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HotMobile'18

Proceedings of the 19th International Workshop on
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HotMobile'20

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Welcome to ACM HotMobile 2021.

It is our great pleasure to welcome you to the twenty-second edition of the International Workshop on Mobile Computing Systems and Applications -- HotMobile 2021. This year continues the tradition of selective, highly interactive workshops that discuss the latest ideas in mobile systems and applications, along with new breakthroughs in underlying technologies. HotMobile's small workshop format makes it ideal for presenting and discussing new directions or controversial approaches.

Our technical program features keynotes, 22 technical papers, a panel on ethics&policy of AI applied to mobile and IoT systems, and a Demo & Poster session. The Program Committee of 18 scholars selected the 22 full papers out of 61 submissions. All submissions received at least three reviews, and many received five. A full day PC meeting was held online to make the final decisions. Each accepted paper was shepherded by a PC member to help the authors improve their final papers. The PC members demonstrated a strong commitment to the selection process by submitting high-quality reviews and engaging in the discussions as well as the shepherding process, and we deeply thank them for their valuable efforts. Accompanying full papers are a set of posters and demonstrations of exciting early stage research from the community. Collectively, our program spans a rich range of interesting and important topics, which reflects the breadth and the quality of the research activities in this field around the globe.

Putting together ACM HotMobile 2021 has been a collaborative effort involving many within our community. First, we would like to thank the authors whose ideas and effort provide the heart of the workshop. We would like to thank the organizing committee for their hard work, including the global arrangement chair, Poonam Yadav, the publicity chair, Yaser Jararweh, the publication chair, Jagmohan Chauhan, Poster and Demo chair, Paul Patras, and the Web chair, Mateusz Mikusz. We are also indebted to the consistent help of the steering committee in putting the workshop together. We thank ACM SIGMOBILE for sponsoring the workshop, as well as our corporate sponsor ARM. We sincerely hope that this year's workshop will provide you with a valuable opportunity to share ideas and experiences with the global research community, and you will find it interesting and enjoyable.

Mirco Musolesi

HotMobile 2021 General Chair

University College London, United Kingdom

Junehwa Song

HotMobile 2021 Program Chair

KAIST, Korea

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Foreword

Welcome to the 19th edition of the *ACM Internet Measurement Conference* (IMC), hosted in Amsterdam, Netherlands! For 2019, IMC continues its tradition as the preeminent venue for network measurement research, with papers and sessions devoted to a variety of timely and important topics relevant to operating, understanding, and securing the Internet.

This year, IMC received 197 submissions, 118 of which were full papers (60%) with the remaining being short submissions. Geographically, the distribution of papers included 47% from submitted by USA based first authors, 32% from Europe, 16% from Asia, and the remainder from other locations. 73% of submissions were authored by individuals from academia, while 22% of submissions came from a mix of academic and commercial authors. A remaining 5% of submitted papers had all commercial authors. Among the set of self-reported topics, security, web, measurement platforms, infrastructure and machine learning were the five most common topics for the submitted papers.

The technical program committee (TPC), consisting of 42 members, followed a multi-stage review process. All papers received at least three reviews in the first round. 94 papers (48%) made it to the second review round where they received at least an additional two reviews. Particularly divisive papers, or those for which no PC member had high expertise, received additional external reviews. Of the second round papers, 65 made it to discussion at the in-person TPC meeting. A total of 39 papers were accepted to the program for a final acceptance rate of 19.8%. We are delighted with the set of accepted papers, and hope readers and participants find them as valuable and provocative as we do.

Of note, and subject of much discussion among the reviewers, were papers that did not take the ethical considerations of their work into proper account – something that is crucial in our field. While some papers simply ignored ethics altogether, others gave it only superficial treatment. Still others relied solely on approval from their institutional review board. Indeed, this is a necessary but not sufficient condition. Across institutions, review boards vary in their criteria and evaluations of network measurement research and it is up to the researchers themselves to ensure that they are protecting individuals, and balancing harm and beneficence. Some papers were rejected due to ethical issues, despite being technically strong.

