the Age of Softwarization and AI, and building on the success of the first two editions of this workshop, the main goal of ITCVT2020 is to present research and experience results in the areas of intelligent transportation and smart vehicular technology.
Intelligent transportation systems integrated with self-managed vehicular and wireless network technologies will improve the quality and delivery performance of diversified vehicular services. Many challenges face intelligent transportation and connected vehicles technologies, which can be resolved using artificial intelligence and softwarization.
Authors are invited to submit papers and discuss recent developments and challenges in ITCVT systems. This workshop focuses on innovative applications, tools and frameworks in all technology areas related to connected vehicles with the aid of softwarization and AI.

Topics of Interest
Authors are invited to submit papers that fall into or are related to the topic areas listed below:

Management of Smart Vehicular Systems

- Autonomous Vehicles and Automated Driving
- Intelligent Infrastructure and Guidance Systems
- Cooperative Driving and Traffic Management
- Autonomous and Connected Aerial Networks
- In-Vehicle Networks and Communications

AI for Vehicular Network and Service Management

- Connected Services and Mobility management
- Management and Artificial Intelligence for CAV
- Blockchain Systems for CAV
- Congestion and awareness control in CAV
- Advanced driver assistance systems

Energy-Efficient Vehicular Networks

- Green Vehicular Communication and Services
- Power Management of Smart Electric Vehicles
- Cooperative solutions for vehicular network power management

Security and Privacy of CAV

- Cyber-threat free CAV environment
- Blockchain Systems for CAV
- Security and Privacy of CAV

Paper Submission Guidelines

Authors are invited to submit original contributions written in English that have not been published nor submitted for publication elsewhere. Technical papers must be formatted using the IEEE 2-column format and not exceed 6 pages (including title, abstract, figures, tables, and references). All submitted papers will be peer-reviewed. Papers should be submitted through JEMS:
https://jems.sbc.org.br/home.cgi?c=3396

Proceedings

Accepted and presented papers will be published in the conference proceedings and submitted to IEEE Xplore.

Program Co-Chairs

- Dr. Moayad Aloqaily, xAnalytics, Ottawa, Canada
- Prof. Öznur Özkasap, Koç University, Turkey
- Prof. Xiaochun Cheng, Middlesex University, UK.

Important Dates

Paper Submission: **15 December 2019**
Notification of Acceptance: **30 January 2020**
Camera Ready: **15 February 2020**

Crowd Sensing and Management (CSM) Workshop

Byblos, Lebanon June 29 — July 3, 2020

EDAS submission link: https://edas.info/newPaper.php?c=26489&track=98186
Workshop site: https://sites.google.com/view/iwcmccsm20/home

Symposium Chairs:

Hossam Hassanein, Queens' University, Canada, hossam@cs.queens.ca
Nizar Zorba, Qatar University, Qatar, nizarz@qu.edu.qa

Scope: The scope of this workshop falls within recent efforts in the research and industrial communities that are aimed at realizing the Smart City, a term utilized for a city that exploits its distributed computing and communication infrastructure in order to sense, aggregate, process, discern and act upon various data, with the objective of bettering the management of the city's various sector (e.g., health, education, weather, business, etc.). The objective of the workshop on "Crowd Sensing and Management" is to bring together researchers from many scientific areas to present and discuss up-to-date advances in theory and practice of crowd management in the smart city.

The CSM Workshop of IWCMC 2020 is soliciting original papers on research and development topics in the field of the crowd sensing and management. Prospective authors are cordially invited to submit original technical papers – up to 6 pages of length. Accepted papers will be published in the conference proceedings and will be submitted to the IEEE Xplore digital library. Topics of interest include, but are not limited to:

- Data aggregation and analytics for Mobile Crowd Management.
- Data filtering for crowdsourced information.
- Reputation Scores for Crowd Management through crowdsourcing.
- Crowd inference and Artificial Intelligence based classification.
- Trust and privacy in crowd management.
- Optimization of crowd management systems
- Incentive mechanisms for crowdsourcing
- AI-based prediction approaches in Mobile Crowd Management.
- Mobile crowd management quality indicators (Quality of Source, measurements uncertainty, etc.).
- Network and computing infrastructures for crowd management.
- Geo-positioning schemes for crowd management.
- Crowd sensing over 5G wireless networks.
- Crowd management in emergency and disruptive scenarios.
- Infrastructure inference and classification and behavior characterization.
- Testbeds and real measurements of infrastructures for crowd management.
- 5G architectures for crowdsourcing over mobile users.
- City infrastructure inference and classification and behavior characterization.
- Measures for trust and privacy management.
- Social-sciences based evacuation protocols.

