**ICCCN 2018**

**The 27th International Conference on**

**Computer Communications and Networks**

**July 30 – August 2, 2018**

**Final Program**

**Hangzhou Sunday Sunny Resort (杭州三台山庄)**

**No. 200 Santaishan Road, Xihu District, Hangzhou City,**

**Zhejiang Province, China**



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Technical Program Overview

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| --- |
| July 29 (Sunday) |
| |  |  | | --- | --- | | 20:00 – 21:00 | Registration Open (FuRong Foyer) | |
| July 30 (Monday) |
| |  |  | | --- | --- | | 07:00 | Registration Open (FuRong Foyer)  Continental Breakfast (BaiHe Room) | |
| |  |  | | --- | --- | | 08:00 - 08:30 | Opening Remarks  Room: FuRong | |
| |  |  | | --- | --- | | 08:30 - 09:30 | Keynote I: Networking the Many, Tiny and Far Away  Speaker: Kevin Fall (Nefeli Networks)  Chair: Tarek Abdelzaher  Room: FuRong | |
| |  |  | | --- | --- | | 09:30 - 10:00 | Coffee break | |
| |  |  |  |  |  | | --- | --- | --- | --- | --- | | 10:00 - 12:00 | Session 1  Cognitive Radio Network  (FuRong) | Session 2  Middleware Computing  (HaiTang) | Session 3  Data Center  (JinGui) | Invited 1  Security  (YinGui) | |
| |  |  | | --- | --- | | 12:00 - 13:30 | Lunch break | |
| |  |  | | --- | --- | | 13:30 - 15:00 | Panel I: IoT: Hype or Research Opportunities?  Moderator: Gian Pietro Picco (U. Trento, Italy)  Room: FuRong | |
| |  |  | | --- | --- | | 15:00 - 15:30 | Coffee break | |
| |  |  |  |  |  | | --- | --- | --- | --- | --- | | 15:30 - 17:30 | Session 4  Security and Privacy  (FuRong) | Session 5  Internet of Things  (HaiTang) | Invited 2  Blockchain Solutions and  Unclonable Functions  (JinGui) | Invited 3  Edge and Cloud Computing  (YinGui) | |
| |  |  | | --- | --- | | 18:00 - 20:00 | Reception (Conference Hotel) | |

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| July 31 (Tuesday) |
| |  |  | | --- | --- | | 08:00 | Registration Open (FuRong Foyer)  Continental Breakfast (BaiHe Room) | |
| |  |  | | --- | --- | | 08:30 - 09:30 | Keynote II: A Vision towards Pervasive Edge Computing Speaker: Yuanyuan Yang (Stony Brook University)  Chair: Sheng Zhong  Room: FuRong | |
| |  |  | | --- | --- | | 09:30 - 10:00 | Coffee break | |
| |  |  |  |  |  | | --- | --- | --- | --- | --- | | 10:00 - 12:00 | Session 6  Wireless Networks I  (FuRong) | Session 7  Software Defined Network  (HaiTang) | Session 8  Attack Detection  and Mitigation  (JinGui) | Invited 4  Algorithms and Protocols  (YinGui) | |
| |  |  | | --- | --- | | 12:00 - 13:30 | Lunch break | |
| |  |  | | --- | --- | | 13:30 - 15:00 | Panel II: Research Challenges on Networks in Social Spaces  Moderator: Mani Srivastava (UCLA, USA)  Room: FuRong | |
| |  |  | | --- | --- | | 15:00 - 15:30 | Coffee break |  |  |  | | --- | --- | | 15:30 - 16:30 | Keynote III: Liberating Technology to Act on Our Behalf  Speaker: Lama Nachman (Intel Corporation)  Chair: Shambhu Upadhyaya  Room: FuRong | |
| |  |  |  |  |  | | --- | --- | --- | --- | --- | | 16:30 - 17:30 | Poster  Session I  (FuRong) | Poster  Session II  (HaiTang) |  |  | |
| |  |  | | --- | --- | | 19:00 - 21:00 | Banquet (TBD) | |
| August 1 (Wednesday) |
| |  |  | | --- | --- | | 8:00 | Registration Open (FuRong Foyer)  Continental Breakfast (BaiHe Room) | |
| |  |  | | --- | --- | | 08:30 - 09:30 | Keynote IV: Automated Driving and Connected Vehicles  Speaker: Xuemin (Sherman) Shen (University of Waterloo, Canada)  Chair: Kui Ren  Room: FuRong | |
| |  |  | | --- | --- | | 09:30 - 10:00 | Coffee break | |
| |  |  |  |  |  | | --- | --- | --- | --- | --- | | 10:00 - 12:00 | Session 9  Modeling and Evaluation  (FuRong) | Session 10  Social Network and Green Computing  (HaiTang) | Invited 5  Network Services and  Protocols I  (JinGui) | Invited 6  Robustness, Monitoring, and  Failure Diagnosis  (YinGui) | |
|  |
| |  |  | | --- | --- | | 12:00 - 13:30 | Lunch break | |
| |  |  | | --- | --- | | 13:30 - 15:00 | Distinguished Keynote Talk: The Way Towards Self-Learning Network  Speaker: Nicholas Zhang (Huawei)  Session Chair: Wei Liu  Room: FuRong | |
| |  |  | | --- | --- | | 15:00 - 15:30 | Coffee break | |
| |  |  |  |  |  | | --- | --- | --- | --- | --- | | 15:30 - 17:30 | Session 11  Hot Topics in Networking  (FuRong) | Invited 7  Applications  (HaiTang) | Invited 8  Network Services and Protocols II  (JinGui) | Invited 9  Wireless Networks II  (YinGui) | |
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Technical Program

# July 30 (Monday)

# 8:30-9:30

## Keynote I: Networking the Many, Tiny and Far Away

Speaker: Kevin Fall (Nefeli Networks)

Chair: Tarek Abdelzaher (UIUC)

