**ICCCN 2019**

**The 28th International Conference on**

**Computer Communications and Networks**

**July 29 – August 1, 2019**

**Final Program**

**Meliá Valencia Hotel**

**Avenida de las Cortes Valencianas, 52
Valencia, Spain**



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ICCCN 2019 Program Overview

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| July 28 (Sunday) |
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| 21:00 – 22:00 | Registration Open (Melia Hotel Main Lobby) |

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| July 29 (Monday) |
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| 08:30 | Registration Open (Foyer RM 4/5/6) |

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| 09:30 - 10:00 | Opening Remarks Room: Main meeting room |

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| 10:00 - 11:00 | Keynote I: From Vehicular Networking to 5G and Mobile Edge Computing and Back Speaker: Falko Dressler (Paderborn University)Chair: Carlos T. CalafateRoom: Main meeting room |

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| 11:00 - 11:30 | Coffee break |

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| --- | --- | --- | --- | --- |
| 11:30 - 13:30 | Session 1SDN & Network Virtualization(Meeting room 4) | Session 2Social Networks & Computing(Meeting room 5) | Invited 1Internet of Things(Meeting room 6) |  |

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| 13:30 - 15:00 | Lunch break |

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| 15:00 - 16:30 | Panel I: IoT, 5G, and Edge AI: Challenges and OpportunitiesModerator: Xiaofan (Fred) Jiang (Columbia University)Room: Main meeting room |

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| 16:30 - 17:00 | Coffee break |

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| 17:00 - 19:00 | Session 3 Wireless LAN, Ad Hoc and Mesh Networks(Meeting room 4) | Session 4Network Optimization I(Meeting room 5) | Invited 2Software Controlled Networks: SDN and NFV (Meeting room 6) |  |

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| 19:30 - 21:30  | Reception (Conference Hotel) |

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| July 30 (Tuesday) |
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| 09:00 | Registration Open (Foyer RM 4/5/6) |

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| 10:00 - 11:00 | Keynote II: The Rise Of Smart Cities Speaker: Chai Keong Toh (National Tsing Hua University)Chair: Juan Carlos CanoRoom: Main meeting room |

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| 11:00 - 11:30 | Coffee break |

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| 11:30 - 13:30 | Session 5Network Optimization II(Meeting room 4) | Session 6Data Centers and Edge/Cloud Computing(Meeting room 5) | Invited 3Sensor Networks(Meeting room 6) |  |

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| 13:30 - 15:00 | Lunch break |

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| 15:00 - 16:30 | Panel II: Machine Learning for Cloud NetworksModerator: Ramya Raghavendra (IBM Research) Room: Main meeting room |

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| 16:30 - 17:00 | Coffee break |

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| 17:00 - 19:00 | Session 7Security, Privacy & Incentives(Meeting room 4) | Session 8Hot Topics in Networking I(Meeting room 5) | Invited 4Network Control(Meeting room 6) |  |

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| 20:30 - 22:30 |  Banquet (Conference Hotel) |
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| July 31 (Wednesday) |
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| 9:00 | Registration Open (Foyer RM 4/5/6) |

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| 10:00 - 11:00 | Keynote III: AI @ EdgeSpeaker: Mudhakar Srivatsa (IBM T. J. Watson Research Center)Chair: Tarek F. AbdelzaherRoom: Main meeting room |

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| 11:00 - 11:30 | Coffee break |

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| 11:30 - 13:30 | Session 9Hot topics in Networking II(Meeting room 4) | Session 10Green Networking and Sustainable Computing(Meeting room 5) | Invited 5Network Science(Meeting room 6) |  |

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| 13:30 - 15:00 | Lunch break |

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| 15:00 - 16:30 | PosterSession I(Meeting room 4) | Poster Session II(Meeting room 5) |  |  |

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| 16:30 - 17:00 | Coffee break |

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| 17:00 - 19:00 | Session 11Internet of Things(Meeting room 4) |  Invited 6Security and Safety (Meeting room 5) |  |  |

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 ICCCN 2019 Technical Program

# July 29 (Monday)

# 10:00-11:00

## Keynote I: From Vehicular Networking to 5G and Mobile Edge Computing and Back

Speaker: Falko Dressler (Paderborn University)

Chair: Carlos T. Calafate

Email: calafate@disca.upv.es

Room: Main meeting room

# 11:30-13:30

## Session 1: SDN & Network Virtualization

Chair: Juan Carlos Cano (Technical University of Valencia)

Email: jucano@disca.upv.es

Room: Meeting room 4

* **SPARC: Towards a Scalable Distributed Control Plane Architecture for Protocol-Oblivious SDN Networks**

Mingzheng Li, Xiaodong Wang, Haojie Tong, Tong Liu and Ye Tian

* **Towards Reducing Last-Level-Cache Interference of Co-located Virtual Network Functions**

Raphael Durner, Christian Sieber and Wolfgang Kellerer

* **On the Construction of Optimal Embedding Problems for Delay-Sensitive Service Function**

Andreas Fischer, Deval Bhamare and Andreas Kassler

* **A Data Distribution Service in a Hierarchical SDN Architecture: Implementation and Evaluation**

Alejandro Llorens-Carrodeguas, Cristina Cervelló-Pastor and Irian Leyva-Pupo

* **Flow-based Network Slicing: Mapping the Future Mobile Radio Access Networks**