Submission Guidelines:

Prospective authors are invited to submit original technical papers—up to 6 pages of length, using the EDAS link: https://edas.info/newPaper.php?c=26489&track=98186 for possible publication

in the IWCMC 2020 Conference Proceedings, which will be submitted to the IEEE Xplore. Selected papers will further be considered for possible publication in three special issues in the following Journals. For more information, visit: https://sites.google.com/view/iwcmccsm20/home and http://iwcmc.org/2020/

1. The International Journal of Sensor Networks (IJSNet) http://www.inderscience.com/browse/index.php?journalCODE=ijsnet
2. The International Journal of Autonomous and Adaptive Communications Systems (IJAACS): http://www.inderscience.com/jhome.php?jcode=ijaacs
3. KSII Transactions on Internet and Information Systems: http://www.itiis.org/
4. Peer-to-Peer Networking & Applications: http://www.springer.com/engineering/signals/journal/12083
5. Cyber-Physical Systems journal: www.tandfonline.com/loi/tcyb20

Important Dates

Submission:	10 January 2020
Acceptance notification:	30 March 2020
Registration/Camera-ready:	30 April 2020

6. Special Issues organized by CSIM members

1) Deep Learning for 5G IoT Systems

International Journal of Machine Learning and Cybernetics
https://www.mdpi.com/journal/sensors/special_issues/security_privacy_IoT

Guest Editors:
Dr. Xiaochun Cheng, Middlesex University, London, UK
Prof. Chengqi Zhang, University of Technology, Sydney; Australia
Prof. Yi Qian, University of Nebraska-Lincoln, USA
Dr. Moayad Aloqaily, Gnowit Inc., Ottawa, Canada
Prof. Yang Xiao, The University of Alabama, USA

Scope: In recent years, deep learning architectures, such as: deep neural networks, deep belief networks, recurrent neural networks and convolutional neural networks, have been successfully applied to many fields, including computer vision, speech recognition, natural language processing, audio recognition, social network filtering, medical image analysis, material inspection, where deep learning systems have produced results comparable to and in some cases superior to human experts.

There is an increasing number of 5G IoT systems, due to the advancement of electronics and communication techniques (e.g., wearable electronics, IoT devices, and 5G telecommunication solutions). Such technologies have enhanced the quality and performance of urban and suburban services, including healthcare, transport, energy, traffic, to name few. In recent years, with the prevalence of 5G IoT systems, while AI technologies enable more autonomous and intelligent functions, the security of these systems has become more and more important as more and more personal data are generated and communicated through such modern 5G IoT systems. Some of these emerging security problems cannot be solved by traditional security measures or by traditional privacy enhancement technologies. As a result, current 5G IoT system architectures are facing significant challenges to handle the security and privacy of increasing number of devices and servers as well as the protection of large volume of data that is processed in real-time. Therefore, new security methods and privacy protection solutions which depend on deep learning are required to build more secure and better privacy-preserving 5G IoT systems. An increasing trend in integrating deep learning with access control, intrusion detection/prevention, and behaviour analysis of 5G IoT systems has been recently observed. Such integration will play a vital role in providing enhanced security for intelligent autonomous 5G IoT systems and enables organizations to make crucial changes to their security landscape.