Email: [zaher@illinois.edu](mailto:zaher@illinois.edu)

Room: FuRong

# 10:00-12:00

## Session 1: Cognitive Radio Network

Chair: Yangcai Wang (Renmin University of China)

Email: [ycw@ruc.edu.cn](mailto:ycw@ruc.edu.cn)

Room: FuRong

* **Improving Integrated LTE-WiFi Network Performance with SDN based Flow Scheduling**

Kang Chen, Jianwei Liu, James Martin, Kuang-Ching Wang and Hongxin Hu

* **HFCC: An Adaptive Congestion Control Algorithm based on Explicit Hybrid Feedbacks**

Xianliang Jiang, Guang Jin and Haiming Chen

* **Towards 3D Deployment of UAV Base Stations in Uneven Terrain**

Xiaofei He, Wei Yu, Hansong Xu, Jie Lin, Xinyu Yang, Chao Lu and Xinwen Fu

* **Group Based Strategy to Accelerate Rendezvous in Cognitive Radio Networks**

Yi Ji, Juncheng Jia, Jin Wang, Jingya Zhou and Shukui Zhang

* **LTE Transmission in Unlicensed Bands: Evaluating The Impact Over Clear Channel Assessment**

Babak Mafakheri, Leonardo Goratti, Roberto Riggio, Chiara Buratti and Sam Reisenfeld

## Session 2: Middleware Computing

Chair: Weigang Wu (Sun Yat-sen University)

Email: [wuweig@mail.sysu.edu.cn](mailto:wuweig@mail.sysu.edu.cn)

Room: HaiTang

* **Exploring the Optimal Platform Configuration for Power-constrained HPC Workflows**

Kun Tang, Xubin He, Devesh Tiwari, Saurabh Gupta and Sudharshan Vazhkudai

* **Accelerating VM Placement with Adaptive Caching**

Gil Einziger, Maayan Goldstein and Yaniv Sa'Ar

* **PETS: Bottleneck-aware Spark Tuning with Parameter Ensembles**

Tiago Barreto Goes Perez, Wei Chen, Raymond Ji, Liu Liu and Xiaobo Zhou

* **CCoLBP: Chromatic Co-occurrence of Local Binary Pattern for Face Presentation Attack Detection**

Fei Peng, Le Qin and Min Long

* **Smart Workload Partitioning and Task Migration to Reduce Response Times in Heterogeneous Computing Environments**

Dominik Schäfer, Janick Edinger, Martin Breitbach and Christian Becker

## Session 3: Data Center

Chair: Krishna Kant (Temple University)

Email: [kkant@temple.edu](mailto:kkant@temple.edu)

Room: JinGui

* **An Optimal Checkpointing Model with Online OCI Adjustment for Stream Processing Applications**

Yuan Zhuang, Xiaohui Wei, Hongliang Li, Yongfang Wang and Xubin He

* **MMCode: Enhancing Color Channels for Screen-Camera Communication with Semi-Supervised Clustering**

Xu Chen, Wenzhong Li, Tong Zhan and Sanglu Lu

* **Cross-Layer Self-Similar Coflow Scheduling for Machine Learning Clusters**

Yang Guang, Jiang Yong, Li Qing, Jia Xuya and Xu Mingwei

* **Storage-aware Network Stack for NVM-assisted Key-value Store**

Shiyan Chen, Dagang Li, Xiaogang Chen, Wenbing Han and Deze Zeng

* **Slytherin: Dynamic, Network-assisted Prioritization of Tail Packets in Datacenter Networks**

Hamed Rezaei, Mojtaba Malekpourshahraki and Balajee Vamanan

## Invited Session 1: Security

Chair: Guoliang Xue (Arizona State University)

Email: [xue@asu.edu](mailto:xue@asu.edu)

Room: YinGui

* **Amazon Echo Security: Machine Learning to Classify Encrypted Trafﬁc**

Ryan Blake Jackson and Tracy Camp

* **STRAP: Secure TRansfer of Association Protocol**

Philip Lundrigan, Sneha Kumar Kasera and Neal Patwari

* **Protecting Voice Controlled Systems Using Sound Source Identification Based on Acoustic Cues**

Yuan Gong and Christian Poellabauer

* **IoTAegis: A Scalable Framework to Secure the Internet of Things**

Allen Webb, Zhiyuan Zheng, A. L. Narasimha Reddy and Riccardo Bettati

* **On Context-Aware DDoS Attacks Using Deep Generative Networks**

Gonca Gursun, Murat Sensoy and Melih Kandemir

# 13:30-15:00

## Panel I: IoT: Hype or Research Opportunities?

Room: FuRong

Panelists: Kui Ren (University at Buffalo, USA); Yuan He (Tsinghua University, China); Eduardo Tovar (ISEP, Portugal);

Lothar Thiele (ETH, Switzerland);

Moderator: Gian Pietro Picco (U. Trento, Italy)

Email: [gianpietro.picco@unitn.it](mailto:gianpietro.picco@unitn.it)

# 15:30-17:30

## Session 4: Security and Privacy

Chair: Narasimha Reddy (Texas A&M)

Email: [reddy@tamu.edu](mailto:reddy@tamu.edu)

Room: FuRong

* **Efficient Conditional Privacy-Preserving Authentication Scheme Using Revocation Messages for VANET**

Hong Zhong, Bo Huang, Jie Cui, Jiang Li and Kewei Sha

* **Preserving Access Pattern Privacy in SGX-Assisted Encrypted Search**

Shujie Cui, Sana Belguith, Ming Zhang, Muhammad Rizwan Asghar and Giovanni Russello

* **Enhanced Attack Aware Security Provisioning Scheme in SDN/NFV Enabled over 5G Network**

Ihsan H. Abdulqadder, Deqing Zou, Israa T. Aziz, Bin Yuan and Hai Jin

* **Attacking Network Isolation in Software-Defined Networks:New attacks and Countermeasures**