Estefanía Coronado and Roberto Riggio

## Session 2: Social Networks & Computing

Chair: Jose Oliver (Technical University of Valencia)

Email: joliver@disca.upv.es

Room: Meeting room 5

* **Location-Aware Targeted Influence Blocking Maximization in Social Networks**

Wenlong Zhu, Wu Yang, Shichang Xuan, Dapeng Man, Wei Wang and Jiguang Lv

* **A Secure SDN-based Architecture for Resources Sharing in Smart Home Networks**

Mohammed Almehdhar

* **Similarity analysis of criminals on social networks: an example on Twitter**

Andrea Tundis, Archit Jain, Gaurav Bhatia and Max Mühlhäuser

* **Assessing Social Aspects of Urban Vehicular Scenarios for Improving Message Diffusion**

Enrique Hernández-Orallo, Leonardo Chancay-García, Pietro Manzoni, Carlos Calafate and Juan-Carlos Cano

* **CollabDrone: A Collaborative Spatiotemporal-Aware Drone Sensing System Driven by Social Sensing Signals**

Md Tahmid Rashid, Daniel Zhang, Zhiyu Liu, Hai Lin and Dong Wang

## Invited Session 1: Internet of Things

Chair: Tarek Abdelzhaer (UIUC)

Email: zaher@cs.uiuc.edu

Room: Meeting room 6

* **When Social Sensing Meets Edge Computing: Vision and Challenges** Daniel (Yue) Zhang, Nathan Vance, Dong Wang
* **Simulation Evaluation of Fuel-saving Systems in the City of Chicago**Yiran Zhao, Shuochao Yao, Dongxin Liu, Huajie Shao, Shengzhong Liu, Tarek Abdelzaher
* **MobiAmbulance: Optimal Scheduling of Emergency Vehicles in Catastrophic Situations**Li Yan, Shohaib Mahmud, Haiying Shen, Natasha Zhang Foutz, Donald E. Brown, Wie Yusuf, Derek Loftis, Lucas Lyons and Jonathan L. Goodall
* **Estimating Socioeconomic Status via Temporal-Spatial Mobility Analysis - A Case Study of Smart Card Data**Shichang Ding, Hong Huang, Tao Zhao, Xiaoming Fu
* **A Novel IoT Protocol Stack: Efficiency Through Data- and Functionality Sharing Across Layers**Vinicius Galvao Guimaraes, Adolfo Bauchspiess, Renato Mariz de Moraes, Katia Obraczka

# 15:00-16:30

## Panel I: IoT, 5G, and Edge AI: Challenges and Opportunities

Panelists: Tarek Abdelzaher (University of Illinois at Urbana-Champaign), Suman Banerjee (University of Wisconsin-Madison), Nirmit V Desai (IBM Research), Koen Langendoen (Delft University of Technology)

Moderator: Xiaofan (Fred) Jiang (Columbia University)

Email: jiang@ee.columbia.edu

Room: Main meeting room

# 17:00-19:00

## Session 3: Wireless LAN, Ad hoc and Mesh Networks

Chair: Jitender Grover (International Institute of Information Technology, Hyderabad)

Email: jitendergrover0101@gmail.com

Room: Meeting room 4

* **Cost-Minimum Charger Placement for Wireless Power Transfer**

Xingjian Ding, Guodong Sun, Yongcai Wang, Chuanwen Luo, Deying Li, Wenping Chen and Qian Hu

* **Characterizing Interference Mitigation Techniques in Dense 60 GHz mmWave WLANs**

Ding Zhang, Panneer Selvam Santhalingam, Parth Pathak and Zizhan Zheng

* **WiWrite: Wi-Fi based Handwriting Recognition like Playing Lego**

Jiang Xiao, Huichuwu Li and Yuxiang Liu

* **Characterizing the Performance of WiFi in Dense IoT Deployments**

Anirudh Ganji, Griffin Page and Muhammad Shahzad

## Session 4: Network Optimization I

Chair: Francisco Martínez, (University of Zaragoza)

Email: f.martinez@unizar.es

Room: Meeting room 5

* **Probabilistic Partitioning for Edge Server Assignment with Time-Varying Workload**

Quynh Vo and Duc Tran

* **Joint Optimization of Computing Resources and Data Allocation for MEC: An Online Approach**

Xun Shao, Go Hasegawa, Noriaki Kamiyama, Zhi Liu, Hiroshi Masui and Yusheng Ji

* **An Improved Maximum Flow Routing Algorithm for Multi-homing in Information-Centric Networking**

Pufang Ma, Jinlin Wang and Jiali You

* **Update Method for Controller Placement Problem in Software-Defined Satellite Networking**

Shuai Wu, Xianfeng Liu, Quan Chen, Jianming Guo, Lei Yang, Yong Zhao and Chengguang Fan

## Invited Session 2: Software Controlled Networks: SDN & NFV

Chair: Malathi Veeraraghavan (UVa)

Email:

Room: Meeting room 6

* **Advances in reliable file-stream multicasting over multi-domain Software Defined Networks (SDN)**Yuanlong Tan, Shuoshuo Chen, Steve Emmerson, Malathi Veeraraghavan
* **A Distributed SDN Application for Cross-Institution Data Access**Shafaq Chaudhry, Eyuphan Bulut, Murat Yuksel
* **Enabling Shared Control and Trust in Hybrid SDN/Legacy Networks**Pinyi Shi, Sergio Rivera, Lowell Pike, Zongming Fei, James Griffioen, Kenneth L. Calvert
* **Software-Defined Wide Area Network (SD-WAN): Architecture, Advances and Opportunities**Zhenjie Yang, Yong Cui, Baochun Li, Yadong Liu and Yi Xu
* **Designing Highly-Available Service Provider Networks with NFV Components**Sidharth Sharma, Aniruddha Kushwaha, Arun Somani, and Ashwin Gumaste

# July 30 (Tuesday)

# 10:00-11:00

## Keynote II: The Rise Of Smart Cities

Speaker: Chai Keong Toh (National Tsing Hua University)

Chair: Juan Carlos Cano

Email: jucano@disca.upv.es

Room: Main meeting room

# 11:30-13:30

## Session 5: Network Optimization II

Chair: Jose Oliver (Technical University of Valencia)

Email: joliver@disca.upv.es

Room: Meeting room 4

* **Approximate Range Emptiness in Constant Time for IoT Data Streams over Sliding Windows**

Xiujun Wang, Zhi Liu, Yangzhao Yang, Xun Shao, Yu Gu and Susumu Ishihara

* **TS-TCP: Two-stage Congestion Control Algorithm for High Concurrency TCPs in Data center Networks**

Yifei Lu and Yan Li

* **Enhancing the ns-3 simulator by introducing Electric Vehicles features**

Julio A. Sanguesa, Samuel Salvatella, Francisco J. Martinez, Johann M. Marquez-Barja and Manuel P. Ricardo

* **MAYOR: Machine Learning and Analytics for Automated Operations and Recovery**

Rashid Mijumbi, Abhaya Asthana, Carlos Bernal and Manuel Castejon

## Session 6: Data Centers and Edge/Cloud Computing

Chair: Claudio Palazzi

Email: cpalazzi@math.unipd.it

Room: Meeting room 5

* **RDMA Load Balancing via Data Partition**

Yi Wang, Ya-Nan Jiang, Qiufang Ma, Chen Tian, Gong Zhang and Bo Bai

* **Accelerating Big Data Analytics Using Scale-up/out Heterogeneous Clusters**

Zhuozhao Li and Haiying Shen

* **A Game-based Combinatorial Double Auction model for Cloud Resource Allocation**

Qihui Li, Chuanhe Huang, Haizhou Bao, Bin Fu and Xiaohua Jia

* **Resource Allocation for Minimized Power Consumption in Hardware Accelerated Clouds**

Nazım Umut Ekici, Klaus Werner Schmidt, Alper Yazar and Ece Güran Schmidt

* **On the Importance of container images placement for service provisioning in the Edge**

Jad Darrous, Thomas Lambert and Shadi Ibrahim

## Invited Session 3: Sensor Networks

Chair: Aaron Stiegel (Notre Dame)

Email:

Room: Meeting room 6

* **Predicting Friendship Pairs from BLE Beacons Using Dining Hall Visits**Rachael Purta, Aaron Striegel
* **Hierarchical Duty-cycling of Wireless Sensors**Jinhwan Jung, Kien Pham, Joohyun Kang, Juneha Song, Sung-Ju Lee and Yung Yi
* **An Actor-Critic Reinforcement Learning Approach for Energy Harvesting Communications Systems**Ala'eddin Masadeh, Zhengdao Wang, Ahmed E. Kamal
* **Towards Building Low Power Magnetic Communication Protocols for Challenging Environments**Amitangshu Pal, Rajpreet Gulati and Krishna Kant
* **Publish-Subscribe Communication in Building Management Systems over Named Data Networking**Wentao Shang, Ashlesh Gawande, Minsheng Zhang, Alexander Afanasyev, Jeffrey Burke, Lan Wang and Lixia Zhang

# 15:00-16:30

## Panel II: Machine Learning for Cloud Networks

Panelists: Prof. Theo Benson (Brown University), Alexis Le Quoc (CTO, DataDog), Mike Cugini (Site Reliability Engineer, Dropbox), Prof. Bhuvan Urgaonkar (Penn State University)

Moderator: Ramya Raghavendra (IBM Research)

Email: TBD

Room: Main meeting room

# 17:00-19:00

## Session 7: Security, Privacy & Incentives

Chair: Enrique Orallo (Technical University of Valencia)

Email: ehernandez@disca.upv.es

Room: Meeting room 4

* **Protecting Against Inference Attacks on Co-location Data**

Ritesh Ahuja, Gabriel Ghinita, Nithin Krishna and Cyrus Shahabi

* **A Hybrid Online Offline System for Network Anomaly Detection**

Murugaraj Odiathevar, Winston K. G. Seah and Marcus Frean

* **Designing security aware service requests for NFV enabled networks**

Houda Jmila and Gregory Blanc

* **A Massively Multi-Tenant Virtualized Network Intrusion Prevention Service on NFV platform**