The focus of this special theme is on emerging deep learning models, architectures, algorithms and applications in simulating, modelling, analysing, optimization, and control of emerging 5G IoT systems. Researchers, developers, and industry experts are welcome to contribute papers for this special issue. Topics include but are not limited to the following:
• Emerging deep learning models and applications for 5G IoT systems
• Hybrid deep learning models and applications for 5G IoT systems
• Deep learning architecture/algorithms for large-scale 5G IoT systems
• Deep learning for the prediction of data communications in 5G IoT systems

• Deep learning techniques for intrusion detection/prevention of 5G IoT systems
• Deep learning-based data analytics and decision automation in 5G IoT systems
• Deep learning-based malware detection of 5G IoT systems
• Deep learning-based behaviour analysis of 5G IoT systems

Submissions
Submitted articles must describe original research which has not been published or currently under review by other journals or conferences. All manuscripts will be peer-reviewed. Instructions for Authors are available at the website: https://link.springer.com/journal/13042.
Authors should visit the journal website for information on submission. An electronic copy of the complete manuscript should be submitted ensuring that the paper is identified as being submitted for this special issue. The special issue has been created as a submission question. The authors should choose "Original Paper" as the main article type for their papers and in the upcoming next submission steps, they will be prompted to answer a question "Does this manuscript belong to a special issue?". For the response, a list of all special issues names will be displayed, and the authors can choose the special issue. The chosen special issue name will be displayed in "Details Page" and not under "Article Type" column in the online submission system. Please direct any questions about this special issue to Xiaochun Cheng (x.cheng@mdx.ac.uk) or Moayad Aloqaily (Moayad@Gnowit.com).
Important dates:
• Manuscript submission deadline: 28 August 2020
• First round review notification: 28 October 2020
• Revised manuscript submission deadline: 28 December 2020
• Final decision notification: 28 February 2021
• Expected publication: 28 March 2021

2) AI-Driven Cyber Security Threats to Future Networks

IEEE Vehicular Technology Magazine

Important Dates:
Manuscript Submission Deadline: November 19th, 2019
First Round Reviews: February 28th, 2019
Submission for second round of reviews: April 10th, 2020
Second Round Reviews and Final decision: June 5, 2020
Publication: September 2020

Scope: 5G and Beyond 5G (B5G) networks will support a variety of services and verticals (enhanced mobile broadband, health, industry 4.0, smart energy and automotive). These services, verticals and the critical components that compose 5G architecture (e.g., radio access, edge and core networks) face new cyber security risks and challenges.

A new generation of smart threats defined as Artificial Intelligence (AI)-attacks has emerged. These threats can utilize AI to attack 5G networks or services or hack the AI algorithms used by 5G components. In the first case, AI can be utilized to launch attacks against targets such as autonomous vehicles, drones or manufacturing machinery. In the second case, attackers hack the Machine Learning (ML) algorithms by modifying for instance the labels of ML's classification functions and altering the

training data, which cause a decrease on the accuracy classification rate. These threats require a new era of cyber security approaches based on robust AI algorithms to protect future networks from AI-related attacks. Future solutions must consider 5G and B5G network constraints (e.g. overhead, latency, energy and bandwidth consumption).

In this special issue, we invite high-quality original submissions on AI-based solutions for cyber security in 5G and B5G networks. The topics of interest include, but are not limited to:

- AI-attacks against 5G and B5G networks.
- AI modeling for network behavior in 5G and B5G networks.
- Attacks detection and prediction based on deep and reinforcement learning in 5G and B5G networks.
- Cyber protection based on advanced learning to secure 5G and B5G networks.
- Cyber threats intelligence based on AI to secure 5G and B5G networks.
- AI-cyber security approaches in virtualized environments.
- Cyber security games to protect 5G and B5G services.
- Lightweight AI-based cyber security to protect low-resources 5G and B5G services and devices (e.g. IoT devices).
- AI-cyber defense for 5G and B5G-based vertical applications.