Rui Xiao, Hui Zhu, Chao Song, Ximeng Liu, Jian Dong and Hui Li

* **Synthetic Forgery Attack Against Continuous Keystroke Authentication Systems**

Yan Sun and Shambhu Upadhyaya

## Session 5: Internet of Things

Chair: Lin Wang, (Technische Universität Darmstadt)

Email: [wang@tk.tu-darmstadt.de](mailto:wang@tk.tu-darmstadt.de)

Room: HaiTang

* **FR-WARD: Fast Retransmit as a Wary but Ample Response to Distributed Denial-of-Service Attacks from the Internet of Things**

Samuel Mergendahl, Devkishen Sisodia, Jun Li and Hasan Cam

* **Leveraging the Potential of WSN for an Efficient Correction of Air Pollution Fine-Grained Simulations**

Ahmed Boubrima, Walid Bechkit, Hervé Rivano and Lionel Soulhac

* **Sensing Fruit Ripeness Using Wireless Signals**

Sheng Tan, Linghan Zhang and Jie Yang

* **Robust WiFi-based Device-free Gesture Recognition via Unsupervised Adversarial Domain Adaptation**

Han Zou, Jianfei Yang, Yuxun Zhou, Lihua Xie and Costas Spanos

* **ReaderTrack: Reader-book Interaction Reasoning using RFID and Smartwatch**

Yufeng Deng, Dong Wang, Qian Zhang, Run Zhao and Bo Chen

## Invited Session 2: Blockchain Solutions and Unclonable Functions

Chair: John Daigle (University of Mississippi)

Email: [wcdaigle@olemiss.edu](mailto:wcdaigle@olemiss.edu)

Room: JinGui

* **A Fully Digital Physical Unclonable Function based Temperature Sensor for Secure Remote Sensing**

Yuan Cao, Yunyi Guo,  Benyu Liu, Wei Ge, Ming Zhu and Chip-Hong Chang

* **A Survey of Blockchain: Techniques, Applications, and Challenges**

Weichao Gao, William G. Hatcher and Wei Yu

* **A Decentralized Attribute-Based Signature for Healthcare Blockchain**

You Sun, Rui Zhang, Rui Xue, Kaiqiang Gao and Ling Liu

* **Blockchain-based Decentralized Public Key Management for Named-Data Networks**

Kan Yang, Jobin Sunny and Lan Wang

* **CoinExpress: A Fast Payment Routing Mechanism in Blockchain-based Payment Channel Networks**

Ruozhou Yu, Guoliang Xue, Vishnu Teja Kilari, Dejun Yang and Jian Tang

## Invited Session 3: Edge and Cloud Computing

Chair: Sudharshan Vazhkudai (Oak Ridge National Laboratory)

Email: [vazhkudaiss@ornl.gov](mailto:vazhkudaiss@ornl.gov)

Room: YinGui

* **Task Scheduling with Optimized Transmission Time in Collaborative Cloud-Edge Learning**

Yutao Huang, Yifei Zhu, Xiaoyi Fan, Xiaoqiang Ma, Fangxin Wang, Jiangchuan Liu, Ziyi Wang and Yong Cui

* **Quality of Service Optimization for Mobile Edge Computing in Solar-Powered Road Side Units**

Yu-Jen Ku, Po-Han Chiang and Sujit Dey

* **Request Dispatching for Minimizing Service Response Time in Edge Cloud Systems**

Hongyue Wu, Shuiguang Deng, Wei Li, Samee U. Khan, Jianwei Yin and Albert Y. Zomaya

* **Protecting the Privacy of Networked Multi-agent Systems Controlled Over the Cloud**

Alimzhan Sultangazin, Suhas Diggavi and Paulo Tabuada

* **CloudRand: Building Heterogeneous and Moving-target Network Interfaces**

Seungwon Shin, Zhaoyan Xu, Yeonkeun Kim and Guofei Gu

# July 31 (Tuesday)

# 8:30-9:30

## Keynote II: A Vision towards Pervasive Edge Computing

Speaker: Yuanyuan Yang (Stony Brook University)

Chair: Sheng Zhong (Nanjing University)

Email: [zhongsheng@nju.edu.cn](mailto:zhongsheng@nju.edu.cn)

Room: FuRong

# 10:00-12:00

## Session 6: Wireless Networks I

Chair: Lei Deng (Dongguan University of Technology)

Email: [denglei@dgut.edu.cn](mailto:denglei@dgut.edu.cn)

Room: FuRong

* **Interest Tree based Information Dissemination via Vehicular Named Data Networking**

Siyang Wang, Xiaokun Li, Weigang Wu, Xu Chen and Bin Xiao

* **Multicast Rate Adaptation in WLAN via NDN**

Fan Wu, Wang Yang, Zhenyu Fan, Qingshan Guo and Xinfang Xie

* **User Localization using Random Access Chanel Signals in LTE Networks with Massive MIMO**

Aleksei Fedorov, Haibo Zhang and Yawen Chen

* **Probability of Coexistence of LTE-LAA and WLAN Systems Based on Delay Constraints**

Yao Ma, William Young, Eric Anderson and Jason Coder

## Session 7: Software Defined Network

Chair: Rajkumar Kettimuthu (Argonne National Laboratory)

Email: [kettimut@anl.gov](mailto:kettimut@anl.gov)

Room: HaiTang

* **Robust Component-based Network Location with Noisy Range Measurements**

Tianyuan Sun, Yongcai Wang, Deying Li, Wenping Chen and Zhaoquan Gu

* **Machine Learning based Flow Entry Eviction for OpenFlow Switches**

Hemin Yang and George Riley

* **CAFFE: Congestion-Aware Fast Failure Recovery in Software Defined Networks**

Zhijie Zhu, Qing Li, Shu-Tao Xia and Mingwei Xu

* **Modelling Switches with Internal Buffering in Software-Defined Networks**

Deepak Singh, Bryan Ng, Yuan-Cheng Lai, Ying-Dar Lin and Winston Seah

* **Simplifying Network Updates in SDN and NFV Networks Using GUM**

Lei Wang, Qing Li, Yang Liu, Yong Jiang and Jianping Wu

## Session 8: Attack Detection and Mitigation

Chair: Gonca Gursun (Ozyegin University)