Haiyang Jiang, Ye Yang, Hongtao Guan, Gaogang Xie and Kave Salamatian

* **SDN-Based Secure Healthcare Monitoring System (SDN-SHMS)**

Mohamad Khayat, Ezedin Barka and Farag Sallabi

## Session 8: Hot Topics in Networking I

Chair: Fekair Mohammed El Amine (Université Kasdi Merbah Ouargla)

Email: fekair.mohammed@gmail.com

Room: Meeting room 5

* **Distributed Vehicle Trajectory Tracking For Efficient Routing in VDTNs**

Haiying Shen and Bo Wu

* **An UAV Swarm Coordination Protocol Supporting Planned Missions**

Francisco Fabra, Willian Zamora, Pablo Reyes, Carlos Calafate, Juan-Carlos Cano, Pietro Manzoni and Enrique Hernández-Orallo

* **Price-Driven Economic Cache Content Nash Bargaining Game in Wireless Multimedia Resource Allocation**

Shuan He and Wei Wang

* **A user-centric mobility management scheme for high-density fog computing deployments**

Zeineb Rejiba, Xavier Masip and Eva Marín Tordera

## Invited Session 4: Network Control

Chair: Fidan Mehmeti (PSU)

Email:

Room: Meeting room 6

* **MPTCP Performance over Heterogenous Subpaths**Vivek Adarsh, Paul Schmitt, Elizabeth Belding
* **ODVR: A Unifying Approach to On-Demand and Proactive Loop-Free Routing in Ad-Hoc Networks**J.J. Garcia-Luna-Aceves, and Ehsan Hemmati
* **Binary MDS Array Codes with Asymptotically Optimal Repair for All Columns**Hanxu Hou, Yunghsiang S. Han and Patrick P. C. Lee
* **Optimizing 5G Performance by Reallocating Unused Resources**Fidan Mehmeti, Thomas LaPorta

# July 31 (Wednesday)

# 10:00-11:00

## Keynote III: AI @ Edge

Speaker: Mudhakar Srivatsa (IBM T. J. Watson Research Center)

Chair: Tarek F. Abdelzaher

Email: zaher@cs.uiuc.edu

Room: Main meeting room

# 11:30-13:30

## Session 9: Hot Topics in Networking II

Chair: Xun Shao (Kitami Institute of Technology)

Email: x-shao@ieee.org

Room: Meeting room 4

* **Acceleration of Packet Classification Using Adjacency List of Rules**

Takashi Fuchino, Takashi Harada, Ken Tanaka and Kenji Mikawa

* **CoFilter: A High-Performance Switch-Accelerated Stateful Packet Filter for Bare-Metal Servers**

Jiamin Cao, Ying Liu, Yu Zhou, Chen Sun, Yangyang Wang and Jun Bi

* **Optimizing Order Dispatch for Ride-sharing Systems**

Yubin Duan, Ning Wang and Jie Wu

* **Sensing Data Collection of Cooperative Sensing in Multi-channel Cognitive Radio Networks**

Ziling Wei, Jinshu Su and Baokang Zhao

* **EMPTCP: an ECN based Approach to Detect Shared Bottleneck in MPTCP**

Jin Ye, Renzhang Liu, Ziqi Xie, Luting Feng and Sen Liu

## Session 10: Green Networking & Sustainable Computing

Chair: Etienne Z. Gnimpieba (University of South Dakota)

Email: Etienne.Gnimpieba@usd.edu

Room: Meeting room 5

* **Towards Online Deep Learning-Based Energy Forecasting**

Fan Liang, William Hatcher, Guobin Xu, James Nguyen, Weixian Liao and Wei Yu

* **Error Recovery of RDMA Packets in Data Center Networks**

Yi Wang, Kexin Liu, Chen Tian, Bo Bai and Gong Zhang

* **An Energy-saving Mechanism for the WFD-based Local Communication Networks**

Zhenbei Guo and Fuliang Li

* **No More Free Riders: Sharing WiFi Secrets with Acoustic Signals**

Li Zhang, Xiaojun Zhu and Xiaobing Wu

## Invited Session 5: Network Science

Chair: Boleslaw Szymanki

Email:

Room: Meeting room 6

* **The Price is (Not) Right: Market-based versus Fixed Pricing for Transient Cloud Servers**David Irwin, Prashant Shenoy, Pradeep Ambati, Prateek Sharma, Supreeth Shastri
* **The Progressive Mapping System Architecture for Global Resources Management**Jordi Garcia, Xavi Masip-Bruin, Yunsong Lu
* **Data-Centric Video and Edge Processing for Mixed Reality**Peter Gusev, Jeff Thompson, Jeff Burke
* **A Reaction-based Approach to Information Cascade Analysis**James Flamino and Boleslaw K. Szymanski
* **Performance Analysis and Comparison of Distributed Machine Learning Systems**Murat Demirbas, Salem Alqahtani

# 15:00-16:30

## Poster Session I: Wireless Networks Topics: Wireless communications, channel modeling, ad hoc networks

Chair: Abderrahmane Lakas

Email: alakas@uaeu.ac.ae

Room: Meeting room 4

* **When Blockchain Takes Care of the OLSR Network**

May Thura Lwin, Young-Bae Ko and Dohyung Kim

* **Distributed TDMA Scheduling Using Topological Ordering in Wireless Sensor Networks**

Thanh-Tung Nguyen, Linh-An Phan, Taejoon Kim, Taehong Kim, Jaeseang Lee and Jaehyun Ham