Submitted papers should contain state-of-the-art material presented in a tutorial or survey style. All manuscripts must adhere to the IEEE VTM guidelines at http://www.ieeevtc.org/vtmagazine/submission.php. Authors should submit a PDF version of their manuscript to http://mc.manuscriptcentral.com/vtm-ieee

Guest Editors:

Sidi-Mohammed Senouci, University of Burgundy, France, Sidi-Mohammed.Senouci@u-bourgogne.fr
Hichem Sedjelmaci, Orange Labs, France, hichem.sedjelmaci@orange.com
Chadi Assi, Concordia University Montreal, Canada, assi@ciise.concordia.ca
Jiajia Liu, Xidian University, China, liujiajia@xidian.edu.cn
Mubashir Husain Rehmani, Cork Institute of Technology, Ireland, mshrehmani@gmail.com
Elias Bou-Harb, Florida Atlantic University, ebouharb@fau.edu

3) Software Defined Networking (SDN) and Network Function Virtualization (NFV) for a Hyperconnected World: Challenges, Applications and Major Advancements

Journal of Network and Systems Management

Scope: In recent years, people are more and more connected to the network, sharing information, collaborating and generating/consuming a huge amount of data. This "hyperconnected world" is driven by the next generation of Internet, where different networks such as the traditional Internet, Internet of things (IoT), smart cities, smart grids, and intelligent transportation systems, are federated under the umbrella of one network called 5G. Indeed, the 5G is gaining momentum as it extends the regular Internet by connecting a diverse range of "things" or physical objects like electronic appliances, cars, thermostats, and other devices. The 5G could provide a large array of services to the society including weather monitoring, medical services, transportation and vehicular services, defense applications, and smart cities applications.

In order to implement such networks and services, several challenges at different levels need to be addressed. These challenges include connectivity management at the different network layers (i.e., from physical to application layers), energy management, service management, data management, and the development of IoT cognitive capabilities.

In this context, Software Defined Networking (SDN) and Network Function Virtualization (NFV) technologies could play a central role to address these challenges. On one hand, SDN offers a more efficient control of the 5G network thanks to the separation of the control plane from the data plane and its centralized management approach. On the other hand, NFV and virtualization technologies allow to efficiently slicing the network depending on the applications' requirements and promise to provide the flexibility of dynamically provisioning network functions whenever needed. With such benefits, SDN/NFV is becoming the ultimate tool to manage the 5G network in order to handle the high number of connected objects and users and to provide high bandwidth traffic and low latency applications.

This special issue focuses on the challenges, applications and major advancements in SDN/NFV technologies for 5G and beyond. We hence encourage original paper submissions, which have not been published or submitted for publication elsewhere, from both academia and industry presenting novel research addressing the aforementioned challenges.

Topics of interest include, but not limited to:

- SDN/NFV architectures and applications;
- Theoretical foundations of SDN/NFV;
- Network slicing for SDN/NFV;
- Service function chaining in SDN/NFV networks;
- Mechanisms to achieve high packet processing in wireless virtualized environment;
- Efficient resource allocation schemes for multiple users in SDN/NFV;
- Optimizing network functionalities with SDN/NFV for Cognitive Radio Networks (CRNs) and Cognitive Radio Sensor Networks (CRSNs);
- Energy efficient schemes for SDN/NFV-based networks;
- Performance evaluation of virtual network functions;
- Business and economic aspects of SDN/NFV; and
- Security mechanisms in wireless SDN/NFV.

Planned Schedule

- Manuscript Due: July 31, 2019
- Revision notification: November 13, 2019
- Revised paper due: January 29, 2020
- Final notification: February 26, 2020
- Expected Publication of the Special Issue: July 2020

Submission Format and Review Guidelines

The submitted manuscripts must be written in English and describe original research not published nor currently under review by other journals or conferences. Parallel submissions will not be accepted. All submitted papers, if relevant to the theme and objectives of the special issue, will go through an external peer-review process. Submissions should (i) conform strictly to the Instructions for Authors available on the JNSM website and (ii) be submitted through the Editorial Management system available at http://www.editorialmanager.com/jons.

Guest Editors of the Special Issue

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4) Next Generation Wireless Terahertz Communication Networks

Publisher: CRC group, Taylor & Francis Group, USA.

Editors:
Saim Ghafoor (TSSG, Waterford Institute of Technology, Ireland),
Mubashir Husain Rehmani (Cork Institute of Technology, Ireland),
Alan Davy (TSSG, Waterford Institute of Technology, Ireland).