Email: [goncagursun@gmail.com](mailto:goncagursun@gmail.com)

Room: JinGui

* **A Novel Data Secure Deletion Scheme for Mobile Device**

Minshen Wang, Jinbo Xiong, Rong Ma and Biao Jin

* **ActivityShielder: An Activity Hijacking Defense Scheme for Android Devices**

Fei Yan, Yijia Li and Liqiang Zhang

* **Harnessing Uncertainty in Vulnerability Market**

Zhen Li and Qi Liao

* **TW-FCM: An improved Fuzzy-C-Means algorithm for SPIT detection**

Yu Zhang, Huan Wu, Jianzhong Zhang, Jingjing Wang and Xueqiang Zou

* **An Extended Exploration to the Epidemic Containment Game**

Jia-Hao Xu, Zhen Wang, Guang-Hai Cui, Yi-Zhi Ren, Hong Ding and Kim-Kwang Raymond Choo

## Invited Session 4: Algorithms and Protocols

Chair: Shambhu Upadhyaya (University at Buffalo)

Email: [shambhu@buffalo.edu](mailto:shambhu@buffalo.edu)

Room: YinGui

* **Towards a Machine Learning Based Approach to Mobile Network Analysis**

Zhaowei Tan, Zhehui Zhang, Yuanjie Li, Yunqi Kuo, Qianru Li, Songwu Lu and Chunyi Peng

* **An Assured Deletion Technique for Cloud-based IoT**

Bryan Hall and Manimaran Govindarasu

* **Handover and load balancing for Distributed Network Control: Applications in ITS Message Dissemination**

Anuj Kaul, Li Xue, Katia Obraczka, Mateus Santos and Thierry Turletti

* **Interaction Patterns in a Multilayer Social Network**

Ashwin Bahulkar and Boleslaw K. Szymanski

* **Cumulative Participant Selection with Switch Costs in Large-Scale Mobile Crowd Sensing**

Hanshang Li, Ting Li, Fan Li, Yue Wu and Yu Wang

# 13:30-15:00

## Panel II: Research Challenges on Networks in Social Spaces

Room: FuRong

Panelists: Bolek Szymanski (RPI, USA);  
Jiannong Cao (Hong Kong PolyU, Hong Kong); Sajal Das (Missouri S&T, USA);

Moderator: Mani Srivastava (UCLA, USA)

Email: [mbs@ee.ucla.edu](mailto:mbs@ee.ucla.edu)

# 15:30-16:30

## Keynote III: Liberating Technology to Act on Our Behalf

Speaker: Lama Nachman (Intel Corporation)

Chair: Shambhu Upadhyaya (University at Buffalo)

Email: [shambhu@buffalo.edu](mailto:shambhu@buffalo.edu)

Room: FuRong

# 16:30-17:30

## Poster Session I: Emerging Networks Topics: Cloud, SDN, NFV, ICN, and Blockchain

Chair: Yong Guan (Iowa State University)

Email: yguan@iastate.edu

Room: FuRong

* **Xspider: A Multi-Switch Testbed for Software Defined Networks**

Huiling Shi, Wei Zhang and Xinchang Zhang

* **A Boundless Resource Orchestrator Based on Container Technology in Edge Computing**

Zhenguang Yu, Jingyu Wang, Qi Qi, Haifeng Sun, Jian Zou and Jun Xu

* **The Research on Designs of Multiple Flow Tables in the OpenFlow Protocol**

Ligang Dong, Long Chen, Bohan He and Weiming Wang

* **Towards Blockchain-based Scalable and Trustworthy File Sharing**

Shujie Cui, Muhammad Rizwan Asghar and Giovanni Russello

* **EVN: An Elastic Virtual Network supporting NFV Customized and Rapid Migration**

Jian Zou, Jingyu Wang, Qi Qi, Haifeng Sun, Zhenguang Yu and Jun Xu

* **The Classified and Active Caching Strategy for Iterative Application In Spark**

Dejiao Niu, Bo Chen, Tao Cai and Zhipeng Chen

* **Emprical Evaluation of SDN Controllers using Mininet/Wireshark and Comparison with Cbench**

Ragaharini Jawaharan, Purnima Murali Mohan, Tamal Das and Mohan Gurusamy

* **Secondary Controller Mapping for Reliable Control Traffic Forwarding in SDN**

Lim Yong Zhi, Purnima Murali Mohan, Vignesh Sridharan and Mohan Gurusamy

* **ICN-based Light-Weighted Mobility Support in IoT**

Donghyeok An and Dohyung Kim

* **Security Threat Analysis of SDN Switch Flow Table**

Ying Qian, Prabir Bhattacharya and Kai Qian

## Poster Session II: Legacy but Critical Network Topics: Performance & Security

Chair: Weidong Yang (Henan University)

Email: [mengguyang@163.com](mailto:mengguyang@163.com)

Room: HaiTang

* **Deep Learning-Based Malicious Account Detection in the Momo Social Network**

Jiaqi Wang, Xinlei He, Qingyuan Gong, Yang Chen, Tianyi Wang and Xin Wang

* **Multi-Dimension Threat Situation Assessment Based on Network Security Attributes**

Yang Yu, Jian Wang, Jiqiang Liu, Lei Han, Xudong He and Shaohua Lv

* **Chirp Interference Mitigation for FHSS Communication Based on Compressive Sensing**

Yongshun Zhang, Xin Jia, Weigang Zhu, Jianquan Zhao and Shuya Kong

* **New big data collecting method based on compressive sensing in WSN**

Degan Zhang, Yue Dong, Jie Zhang and Ting Zhang

* **A Feasible Anomaly Diagnosis Mechanism for Stateful Firewall Rules**

Chi-Shih Chao

* **A Stop-wait Collaborative Charging Scheme for Mobile Wireless Rechargeable Sensor Networks**