* **Blind Estimation of Convolutional Interleaver Parameters in a Noisy Environment**

Dahye Kang, Yoonji Kim, Geunbae Kim and Dongweon Yoon

* **Design and Implementation of Sensing System for Quality Analysis of 802.11 Wireless Links**

Morihiko Tamai, Akio Hasegawa and Hiroyuki Yokoyama

* **New energy-efficient hierarchical clustering approach based on neighbor rotation for edge computing of IOT**

Degan Zhang, Zhang Ting, Hao Wu and Jian-Ning Qiu

* **Suppression of the EMI from Co-Site VHF Radio to Satellite Communication Network**

Wanning Zhou, Feng Wang, Zhiguo Zhao and Xie Ma

* **Adaptive Gradient Time Synchronization Protocol in Wireless Ad-hoc Networks**

Yong Jeong Kim, Linh-An Phan, Taejoon Kim, Taehong Kim, Jaeseang Lee and Jae-Hyun Ham

## Poster Session II: Secure & Smart NetworksNetwork Topics: AI, IoT, security, SDN

Chair: Muhammad Shahzad

Email: mshahza@ncsu.edu

Room: Meeting room 5

* **A Secure Multi-factor Remote User Authentication Scheme for Cloud-IoT Applications**

Joonyoung Lee, Myeonghyun Kim, Sungjin Yu, Kisung Park and Youngho Park

* **A Secure Authentication and Key Establishment Scheme for Wearable Devices**

Myeonghyun Kim, Joonyoung Lee, Sungjin Yu, Kisung Park, Yohan Park and Youngho Park

* **Deep learning technique for improving data reception in optical camera communication-based V2I**

Dong Nyeok Choi, Sung Yooun Jin, Juhee Lee and Byung Wook Kim

* **BEAM: BEhavior-based Access Control Mechanism for SDN Applications**

Bhavesh Toshniwal, Kalpana D. Joshi, Pragati Shrivastava and Kotaro Kataoka

* **Accurate Measurement Technique of Packet Loss Rate in Parallel Flow Monitoring**

Kohei Watabe, Norinosuke Murai, Shintaro Hirakawa and Kenji Nakagawa

# 17:00-19:00

## Session 11: Internet of Things

Chair: Juan Carlos Cano, (Technical University of Valencia)

Email: jucano@disca.upv.es

Room: Meeting room 4

* **Vehicle Routing Trifecta: Data-Driven Route Recommendation System**

Ankur Sarker, Haiying Shen, Bryant Murphy, Roman Wang, Mac Devine and Aj Rindos

* **Smart Home Security: A Distributed Identity-based Security Protocol for Authentication and Key Exchange**

Muhammad Mazhar Rathore, Elmahdi Bentafat and Spiridon Bakiras

* **Multi-Task Sensing for Multiple Crowdsourcers: A Dynamic Game Based Pricing Model**

Hafiz Muhammad Azeem Akram

* **DISC: A Novel Distributed On-Demand Clustering Protocol for Internet of Multimedia Things**

Amrita Ghosal, Subir Halder and Mauro Conti

* **Towards Deep Learning-Based Detection Scheme with Raw ECG Signal for Wearable Telehealth Systems**

Peng Zhao, Dekui Quan, Wei Yu, Xinyu Yang and Xinwen Fu

## Invited Session 6: Security & Safety

Chair: Seraphin Calo (IBM)

Email:

Room: Meeting room 5

* **Generating Client Side Policies for Cyber-Physical Safety**Dinesh Verma, Seraphin Calo, Elisa Bertino, and Geeth de-Mel
* **Data Management in Supply Chain Using Blockchain: Challenges and A Case Study**Hanqing Wu, Jiannong Cao, Yanni Yang, Cheung Leong Tung, Shan Jiang, Bin Tang, Yang Liu, Xiaoqing Wang, Yuming Deng
* **A client-biased Cooperative Search Scheme in Blockchain-based Data Markets**Suhan Jiang, Yubin Duan, and Jie Wu
* **Exploiting Patient-Doctor Network for Cost-effective Automatic Medical Fraud Detection**Jie Chen, Dongyi Yi, Jianqiang Li, Genqiang Deng, Suisong Zhu, Lijia Ma, Daming Shi and Victor C.M. Leung
* **CloudDLP: Transparent and Automatic Data Sanitization for Browser-based Cloud Storage**

Chuanyi Liu, Peiyi Han, Yingfei Dong, Hezhong Pan, Shaoming Duan, Binxing Fang

ICCCN 2019 Workshop Program Overview

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|   **August 1 (Thursday) - Workshops**  |
| 7:30am - Registration Desk Open (Foyer RM 4/5/6) |
| 8:30 - 12:00  | Meeting Room 2ECN | Meeting Room 4SmartCityCom | Meeting Room 5SMS  | Meeting Room 6BDMLS |
|  9:45 – 10:15 | Coffee break |
| 12:00 - 13:30  | Lunch break |
| 13:30 - 17:20  | Meeting Room 2ECN | Meeting Room 4VFIA | Meeting Room 5 EoT | Meeting Room 6BDMLS |
| 15:00 – 15:30 | Coffee break |