In a notable change from previous years, the steering committee required submissions to IMC 2019 to be best-effort anonymous. This policy is designed to balance the tension between removing a potential source of review bias and allowing submissions from well-known projects or platforms. While we received numerous requests for clarification on this policy, many of the concerns were straightforward for the authors to address and represent the continuum of best-effort anonymization. For example, to support the representativeness of the data, it is trivial to say that it comes from e.g., a large content provider (of which there are many) rather than naming the specific provider. Or, while there may be research contained in a submission that could only have been performed with access to data from a particular commercial provider, that does not necessarily imply that the research is authored by employees of that company (for instance, data is frequently shared between organizations or analyzed by interns). And even if the paper is authored by employees of the company from which the data originated, blinding obscures who are the authors. While the process is not perfect, we believe IMC has moved in the correct direction with this anonymity policy. Overall the reactions we received – from both authors and reviewers – were overwhelmingly positive of this change.

We extend our special thanks to the IMC Steering Committee and their guidance in changing to double-blind submissions, Pedro Casas for publicity, Justin Rohrer for serving as publication chair, and Tijay Chung for maintaining the web site. Thanks to students Cecilia Testart and Josh Welch for scribing during the TPC meeting. This conference would not be possible without Anna Sperotto, Roland van Rijswijk-Deij, and Cristian Hesselman as general chairs, and the tireless efforts of the entire TPC. Last, we thank the authors for continuing to push the state-of-the-art in network measurements, techniques, and using measurements to gain deeper understanding of the systems on which we all depend.

Robert Beverly
IMC 2019 Program Co-Chair
Naval Postgraduate School, USA

Phillipa Gill
IMC 2019 Program Co-Chair
UMass Amherst, USA

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Program

Tuesday, April 28

08:30 - 10:30

Keynote: Keynote

WInternet: From Net of Things to Internet of Things

Room: Ballroom ABC

Internet of Things (IoT) is a networking infrastructure for cyber-physical systems. With IoT, physical objects should be seamlessly integrated into an Internet-like system so that the physical objects and cyber-agents can interact each other in order to achieve mission-critical objectives. Given its tremendous application potential, IoT has become popular in recent years, attracting great attentions from both academic research and industrial development. In this talk, we will first focus on fundamental issues related to IoT. We address principles that should guide research and development of IoT. We will then present several approaches that may lead to implementation of IoT and analyze their advantages and disadvantages. We will show an implementation of IoT called "WInternet" and demonstrate its application. Finally, we will discuss critical issues that must be addressed in order to fully realize the objectives and potentials of IoT.

11:15 - 12:45

BALLROOM-A01: Multimedia Networking

Room: Ballroom A

Chair: Chong Luo (Microsoft Research, P.R. China)

Video Acuity Assessment in Mobile Devices

Eilwoo Baik (University of California, Davis, USA); Amit Pande (University of California Davis, CA, USA); Chris Stover and Prasant Mohapatra (University of California, Davis, USA)

Redundancy Control through Traffic Deduplication

Kien Hua, Ning Jiang, Jason Kuhns, Vaithiyananthan Sundaram and Cliff Zou (University of Central Florida, USA)

Optimized Layered Integrated Video Encoding

Sangki Yun and Daehyeok Kim (University of Texas at Austin, USA); Xiaofan Lu and Lili Qiu (The University of Texas at Austin, USA)

Adaptive Video Streaming over Whitespace: SVC for 3-Tiered Spectrum Sharing

Xiaoli Wang, Jiasi Chen, Aveek Dutta and Mung Chiang (Princeton University, USA)

BALLROOM-B01: Device-to-Device and 5G Networks

Room: Ballroom B

Chair: Kate Ching-Ju Lin (Academia Sinica, Taiwan)

On the Performance of Successive Interference Cancellation in D2D-enabled Cellular Networks

Chuan Ma and Weijie Wu (Shanghai Jiao Tong University, P.R. China); Ying Cui and Xinbing Wang (Shanghai Jiaotong University, P.R. China)

A Stochastic Geometry Analysis of D2D Overlaying Multi-Channel Downlink Cellular Networks

Jiajia Liu and Shangwei Zhang (Xidian University, P.R. China); Hiroki Nishiyama and Nei Kato (Tohoku University, Japan); Jun Guo (BUPT, P.R. China)

Heterogeneous Statistical QoS Provisioning Over 5G Wireless Full-Duplex Networks

Wenchi Cheng (Xidian University, P.R. China); Xi Zhang (Texas A&M University, ECE Department, USA); Hailin Zhang (Xidian University, P.R. China)

Capacity Gain of Physical Layer Caching in Backhaul-Limited Dense Wireless Networks

An Liu and Vincent Lau (Hong Kong University of Science and Technology, Hong Kong)