He Li, Xiao Tian, Yihua Lan, Qinglei Qi, Quan Liu and Jinjiang Liu

* **QoS Control Based on the Time Sequence of First Few Packets**

Aung Kuang Myat, Masaru Onodera and Yoshito Tobe

* **Crowdsensing Approach to Monitor and Optimize Wi-Fi Networks in Adversarial Environments**

Eliana Neuza Silva, Fernando Mira Da Silva and Rui Manuel Rocha

* **A Distributed Approach based on Hierarchical Decomposition for Network Coded Group Multicast**

Meng Sun, Xinchang Zhang and Jianwei Zhang

# August 1 (Wednesday)

# 8:30-9:30

## Keynote IV: Automated Driving and Connected Vehicles

Speaker: Xuemin (Sherman) Shen (University of Waterloo)

Chair: Kui Ren (University at Buffalo)

Chair: [kuiren@buffalo.edu](mailto:kuiren@buffalo.edu)

Room: FuRong

# 10:00-12:00

## Session 9: Modeling and Evaluation

Chair: Lothar Thiele (ETH, Switzerland)

Email: [thiele@ethz.ch](mailto:thiele@ethz.ch)

Room: FuRong

* **Bandwidth Preemption for High-Priority Data Transfer on Dedicated Channels**

Liudong Zuo, Chase Wu, Nageswara Rao, Aiqin Hou and Chia-Han Chang

* **Towards a Robust and Scalable TCP Flavors Prediction Model from Passive Traffic**

Desta Haileselassie Hagos, Paal E. Engelstad, Anis Yazidi and Øivind Kure

* **Estimating Short Connection Capacity on High Performance User Level Network Stack**

Jing Xie, Wenxue Cheng, Tong Zhang, Danfeng Shan and Fengyuan Ren

* **FlowCop: Detecting “Stranger” in Network Traffic Classification**

Ningjia Fu, Yuwei Xu, Jianzhong Zhang, Rongkang Wang and Jingdong Xu

* **Redundancy Elimination on Unidirectional Lossy Links**

Leijun Huang, Hailin Feng, Ying Le and Chaofan Shen

## Session 10: Social Networks and Green Computing

Chair: Wei Liu (Georgia Gwinnett College)

Email: [wliu@ggc.edu](mailto:wliu@ggc.edu)

Room: HaiTang

* **Approximating the *k*-Minimum Distance Rumor Source Detection in Online Social Networks**

Soklong Lim, Jun Hao, Zaixin Lu, Xuechen Zhang and Zhao Zhang

* **Optimizing Online Task Allocation for Multi-Attribute Social Sensing**

Yang Zhang, Daniel Zhang, Nathan Vance and Dong Wang

* **Evolution of Resource Sharing Cooperation Based on Reciprocity in Social Networks**

Guanghai Cui, Yizhi Ren, Shengwen Tian, Ting Wu and Kim-Kwang Raymond Choo

* **Cost-effective and Eco-friendly Green Routing using Renewable Energy**

Seng-Kyoun Jo, Lin Wang, Jussi Kangasharju and Max Mühlhäuser

* **A Power-Efficient Approach to TCAM-based Regular Expression Matching**

Kun Huang and Xuelin Chen

## Invited Session 5: Network Services and Protocols I

Chair: Wang Yang (Central South University, China)

Email: [yangwang@csu.edu.cn](mailto:yangwang@csu.edu.cn)

Room: JinGui

* **Exploring Scalable Computing Architectures for Interactions Analysis**

Taruna Seth, Chao Feng, Murali Ramanathan and Vipin Chaudhary

* **ROVER: Robust and Verifiable Erasure Code for Hadoop Distributed File Systems**

Teng Wang, Nam Son Nguyen, Jiayin Wang, Tengpeng Li, Xiaoqian Zhang, Ningfang Mi, Bin Zhao and Bo Sheng

* **Distributed Device Caching for Information Updating in Emergency Communications**

Jiazhen Zhou, Cory Beard and Yi Qian

* **Democratizing Network Reservations Through Application Aware Orchestration**

Joaquin Chung, Rajkumar Kettimuthu, Nageswara S.V. Rao and Ian Foster

* **PopCorns: Power Optimization using a Cooperative Network-Server approach for Data Centers**

Bingqian Lu, Sai Santosh Dayapule, Fan Yao, Jingxin Wu, Guru Venkataramani and Suresh Subramaniam

## Invited Session 6: Robustness, Monitoring, and Failure Diagnosis

Chair: Sheng Zhong (Nanjing University)

Email: [zhongsheng@nju.edu.cn](mailto:zhongsheng@nju.edu.cn)

Room: YinGui

* **Active Probing-based Schemes and Data Analytics for Investigating Malicious Fast-Flux Web-Cloaking based Domains**

Ziji Guo and Yong Guan

* **A Framework for Misconfiguration Diagnosis in Interconnected Multi-Party Systems**

M. Athamnah, A. Pal and K. Kant

* **Dynamic Policy Deployment in SDN Switch Based on Monitoring and Analysis of User Behaviors**

Ligang Dong, Long Chen, Yunfei Zhang, Bohan He, Jing Zhou, Weiming Wang and Victor C.M. Leung

* **Failure Inference based Fast Reroute with Progressive Link Metric Increments**

Phani Krishna Penumarthi, Aaron Pecora, Jason M. O’Kane and Srihari Nelakuditi

* **The Aftermath of Broken Links: Resilience of IoT from the Networking Point of View**

Sigit Pambudi, Jie Wang, Wenye Wang, Min Song and Xiaoyan Zhu

# 13:30-15:00

## Distinguished Keynote Talk: The Way Towards Self-Learning Network

Speaker: Nicholas Zhang (Huawei)

Chair: Wei Liu (GGC)