Important Dates:

Proposal Submission Deadline: September 30th, 2019
Notification of Proposal Acceptance: October 15th, 2019
Draft of Full Chapter Submission: December 30th, 2019
Notification of Chapter Acceptance: January 30th, 2020
Final Chapter Submission: February 28th, 2020

Introduction

The global IP traffic is expected to reach 400 exabytes by 2022 (Cisco), which requires high bandwidth and capacity links to facilitate future traffic demands. The lower frequency bands cannot meet these requirements. Therefore, the interest is being shifted towards more potential bands like Terahertz band, which can provide

up to Tera bites per second (Tbps) speed with huge bandwidth availability. Due, to the high bandwidth availability, it appears as a promising technology for 5G and beyond 5G networks and can be used to fulfil the future traffic demands for many indoor and outdoor communication networks.

Besides providing the ultra-high bandwidth availability, the Terahertz band also suffers from high path loss and molecular absorption loss which affects the achievable communication distance and throughput. To enhance the communication distance, directional antennas are required with multiple antennas and beam management techniques. Due to these unique band features and requirements like path and molecular absorption loss, scattering and reflection phenomenon, novel techniques are required for Terahertz communication networks at nano and macro scale including indoor and outdoor applications. These applications includes channel and propagation model for different indoor and outdoor applications; physical layer techniques including modulation and coding, frame error control and bit error rate; MAC layer techniques including link establishment, error detection and correction, interference mitigation, resource management, blockage mitigation, and addressing; and network layer techniques for routing and end to end network efficiency.

This book will highlight the advancement in Terahertz communication networks and services for future generation communication networks. The book will also discuss different Teraertz applications and novel communication layer protocols.

The recommended topics include, but are not limited to the following,

- Recent advancements in Terahertz communication networks with applications and their requirements towards next generation networks
- Terahertz channel and propagation models for different indoor, outdoor and in body applications with noise, absorption, multi path, and other loses.
- Channel characteristics and measurements
- Blockage, Noise and interference models
- Ultra-massive MIMO
- LOS and NLOS propagation
- Advancement in Terahertz transceivers
- Device characterisations
- Advancements in Terahertz antenna design and their performances
- Multi-band and ultra-broadband antennas
- Antenna arrays, MIMO, Very large array antenna, Phased array antenna, Directional antennas
- Novel Terahertz Communication protocols
- Novel techniques on Terahertz Physical layer including, modulation and coding techniques, link capacity and budget, massive MIMO, Beamforming and management, synchronization
- Novel techniques on Terahertz MAC layer using directional antenna including channel access control, error and flow control, efficient link establishment and energy efficient mechanisms,
- Novel techniques for network layer including routing, multihop, handover management, relay-based communication
- Simulation and testbeds for Terahertz communication networks

Submission Procedure

Authors are invited to submit a two (2) page proposal until 30th of September 2019. The proposals should include the authors list with affiliation, a brief introduction and a short list of key references. Authors of accepted proposal will be notified by 15th October 2019. All submitted chapters will be reviewed by at least two reviewers. Contributors may also be requested to serve as reviewers for other book chapters. Please send your book chapter proposals to Dr. Saim Ghafoor and cc'ing Dr. Mubashir and Dr. Alan.

5) Software Defined Networks for Energy Internet and Smart Grid Communications

IEEE Access

Submission Deadline: 31 December 2019

Scope: A new network paradigm of Software Defined Networks (SDN) is being widely adapted to efficiently monitor and manage the communication networks with a global perspective. SDN has a key networking feature that separates control and data plane. Today, due to its inherent benefits, SDN has been widely applied to various networking domains including data centers, WAN, enterprise, Optical Networks, Under Water Sensor Networks (UWSN), Energy Internet (EI), and Smart Grid (SG).

Energy Internet (EI) and Smart Grid (SG) are two complementary terms. Energy Internet refers to the vision of integrating future electricity grid into the web. Smart Grid refers to the advancement of current electricity grid with the help of information and communication technologies. The key feature that distinguishes EI from the SG is its tight coupling of EI with the Internet. One might argue that EI is the advanced form of Smart Grid. Nevertheless, as both EI and SG technologies differ in various ways, especially in terms of implementation and applications, there are fundamental research questions that are yet to be addressed. In a traditional Internet scenario, organizations have local area networks (LANs). These small LANs are from the small geographical areas such as cites and are connected together to form Metropolitan Area Networks (MANs), which are then inter-connected together to form Wide Area Networks (WANs). Likewise, in an EI scenario, a world-wide energy-Wide Area Network (e-WAN) is composed of networked regional small-scale energy-Local Area Networks (e-LANs). Similar to a network router in the traditional Internet, we have an e-router in the EI, which is responsible for power delivery and information forwarding.