Integrated Workshop Schedule

**Aug 1 (Thursday)**

**ECN Workshop(RM: Meeting Room 2)**

Chair: Paolo Casari, IMDEA Networks, Spain; Antonio Fernandez Anta, IMDEA Networks, Spain;

Lin Wang, VU Amsterdam, Netherlands

Welcome 8:30 – 8:45

**Session 1: 8:45 – 9:45
Session Chair: Paolo Casari**

**Keynote:** Dr. Schahram Dustdar, TU Wien, Austria

**Title:** The Convergence of Humans, Things, and AI

**Coffee Break (9:45 – 10:15 )**

**Session 2: 10:15 – 12: 00**

**Edge computing management**

**Session Chair: Antonio Fernandez Anta (IMDEA Networks)**

* **A reference architecture based on Edge and Cloud Computing for Smart Manufacturing**

Johannes Vater , Lars Harscheidt, Alois Knoll (BMW Group, Germany, and Technical University of Munich, Germany)

* **Disaggregated Cloud Management for Edge Computing**

Rafael Moreno-Vozmediano, Eduardo Huedo, Ruben Santiago Montero, Ignacio Martin Llorente (Universidad Complutense de Madrid, Spain)

* **OpenStack Generalization for Hardware Accelerated Clouds**

Ahmet Erol, Alper Yazar, Ece Güran Schmidt ((ASELSAN, Turkey, and METU, Turkey))

* **Ad-hoc Edge Cloud: A framework for dynamic creation of Edge computing infrastructures**

Ana Juan Ferrer, Joan-Manuel Marquès, Josep Jorba (Atos, Spain, and Universitat Oberta de Catalunya, Spain)

**Lunch Break 12:00 – 13:30**

**Session 3: 13:30 – 15: 00**

**Edge networking**

**Session Chair: Lin Wang (VU Amsterdam, Netherlands)**

* **An Energy Aware Cache Coordination Scheme in Content Centric Networking**

Guoqiang Zhang, Zhizhen Peng, Qian Gao (Nanjing Normal University, China)

* **Improving TCP Performance and Reducing Self-Induced Congestion with Receive Window Modulation**

Francesco Ciaccia, Oriol Arcas-Abella, Ivan Romero, Diego Montero, Rodolfo Milito, René Serral-Gracià, Mario Nemirovsky (Universitat Politècnica de Catalunya, Spain, and Clevernet Inc., USA)

* **DUE Distribution and Pairing in D2D Communication**

Jia Xu, Weifeng Lu, Xiaoqiang Ren, Siguang Chen, Lijun Yang, Jian Xu (Nanjing University of Posts and Telecommunications, China)

Closing

**SmartCityCom Workshop(RM:** **Meeting Room 4)**

Chair: Shuhui Yang (Purdue University Northwest, USA), Besma Smida (University of Illinois at Chicago, USA)

Welcome 8:30 – 8:45

**Session 1: 8:45 – 9:45**

**Session Chair: Shuhui Yang (Purdue University Northwest, USA)**

**Workshop Keynote**: Dr. Wei Yu, Towson University, USA

**Title:** Secure Internet of Things-Based Smart-World Systems: Challenges and Opportunities

**Coffee Break: 9:45 – 10:15**

**Session 2: 10:15 – 12:00**

**Session Chair: Besma Smida (University of Illinois at Chicago, USA)**

* **Real-Time Vehicle Interior Environment Monitoring System through Mobile Sensing**

Beatrice Smetana, Loti Ibrahimi, Justin Lizotte, Sudip Maitra, Frank Walsh, Kumar Yelamarthi (Central Michigan University, and Waterford Institute of Technology)

* **New method of the best path selection with length priority based on reinforcement learning strategy**

Xiaohuan Liu, Degan Zhang, Ting Zhang, Yuya Cui and Lu Chen (Tianjin University of Technology)

* **The Effect of Mobility on Delayed Data Offloading**

Xiaoyi Zhou, Tong Ye and Tony T. Lee (Shanghai Jiao Tong University, and The Chinese University of Hong Kong)

* **CORR: Centralized Opportunistic Reactive Routing for Mobile Multi-hop Wireless Networks**

Ayush Dusia, Ram Ramanathan and Adarshpal Sethi (University of Delaware)

* **Multi-hop D2D Assisted Real-time Video Streaming Transmission System in Infrastructure-less Networks**

Jie Li, Tengfei Li, Fulian Li, Tao Hong and Xingwei Wang (Northeastern University)

**Lunch Break 12:00 – 13:30**

**VFIA Workshop(RM:** **Meeting Room 4)**

Chair: Farhan Ahmad, University of Derby, United Kingdom;

Chaker Abdelaziz Kerrache, University of Ghardaia, Algeria

Welcome 13:30 – 13:45

**Session 1: 13:45 – 15:00**

**MANETs’ management**

**Session Chair: Prof. Floriano De Rango (University of Calabria, Italy)**

* **Improved clock synchronization algorithms for the Controller Area Network (CAN)**

Murat Akpınar, Klaus Werner Schmidt, Ece Güran Schmidt (Aselsan Inc., Turkey, and Middle East Technical University, Turkey)

* **Random Access Congestion Control for Periodic Safety Messages in Dense Traffic Networks**