Email: [wei-liu@att.net](mailto:wei-liu@att.net)

Room: FuRong

# 15:30-17:30

## Session 11: Hot Topics in Networking

Chair: Siguang Chen (Nanjing University of Posts and Telecommunications)

Email: [sgchen@njupt.edu.cn](mailto:sgchen@njupt.edu.cn)

Room: FuRong

* **Transaction-based Flow Rule Conflict Detection and Resolution in SDN**

Jie Cui, Sheng Zhou, Hong Zhong, Yan Xu and Kewei Sha

* **Efficient Density Estimation Algorithm for Ultra Dense Wireless Networks**

Thierry Arrabal, Dominique Dhoutaut and Eugen Dedu

* **Selecting Combined Countermeasures for Multi-Attack Paths in Intrusion Response System**

Fenghua Li, Yongjun Li, Zhengkun Yang, Yunchuan Guo, Lihua Yin and Zhen Wang

* **Is Crowdcharging Possible?**

Eyuphan Bulut, Steven Hernandez, Aashish Dhungana and Boleslaw Szymanski

* **On Scalable In-Network Operator Placement for Edge Computing**

Julien Gedeon, Michael Stein, Lin Wang and Max Mühlhäuser

## Invited Session 7: Applications

Chair: Jiazhen Zhou (University of Wisconsin - Whitewater)

Email: [zhouj@uww.edu](mailto:zhouj@uww.edu)

Room: HaiTang

* **Wi-Count: Passing People Counting with COTS  WiFi Devices**

Yanni Yang, Jiannong Cao, Xuefeng Liu and Xiulong Liu

* **Detecting Housing Market Behaviour from a Microscopic Perspective**

Jiaying Kou, Xiaoming Fu, Jiahua Du, Hua Wang and Geordie Z. Zhan

* **Achieve Efﬁcient and Privacy-preserving Medical Primary Diagnosis Based on kNN**

Dan Zhu, Hui Zhu, Ximeng Liu, Hui Li, Fengwei Wang and Hao Li

* **Multi-Class Wheat Moisture Detection with 5GHz Wi-Fi: A Deep LSTM Approach**

Weidong Yang, Xuyu Wang, Shui Cao, Hui Wang and Shiwen Mao

* **Worker Recruitment Strategy for Self-Organized Mobile Social Crowdsensing**

En Wang, Yongjian Yang, Jie Wu, Dongming Luan and Hengzhi Wang

## Invited Session 8: Network Services and Protocols II

Chair: Kang Chen (Southern Illinois University, Carbondale)

Email: [kchen@siu.edu](mailto:kchen@siu.edu)

Room: JinGui

* **Centralized versus Distributed Efﬁcient Route Computation with Multiply-Constrained Link Costs**

Rajesh Bhajracharia and John N. Daigle

* **Coalition-based Cooperative Routing in Cognitive Radio Networks**

Chowdhury Sayeed Hyder, Li Xiao and Guoliang Xing

* **HSNet: Energy Conservation in Heterogeneous Smartphone Ad Hoc Networks**

James Mariani, Spencer Ottarson and Li Xiao

* **A Multi-Rounds Double Auction Based Resource Trading for Small-Cell Caching System**

Feiran You, Jun Li, Jinhui Lu, Feng Shu, Tingting Liu and Zhu Ha

## Invited Session 9: Wireless Networks II

Chair: Winston Seah (Victoria University of Wellington)

Email: [Winston.Seah@ecs.vuw.ac.nz](mailto:Winston.Seah@ecs.vuw.ac.nz)

Room: YinGui

* **A Comparative Performance Evaluation of Wake-up Radio-based Data Forwarding for Green Wireless Networks**

Stefano Basagni, Georgia Koutsandria and Chiara Petrioli

* **On the Asymptotic Performance of Delay-Constrained Slotted ALOHA**

Lei Deng, Jing Deng, Po-Ning Chen and Yunghsiang S. Han

* **Combating Cross-Technology Interference for Robust Wireless Sensing with COTS WiFi**

Yue Zheng, Zheng Yang, Junjie Yin, Chenshu Wu, Kun Qian, Fu Xiao and Yunhao Liu

* **Group-Query-as-a-Service for Secure Low-Latency Opportunistic RF Spectrum Access in Mobile Edge Computing Enabled Wireless Networks**

Abdulhamid Adebayo, Danda B. Rawat, Lina Ni and Min Song

* **A Lightweight Scheme for Rapid and Accurate WiFi Path Characterization**

Lixing Song and Aaron Striegel

Workshop Program Overview

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **August 2 (Thursday) - Workshops** | | | | |
| 7:30am - Registration Desk (FuRong Foyer)/Continental Breakfast (BaiHe Room) | | | | |
| 08:00 - 12:00 | RM (JinGui)  SECIoT | RM (HaiTang)  IoTPST | RM (YinGui)  ECN | RM (FuRong)  BDMLS |
| 9:45 – 10:15 | Coffee break | | | |
| 12:00 - 13:30 | Lunch break | | | |
| 13:30 - 17:00 | RM (JinGui)  SECIoT + WiMAN | RM (HaiTang)  IoTPST | RM (YinGui) ECN | RM (FuRong)  BDMLS |
| 15:00 – 15:30 | Coffee break | | | |

Integrated Workshop Schedule

# Aug 2 (Thursday)

# 8:00-12:00

**SECIoT Workshop (RM: JinGui):**

Chair: Deyu Zhang, Wenjia Li and Feng Zeng

Welcome 8:00 – 8:15

**Session 1: 8:15 – 9:45**Session Chair: Deyu Zhang (Central South University)

Email: [Zdy876@csu.edu.cn](mailto:Zdy876@csu.edu.cn)

**Keynote:** Prof. Songtao Guo from Southwest University

**Title:** Mobile Edge Computing: Edge Cloud Selection and Computation Offloading

**Coffee Break (9:45 – 10:15 )**

**Session 2: 10:15 – 12: 00**

Session Chair: Deyu Zhang (Central South University)