In order to realize full functionality of EI and SG, an efficient communication system would be essential, i.e., a networked system and infrastructure with fast reliable information flow capability, and support for good system observability and controllability. Such communication systems would facilitate the EI and SG to achieve secure, reliable, and safe power and information exchange. Therefore, SDN has an immense potential in playing a significant role in managing the overall network and communication entities for the future EI and SG systems. By adapting the concepts of SDN in the current as well as to future EI and SG systems, the

efficiency and resiliency of the entire system could be significantly improved by further fueling the growth of research and industry methods in EI and SG.

Overall, the goal of this proposed Special Section in IEEE *Access* is to publish and capture the most recent advances and trends in the promising technologies of Energy Internet and Smart Grid, particularly from the perspective of Software Defined Networks.

The topics of interest include, but are not limited to:

- Software Defined Networks for Smart Grid (SG)
- Software Defined Networks for Energy Internet (EI)
- SDN-based Internet of Things (IoT) for Energy Internet
- Architectures and Protocols for SDN-based SG and EI
- Resource Allocation Techniques for SDN-based EI and SG
- Routing and MAC Protocols for SDN-based EI and SG
- Renewable Energy Resources and SDN-based EI and SG
- Performance Analysis, Testbed and Simulation Tools for SDN-based EI and SG
- Big Data Analytics for SDN-based EI and SG
- SDN Monitoring and Management Applications in HANs, NANs, WANs, and AMI
- SG and EI Communication Monitoring techniques through SDN

We also highly recommend the submission of multimedia with each article as it significantly increases the visibility, downloads, and citations of articles.

Associate Editor: Mubashir Husain Rehmani, TSSG, WIT, Ireland

Guest Editors:

1. Alan Davy, TSSG, Waterford Institute of Technology, Ireland
2. Brendan Jennings, TSSG, Waterford Institute of Technology , Ireland
3. Zeeshan Kaleem, COMSATS, Pakistan
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5. Hassnaa Moustafa, Intel Corporation, USA
6. Al-Sakib Khan Pathan, Southeast University, Bangladesh

Paper submission: Contact Associate Editor and submit manuscript to: http://mc.manuscriptcentral.com/ieee-access. For inquiries regarding this Special Section, please contact: mshrehmani@gmail.com

7. Vacancies and Scientific Contributions

- The Communication Technologies Division of the CTTC is searching for interested candidates in a full-time fixed-term Researcher position for its Machine-to-Machine Communications Department (http://m2m.cttc.es) in the context of the European-funded project FIREMAN (http://fireman-project.eu/). The principal objective of the position is to carry out cross-disciplinary research at the intersection of wireless connectivity for the Internet of Things (IoT) and machine learning towards end-to-end predictive and automated industrial systems.

Detailed information about the position can be found here: http://www.cttc.es/career/call-27-2019-1/

- The Traffic Research Group at University of Napoli (with several CSIM members) is happy to announce the release of their new and open dataset.

You can find it at the following URL: http://traffic.comics.unina.it/mirage/

The MIRAGE-2019 dataset is a human-generated dataset for mobile traffic analysis with associated ground-truth, having the goal of advancing the state-of-the-art in mobile app traffic analysis. MIRAGE-2019 contains data related to 40 Android apps (e.g., Facebook, Spotify, Twitter, etc.) related to 16 different categories (e.g., Social, Communication, Lifestyle, etc.) of Google Play store and collected by more than 280 experimenters, during May 2017- May 2019.

The dataset is released in JSON format, providing aggregated data (rather than PCAP/Netflow datasets). A sampled version of the dataset (one app per category) is readily downloadable, whereas the complete version is available upon request.