BALLROOM-C01: Energy Efficiency in Wireless Networks

Room: Ballroom C

Chair: Wenjie Hu (The Pennsylvania State University, USA)

Energy-efficient Transmission with Data Sharing

Weiwei Wu (Southeast University, P.R. China); Jianping Wang and Minming Li (City University of Hong Kong, Hong Kong); Kai Liu (Chongqing University, P.R. China); Luo Junzhou (Southeast University, P.R. China)

ExPerio - Exploiting Periodicity for Opportunistic Energy-Efficient Data Transmission

Philipp Kindt (Lehrstuhl für Realzeit-Computersysteme (RCS) & Technische Universität München, Germany); Jing Han (Lehrstuhl für Realzeit-Computersysteme (RCS), Germany); Nadja Peters (Lehrstuhl für Realzeit-Computersysteme (RCS), Technische Universität München, Germany); Samarjit Chakraborty (Technical University München, Germany)

Energy-Aware Wireless Scheduling with Near Optimal Backlog and Convergence Time Tradeoffs

Michael J. Neely (University of Southern California, USA)

Power-Throughput Tradeoffs of 802.11n/ac in Smartphones

Swetank Kumar Saha, Pratik Deshpande, Pranav P Inamdar, Ramanujan K Sheshadri and Dimitrios Koutsonikolas (University at Buffalo, SUNY, USA)

CHING01: Topology and Flow Control in Datacenter Networks

Room: Ching

Chair: Kai Chen (Hong Kong University of Science and Technology, Hong Kong)

Towards 48-Fold Cabling Complexity Reduction in Large Flattened Butterfly Networks

Márton Csernai (Budapest University of Technology and Economics, Hungary); Florin Ciucu (University of Warwick, United Kingdom); Ralf-Peter Braun (Deutsche Telekom T-Labs, Germany); András Gulyás (Budapest University of Technology and Economics, Hungary)

Absorbing Micro-burst Traffic by Enhancing Dynamic Threshold Policy of Data Center Switches

Danfeng Shan, Wanchun Jiang and Fengyuan Ren (Tsinghua University, P.R. China)

More Load, More Differentiation - a Design Principle for Deadline-Aware Flow Control in DCNs

Han Zhang (Tsinghua University, Beijing, P.R. China); Xingang Shi, Xia Yin, Fengyuan Ren and Zhiliang Wang (Tsinghua University, P.R. China)

Cost Efficient and Performance Guaranteed Virtual Network Embedding in Multicast Fat-Tree DCNs

Jun Duan, Zhiyang Guo and Yuanyuan Yang (Stony Brook University, USA)

MING-II01: Cognitive Radio Networks 1

Room: Ming II

Chair: Dejun Yang (Colorado School of Mines, USA)

Efficient Broadcast on Fragmented Spectrum in Cognitive Radio Networks

Pei Huang, Chin-Jung Liu, Xi Yang and Li Xiao (Michigan State University, USA)

Improved Rendezvous Algorithms for Heterogeneous Cognitive Radio Networks

Zhaoquan Gu and Haosen Pu (Tsinghua University, P.R. China); Qiang-Sheng Hua (Huazhong University of Science and Technology, P.R. China); Francis C.M. Lau (The University of Hong Kong, Hong Kong)

Optimal Secondary User Packet Size in Mobile Cognitive Radio Networks under Fading Channels

Yi Song (Wichita State University, USA)

SpecGuard: Spectrum Misuse Detection in Dynamic Spectrum Access Systems

Xiaocong Jin and Jingchao Sun (Arizona State University, USA); Rui Zhang (University of Hawaii, USA); Yanchao Zhang (Arizona State University, USA); Chi Zhang (University of Science of Technology of China, P.R. China)

SUNG-I01: Software Defined Networking 1

Room: Sung I

Chair: Mooi Choo Chuah (Lehigh University, USA)

Reliable Multicast Routing for Software-Defined Networks

Shan-Hsiang Shen, Liang-Hao Huang, De-Nian Yang and Wen-Tsuen Chen (Academia Sinica, Taiwan)

A Distributed and Robust SDN Control Plane for Transactional Network Updates

Marco Canini (Université Catholique de Louvain (UCL), Belgium); Petr Kuznetsov (Télécom ParisTech, France); Dan Levin (TU Berlin, Germany); Stefan Schmid (T-Labs & TU Berlin, Germany)

Cracking Network Monitoring in DCNs with SDN

Zhiming Hu and Jun Luo (Nanyang Technological University, Singapore)