Email: [Zdy876@csu.edu.cn](mailto:Zdy876@csu.edu.cn)

* **A Near-optimal Cloud Offloading Approach under Multi-user Multi-Radio Environment**

Guangsheng Feng, Haibin Lv, Bingyang Li,

Huiqiang Wang, Hongwu Lv, Qiao Zhao

(Harbin Engineering University)

* **Energy Management for Multi-User Mobile-Edge Computing Systems with Energy Harvesting Devices and QoS Constraints**

Guanglin Zhang, Yan Chen, Zhirong Shen

(Donghua University) and Lin Wang

(Shanghai Jiao Tong University)

**Session 3: 13:30 – 15: 00**

Session Chair: Lan Yao (Hunan University)

Email: [yao@hnu.edu.cn](mailto:yao@hnu.edu.cn)

* **Steering Machine Learning Mechanism Integrated Vessel Networks to Achieve Cooperative Collision Avoidance**

Tingting Yang, Chengzhuo Han, (Dalian

Maritime University) Jie Dong (Dalian

University of Technology) and Minghua

Xia (Sun Yat-Sen University)

* **Cluster-Aware Kronecker-Supported Data Collection for Sensory Data**

Siguang Chen, Zhihao Wang (Nanjing

University of Posts and

Telecommunications) and Kewei Sha (University of Houston - Clear Lake)

* **A Low-Cost Edge Server Placement Strategy in Wireless Metropolitan Area Networks**

Yongzheng, Ren, Feng Zeng, (Central

South University), Wenjia Li (New York

Institute of Technology)

* **Social-aware D2D Caching Content Deployment Strategy over Edge Computing Wireless Networks**

Tingting Xu, Jian Jiao, Xin Chen and Ying

Chen (Beijing Information Science and

Technology University)

Closing

**Coffee Break: 15:00 – 15:30**

**WiMAN Workshop (RM: JinGui):**

Chair: Cuong Pham and Ting Zhang

Welcome

**Session 1: 15:30 – 17:00**

Session Chair: Ting Zhang (McDaniel College)

Email: [tzhang@mcdaniel.edu](mailto:tzhang@mcdaniel.edu)

* **Diffusion Utility Increment Based Crowdsensing Data Transmission Model Over City Public Traffic System**

Zhenlong Peng, Jian An, Xiaolin Gui, Tianjie Wu, (Xi'an Jiaotong University,) Jiangxian Wu (Quanzhou Normal University)

* **Layered Compression Scheme for Efficient Data Collection of Sensory Data**

Siguang Chen, Shujun Zhang, Bin Xu, (Nanjing University of Posts and Telecommunications) Jing Hu, (Jiangsu China Tobacco Industry Co., Ltd.) Vijayakumar Varadarajan (VIT University)

* **New Reliable Self-Adaptive Routing Protocol for Vehicular Ad Hoc Network**

Degan Zhang, (Tianjin University of Technology) Yue Dong (Liaoning University), Jie Zhang, Ting Zhang (Tianjin University of Technology)

* **Analysis of Channel Access Priority Classes in LTE-LAA Spectrum Sharing System**

Yao Ma (National Institute of Standards and Technology)

Closing

**IoTPST Workshop (RM: HaiTang):**

Chair: Qian Chen, Sherif Abdelwahed and Qin Zhan

Welcome

**Session 1: 8:15 – 9:45**

Session Chair: Qian Chen (University of Texas at San Antonio)

Email: [guenevereqian.chen@utsa.edu](mailto:guenevereqian.chen@utsa.edu)

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

**Coffee Break: 9:45 – 10:15**

**Session 2: 10:15 – 12:00**

Session Chair: Qian Chen (University of Texas at San Antonio)

Email: [guenevereqian.chen@utsa.edu](mailto:guenevereqian.chen@utsa.edu)

* **Probabilistic Position Estimation and Model Checking for Resource-Constrained IoT Devices**

Toshifusa Sekizawa, Taiju Mikoshi, Masataka Nagura, Ryo Watanabe (Nihon University) and Qian Chen (University of Texas at San Antonio)

* **Can Machine Learning Techniques be effectively used in real networks against DDoS attacks?**

Jarrod Bakker, Bryan Ng and Winston Seah (Victoria University of Wellington)

* **Survivability Model for Security and Dependability Analysis of a Vulnerable Critical System**

Xiaolin Chang, Shaohua Lv, (Beijing Jiaotong University) Ricardo Rodríguez (Centro Universitario de la Defensa) and Yang Yang (Beijing Jiaotong University)

**Session 3: 13:30 – 15:00**

Session Chair: Qian Chen (University of Texas at San Antonio)

Email: [guenevereqian.chen@utsa.edu](mailto:guenevereqian.chen@utsa.edu)

* **Blockchain-based Security Layer for Identification and Isolation of Malicious Things in IoT: A Conceptual Design**

Mandrita Banerjee, Junghee Lee, Qian Chen and Kim-Kwang Raymond Choo (University of Texas at San Antonio)

* **On the RSA Problem in SLICE Networks: A Novel Relaxation and Decomposition Approach**

Yang Wang, Hung Nguyen (La Salle University) and Chaoyang Li (Oakland University).