Tae Hoon Kwon, "Wonwoo Jo, Jong-Yul Lee, Hyo-Seung Seo, Minjin Baek, Sang-Sun Lee (Hanyang University Seoul, Korea)

* **Joint Optimization of Gain and Beaconing for First Order Consensus under Rayleigh Fading**

Daniel Schneider, Hannes Frey (University of Koblenz-Landau, Germany)

**Coffee Break: 15:00 – 15:30**

**Session 2: 15:30 – 17:20**

**VANET, FANET, and Information Centric Networking**

**Session Chair: Dr. Abderrahmane Lakas (UAE University, UAE)**

* **An Analytical Model for Virtual Cut-Through Routing**

Lev B. Levitin, Yelena Rykalova (Boston University, and UMass Lowell, USA)

* **Bio-inspired Strategy for improving Platoon Management in the Future Autonomous Electrical VANETs**

F. De Rango, M. Tropea, P. Raimondo, A. F. Santamaria, P. Fazio (University of Calabria Rende, Italy)

* **Efficient 3D placement of UAVs with QoS assurance in ad hoc wireless networks**

Bhanukiran Perabathini, Kiranteja Tummuri, Achal Agrawal, Vineeth S Varma (Mahindra École Centrale, India, and Université de Lorraine, France)

* **A Novel Congestion-Aware Interest Flooding Attacks Detection Mechanism in Named Data Networking**

Ahmed Benmoussa, Nasreddine Lagraa , Abderrahmane Lakas, Farhan Ahmad , Rasheed Hussain, Chaker Abdelaziz Kerrache, Fatih Kurugollu (University of Laghouat, Algeria, University of Derby, Derby, UK, Innopolis University, Russia, United Arab Emirates University, UAE, University of Ghardaia, Algeria)

* **Network-assisted Consumer Mobility Support for Information Centric Networks**

Aytac Azgin, Ravishankar Ravindran (Huawei Research Center, USA)

Closing

**SMS Workshop (RM:** **Meeting Room 5)**

Chair: Marco Furini, University of Modena and Reggio Emilia, Italy; Silvia Mirri, University of Bologna, Italy

Welcome **8:30 – 8:45**

**Session 1: 8:45 – 9:45**

**Social Media and Public Health**

**Session Chair: Marco Furini (University of Modena and Reggio Emilia)**

* **A general approach to fuzzy community detection in social networks**

Alfonso Niño, Sebastián Reyes, José Ángel Martín-Baos and Camelia Muñoz-Caro (Universidad de Castilla-La Mancha, Spain)

* **What Do Patients Tell Doctors on the Internet? Ask AI How To Valorize Online Medical Conversations**

Luca Casini, Giovanni Delnevo, Silvia Mirri, Lorenzo Monti, Catia Prandi, Marco Roccetti and Paola Salomoni (University of Bologna, Italy)

* **Diabetes: what are Italian Twitter users talking about?**

Stefano Ferretti (University of Bologna, Italy), Marco Furini (University of Modena and Reggio Emilia, Italy), Manuela Montangero (University of Modena and Reggio Emilia, Italy)

**Coffee Break: 9:45 – 10:15**

**Session 2: 10:15 – 12:00**

**Social Media and Society**

**Session Chair: Silvia Mirri (University of Bologna, Italy)**

* **On Predicting the Success of Political Tweets using Psycho-linguistic Categories**

Marco Furini and Manuela Montangero (University of Modena and Reggio Emilia, Italy)

* **Combining Sentiment Analysis and Social Network Analysis to explore Twitter opinion spreading**

Domenico De Stefano and Francesco Santelli (University of Trieste, Italy)

* **Detection of News Satire on Social Media: Case Study of French Dataset and Analysis**

Zhan Liu (University of Applied Sciences and Arts Western Switzerland, Switzerland), Shaban Shabani (University of Basel, Switzerland), Nicole Glassey Balet (University of Applied Sciences and Arts Western Switzerland, Switzerland), Maria Sokhn (University of Applied Sciences and Arts Western Switzerland, Switzerland)

* **Exploiting Social Media for Recommending new Locations**

Carmela Comito (ICAR-CNR, Italy)

* **Predicting employee attitudes with (digital) collaboration data: a preliminary analysis in the HRM field**

Tommaso Fabbri, Federica Mandreoli, Riccardo Martoglia and Annachiara Scapolan (University of Modena and Reggio Emilia, Italy)

**Lunch Break: 12:00 – 13:30**

**EoT Workshop (RM:** **Meeting Room 5)**

Chair: Claudio Savaglio, University of Calabria, Italy, Salvatore Venticinque, Universita degli studi della Campania, Italy, Atay Ozgovde, Galatasaray, Universitesi Istanbul, Turkey, Teemu Lappanen, University of Oulu, Finland

Welcome **13:30 – 13:45**

**Session 1: 13:45 – 15:00**

**EoT Technologies and Applications**

**Session Chair: Claudio Savaglio and Teemu Leppanen**

* **Tracking criminal events enabled by a IoT app through an edge computing based architecture**

Andrea Tundis, Humayun Kaleem and Max Mühlhäuser (Technische Universität, Darmstadt)

* **Architecture and Use Case for an IoT deployment with SDN at the Edge and dual Physical and Virtual Gateway**

Jara Suarez De Puga, Andreu Belsa and Carlos Palau (UPV)