UbiFlow: Mobility Management in Urban-scale Software Defined IoT

Di Wu (Imperial College London & Intel Collaborative Research Institute for Sustainable Connected Cities, United Kingdom); Dmitri Arkhipov (University of California, Irvine, USA); Eskindir Asmare (Imperial College London, United Kingdom); Zhijing Qin (University of California, Irvine, USA); Julie McCann (Imperial College London, United Kingdom)

SUNG-II01: Sensor Networks 1

Room: Sung II

Chair: Lars C Wolf (Technische Universität Braunschweig, Germany)

Composite Event Coverage in Wireless Sensor Networks with Heterogeneous Sensors

Jing Gao and Jianzhong Li (Harbin Institute of Technology, P.R. China); Zhipeng Cai (Georgia State University, USA); Hong Gao (University of Harbin Institute Technology, P.R. China)

On the Construction of Maximum-Quality Aggregation Trees in Deadline-Constrained WSNs

Bahram Alinia (University of Tehran, France); Mohammad Hassan Hajiesmaili (Institute of Network Coding, The Chinese University of Hong Kong, Hong Kong); Ahmad Khonsari (University of Tehran, Iran)

Boosting Sensor Network Calculus by Thoroughly Bounding Cross-Traffic

Steffen Bondorf and Jens Schmitt (University of Kaiserslautern, Germany)

Minimizing the Maximum Sensor Movement for Barrier Coverage in the Plane

Shuangjuan Li (Sun Yat-Sen University, P.R. China); Hong Shen (University of Adelaide, Australia)

TANG01: Security in Wireless Networks

Room: Tang

Chair: Rongxing Lu (Nanyang Technological University, Singapore)

Queuing the Trust: Secure Backpressure Algorithm against Insider Threats in Wireless Networks

Zhuo Lu (University of Memphis, USA); Yalin E Sagduyu (Intelligent Automation, Inc., USA); Jason Hongjun Li (Intelligent Automation Inc., USA)

Game-Theory-Based Batch Identification of Invalid Signatures in Wireless Mobile Networks

Jing Chen (Wuhan University, P.R. China); Quan Yuan (University of Texas-Permian Basin, USA); Guoliang Xue (Arizona State University, USA); Ruiying Du (Wuhan University, P.R. China)

Exploiting Mobile Social Behaviors for Sybil Detection

Kuan Zhang and Xiaohui Liang (University of Waterloo, Canada); Rongxing Lu (Nanyang Technological University, Singapore); Kan Yang and Sherman Shen (University of Waterloo, Canada)

Network Anti-Inference: A Fundamental Perspective on Proactive Strategies to Counter Flow Inference

Zhuo Lu (University of Memphis, USA); Cliff Wang (Army Research Office, USA)

14:15 - 15:45**BALLROOM-A02: Overlay and Peer-to-Peer Networks**

Room: Ballroom A

Chair: Haiyong Xie (University of Science and Technology of China & Central Research, Huawei Technologies, USA)

ISP-friendly Peer-assisted On-demand Streaming of Long Duration Content in BBC iPlayer

Dmytro Karamshuk (King's College London, United Kingdom); Nishanth Sastry (King's College London & Kings College London, United Kingdom); Andrew Secker and Jigna Chandaria (BBC R&D, United Kingdom)

On the Impossibility of Efficient Self-Stabilization in Virtual Overlays with Churn

Stefanie Roos and Thorsten Strufe (TU Dresden, Germany)

Network Latency Prediction for Personal Devices: Distance-Feature Decomposition from 3D Sampling

Bang Liu and Di Niu (University of Alberta, Canada); Zongpeng Li (University of Calgary, Canada); H. Vicky Zhao (University of Alberta, Canada)

PeerClean: Unveiling Peer-to-Peer Botnets through Dynamic Group Behavior Analysis

Qiben Yan (Virginia Tech, USA); Yao Zheng (Virginia Polytechnic Institute and State University, USA); Tingting Jiang (Virginia Tech, USA); Wenjing Lou (Virginia Tech & National Science Foundation, USA); Thomas Hou (Virginia Tech, USA)

BALLROOM-B02: Heterogeneous Cellular Networks

Room: Ballroom B

Chair: Giovanni Pau (UPMC Sorbonne Universités & UCLA, France)

Femto-Matching: Efficient Traffic Offloading in Heterogeneous Cellular Networks

Wei Wang (Nanjing University, P.R. China); Xiaobing Wu (Nanjing University & National Laboratory for Novel Software Technology, P.R. China); Lei Xie and Sanglu Lu (Nanjing University, P.R. China)