* **A Blockchain-based Authentication and Security Mechanism of IoT**

Dongxing Li, Wei Peng, Wenping Deng and Fangyu Gai (National University of Defense Technology)

Closing

**ECN Workshop (RM: YinGui):**

Chair: Lin Wang, Xu Chen and Antonio Fernández Anta

Welcome

**Session 1: 8:15 – 9:45**

**Session Chair:** Lin Wang(Technische Universität Darmstadt)

Email: [wang@tk.tu-darmstadt.de](mailto:wang@tk.tu-darmstadt.de)

**Workshop Keynote**: Prof. Jussi Kangasharju, University of Helsinki

**Coffee Break: 9:45 – 10:15**

**Session 2: 10:15 – 12:00**

Session Chair: Xu Chen (Sun Yat-sen University)

Email: [chenxu35@mail.sysu.edu.cn](mailto:chenxu35@mail.sysu.edu.cn)

* **Application, Workload, and Infrastructure Models for Virtualized Content Delivery Networks Deployed in Edge Computing Environments**

Thang Le Duc and Per-Olov Ostberg (Umea University)

* **GPU-Accelerated Task Execution in Heterogeneous Edge Environments**

Dominik Schäfer, Janick Edinger and Christian Becker (Universität Mannheim)

* **A Pricing-based Cost-aware Dynamic Resource Management for Cooperative Cloudlets in Edge Computing**

Xili Wan, Jia Yin, Xinjie Guan, Guangwei Bai (Nanjing Tech University) and Baek-Young Choi (University of Missouri)

* **Novel Method of Game-Based Energy Efficient Subcarrier Allocation for IOT**

Degan Zhang, Xiaohuan Liu, Ting Zhang and Guoqiang Mao (Tianjin University of Technology)

**Session 3: 13:30 – 15:00**

Session Chair: Lin Wang (Technische Universität Darmstadt)

Email: [wang@tk.tu-darmstadt.de](mailto:wang@tk.tu-darmstadt.de)

* **INCEPT: INcremental ControllEr PlacemenT in Software Defined Networks**

Tamal Das and Mohan Gurusamy (National University of Singapore)

* **IoT Applications in Fog and Edge Computing: Where Are We and Where Are We Going?**

Melanie Heck, Janick Edinger, Dominik Schäfer and Christian Becker (Universität Mannheim)

* **Opportunistic prefetching of cellular Internet of Things (cIoT) device contexts**

Srinivasan Iyengar (University of Massachusetts Amherst), Vijay Gurbani, Yu Zhou and Sameerkumar Sharma (Nokia Bell Labs)

**Coffee Break: 15:00 – 15:30**

**Session 4: 15:30 – 17:00**

Session Chair: Lin Wang (Technische Universität Darmstadt)

Email: [wang@tk.tu-darmstadt.de](mailto:wang@tk.tu-darmstadt.de)

* **Synchronization of Video-embedded 3D Contents for Tiled Display System**

Longjiang Li (University of Science and Technology of China), Shawn Xiaoli Xiong (iLumintel Co., Ltd), Jianjun Yang and Yuming Mao (University of Science and Technology of China)

* **An Edge Device Centric e-Health Interconnection Architecture**

Wei Liu (Georgia Gwinnett College), S.S. Zhu (S. T. U.) and U. Krieger (University of Bamberg)

Closing

**BDMLS Workshop (RN: FuRong):**

Chair: Xiaofeng Lu and Baojiang Cui

Welcome

**Session 1: 8:15 – 9:45**

Session Chair: Xiaofeng Lu (Beijing University of Posts and Communications)   
Email: luxf@bupt.edu.cn

**Workshop Keynote**: Application of Biometric Authentication in Internet Finance by Dr. Hongwei Luo

**Coffee Break: 9:45 – 10:15**

**Session 2: 10:15 – 12:00**

Session Chair: Tao Chang (Hangzhou Hikvision Digital Technology Co., Ltd)

Email: changtao@hikvision.com

* **Malware Detection Using Machine Learning Based on the Combination of Dynamic and Static Features**

Jingling Zhao, Suoxing Zhang, Bohan Liu, Baojiang Cui (Beijing University of Posts and Telecommunications)

* **A double-layer detection and classification approach for network attacks**

Chong Sun, Kun Lv, Changzhen Hu (Beijing Institute of Technology)

* **Vulnerability mining method based on genetic algorithm and model constraint**

Jun Yang, Guojun Mei, Chen Chen, (Beijing University of Posts and Telecommunications)

* **A Monte Carlo Graph Search Algorithm With Ant Colony Optimization for Optimal Attack Path Analysis**

Hui Xie, Kun Lv, Changzhen Hu (Beijing Institute of Technology)

**Session 3: 13:30 – 15:00**

Session Chair: Yatao Yang (Beijing Electronic Science & Technology Institute)

Email: yy2008@163.com

* **A Format Preserving Encryption Algorithm to Support the Maintenance of the Relation between Plaintext and Ciphertext in Data Mining**

BaoJiang Cui, KaiYue Wang, RuiQing Liu (Beijing University of Posts and Telecommunications)

* **A safety-security assessment approach for Communication-based train control (CBTC) systems based on the extended fault tree**

Shengwei Yi, Hongwei Wang, Yangyang Ma, Feng Xie, Puhan Zhang (China Information Technology Security Evaluation Center)

* **Terminal Sensitive Data Protection by Adjusting Access Time Bidirectionally and Automatically**

Xiaofeng LU, Chen LIANG, Pietro LIO, Pan HUI, Sha Jing (Beijing University of Posts and Telecommunications)

* **The Runtime System Problem Identification Method Based on Log Analysis**

Yanfang Liu, Jianghua Lv, Shilong Ma (Beihang University)

**Coffee Break 15:00 – 15:30**

**Session 4: 15:30 – 17:00**

Session Chair: Shengwei Yi

(China Information Technology Security Evaluation Center)

Email: [yishengwei@foxmail.com](mailto:yishengwei@foxmail.com)

* **Hsata: Improved SATA Protocol with HMAC**

YANG Yatao, CAO Guangcan, QU Ming, HUANG Jierun (Beijing Electronic Science & Technology Institute)

* **Pedestrian Detection Algorithm Based on Multi-Feature Cascade**

Jia Wen, Peng-Fei Liu, Chu Jia, Hong-Jun Wang (Yanshan University)

* **Hierarchical Filtering Method of Alerts Based on multi-source information Correlation analysis**

Xudong He, Jian Wang, Jiqiang Liu, Yang Yu, Lei Han, Shaohua Lv (Beijing Jiaotong University)

Closing

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