* **An IoT system for monitoring and data collection of residential water end-use consumption**

Anna Di Mauro, Armando Di Nardo and Salvatore Venticinque (University of Campania "Luigi Vanvitelli")

* **Blockchain-based Mobility-as-a-Service**

Tri Nguyen, Juha Partala and Susanna Pirttikangas (University of Oulu)

**Coffee Break: 15:00 – 15:30**

**Session 2: 15:30 – 17:20**

**EoT Models and Architectures**

**Session Chair: Salvatore Venticinque and Atay Ozgovde**

* **TuSoW: Tuple Spaces for Edge Computing**

Giovanni Ciatto, Lorenzo Rizzato, Andrea Omicini and Stefano Mariani (Alma Mater Studiorum–Università di Bologna, and Università di Modena e Reggio)

* **Data Mining at the IoT Edge**

Claudio Savaglio, Pietro Gerace, Giuseppe Di Fatta and Giancarlo Fortino (Università della Calabria)

* **Towards EDISON: An edge-native approach to distributed interpolation of environmental data**

Lauri Lovén, Ella Peltonen, Teemu Leppänen, Ekaterina Gilman, Abhinay Pandya, Susanna Pirttikangas and Jukka Riekki (University of Oulu)

* **IoT-HC: A novel IoT Architecture for the Hybrid Cloud**

Carmine De Napoli, Agostino Forestiero, Giancarlo Fortino, Andrea Giordano, Antonio Guerrieri, Demetrio Laganà, Giovanni Lupi, Carlo Mastroianni and Leonardo Spataro (Eco4Cloud srl, ICAR-CNR, and University of Calabria)

* **Distributed Artificial Intelligence with Multi-agent Systems for MEC**

Teemu Leppänen (University of Oulu)

**BDMLS Workshop (RM: Meeting Room 6):**

Chair: Xiaofeng Lu and Baojiang Cui

Welcome 8:30-8:45

**Session 1: 8:45 – 9:45**

**Malware detection**

**Session Chair: Qusay H. Mahmoud**

* **Malware Identification and Family Attribution based on Instruction Flow and Hierarchical Deep Convolutional Neural Network**

Xiaochen Wang, Bo Wang, Baojiang Cui, and Suoxing Zhang (Beijing university of posts and telecommunications)

* **Overview of malicious code security detection technology for industrial control systems**

Shengwei Yi, Yang Gao, Yangyang Ma, Feng Xie, and Wang Ren (China Information Technology Security Evaluation Center)

* **Malicious Word Document Detection Based On Multi-View Features Learning**

Lu Xiaofeng, Wang Fei, and Shu Zifeng (Beijing University of posts and telecommunications)

**Coffee Break: 9:45 – 10:15**

**Session 2: 10:15 – 12:00**

**Network and IoT security**

**Session Chair: Geethapriya Thamilarasu**

* **Identification of Resource Utilisation Patterns in Data Centers using Tensor Decomposition**

Waltenegus Dargie (Technische Universität Dresden, Germany)

* **Location Aware Clustering and Epidemic Trust Management in Mobile Ad Hoc Networks**

Michail Chatzidakis, Stathes Hadjiefthymiades (University of Athens)

* **An Information Hiding Scheme for Broadcast Communication of WSNs**

Di Luo, Hao Wang, Shengwei Yi, and Wenjuan Fang (Chongqing University of Posts and Telecommunications)

* **User Authentication for Smart Home Networks based on Mobile Apps Usage**

Yosef Ashibani, Qusay Mahmoud (University of Ontario Institute of Technology)

* **Threshold Outsourcing Computation For Modular Exponentiation**

Youliang Tian, Hai Ou Yang, and Hongfeng Gao (Guizhou University)

**Lunch Break 12:00 – 13:30**

**Session 3: 13:30 – 15:00**

**Algorithm**

**Session Chair: Stathes P. Hadjiefthymiades**

* **A Hybrid Model For Optimal Defense Strategy Generation**

Su Yang, Weiqiang Xie, Chensi Wu, Wenjie Wang and Yuqing Zhang (University of Chinese of Academy of Sciences)

* **Behavior Sequence Mining Model Based on Local Differential Privacy**

Yan Wang, Zhaoxin Zhang, Jian-en Yan, Junkai Huang, Yi Xin, and Shuai Wang (Harbin Institute of Technology)

* **A Trajectory stop points Extraction Method based on Move Points Feature Analysis and Modeling**

Yu Qing Yang, Jiang Hui Cai, and Hai Feng Yang (Taiyuan University of Science and Technology)

**Coffee Break 15:00 – 15:30**

**Session 4: 15:30 – 17:20**

**Attack Detection**

**Session Chair: Xiaofeng Lu**

* **Supervised Machine Learning Techniques for Efficient Network Intrusion Detection**

Nada Aboueata, Sara Alrasbi, Aiman Erbad, Andreas Kassler, and Deval Bhamare (Qatar University)

* **A Security Architecture Designed for Lightweight SDN Scenarios**

Da Xiao, and Ziqi Wang (Beijing University of posts and telecommunications)

* **Attack Detection Using Federated Learning in Medical Cyber-Physical Systems**

William Schneble, and Geethapriya Thamilarasu (University of Washington)

Closing

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