Radio Resource Allocation in Heterogeneous Wireless Networks: A Spatial-Temporal Perspective

Wei Bao and Ben Liang (University of Toronto, Canada)

ADMM based algorithm for eICIC configuration in heterogeneous cellular networks

Hao Zhou (University of Science and Technology of China, P.R. China); Yusheng Ji and Xiaoyan Wang (National Institute of Informatics, Japan); Baohua Zhao (P.R. China)

Performance Analysis for Two-Tier Cellular Systems based on Probabilistic Distance Models

Maryam Ahmadi and Fei Tong (University of Victoria, Canada); Lei Zheng (UVic, Canada); Jianping Pan (University of Victoria, Canada)

BALLROOM-C02: Mobile and Wireless Network Measurements 1

Room: Ballroom C

Chair: Dimitrios Koutsonikolas (University at Buffalo, SUNY, USA)

How Bad Are The Rogues' Impact on Enterprise 802.11 Network Performance?

Kaixin Sui, Youjian Zhao, Dan Pei and Li Zimu (Tsinghua University, P.R. China)

On the Accuracy of Smartphone-based Mobile Network Measurement

Weichao Li, Ka Pui Mok, Daoyuan Wu and Rocky Chang (The Hong Kong Polytechnic University, Hong Kong)

Exploiting Causes and Effects of Wireless Link Correlation for Better Performance

Song Min Kim (University of Minnesota, USA); Shuai Wang (University of Minnesota, Twin Cities, USA); Tian He (University of Minnesota, USA)

Dissecting Packet Loss in Mobile Broadband Networks from the Edge

Džiugas Baltrūnas, Ahmed Mustafa Elmokashfi and Amund Kvalbein (Simula Research Laboratory, Norway)

CHING02: Routing and Scheduling in Datacenter Networks

Room: Ching

Chair: Arun Somani (Iowa State University, USA)

Exploiting Large System Dynamics for Designing Simple Data Center Schedulers

Youyi Zheng (Ohio State University, USA); Ness B. Shroff (The Ohio State University, USA); R. Srikant (University of Illinois at Urbana-Champaign, USA); Prasun Sinha (Ohio State University, USA)

End-to-End Scheduling for All-Optical Data Centers

Chang-Heng Wang (University of California, San Diego, USA); Tara Javidi (UCSD, USA); George Porter (University of California, San Diego, USA)

RUSH: RoUting and Scheduling for Hybrid Data Center Networks

Kai Han (Nanyang Technological University, P.R. China); Zhiming Hu and Jun Luo (Nanyang Technological University, Singapore); Liu Xiang (Institute for Infocomm Research, A*STAR, Singapore)

RAPIER: Integrating Routing and Scheduling for Coflow-aware Data Center Networks

Yangming Zhao (University of Electronic Science and Technology of China, P.R. China); Kai Chen and Wei Bai (Hong Kong University of Science and Technology, Hong Kong); Minlan Yu (University of Southern California, USA); Chen Tian (Huazhong University of Science and Technology, P.R. China); Yanhui Geng (Huawei Noah's Ark Lab, Hong Kong); Yiming Zhang (National University of Defense Technology & NUDT, P.R. China); Dan Li (Tsinghua University, P.R. China); Sheng Wang (University of Electronic Science and Technology of China, P.R. China)

MING-II02: Cognitive Radio Networks 2

Room: Ming II

Chair: Lin Chen (The University of Paris-Sud, France)

Joint Sensing Task and Subband Allocation for Large-scale Spectrum Profiling

Dong-Hoon Shin (Arizona State University, USA); Shibo He (Zhejiang University, P.R. China); Junshan Zhang (Arizona State University, USA)

Priority Differentiation in Cognitive Radio Networks

Jelena Mišić, Md Mizanur Rahman and Vojislav B. Mišić (Ryerson University, Canada)

Mode and User Selection for Multi-User MIMO WLANs without CSI

Narendra Anand (Rice University, USA); Jeongkeun Lee (HP Labs, USA); Sung-Ju Lee (KAIST, Korea); Edward W. Knightly (Rice University, USA)

Changing Channel without Strings: Coordination-Free Wideband Spectrum Adaptation

Wei Wang, Yingjie Chen and Zeyu Wang (Hong Kong University of Science and Technology, Hong Kong); Jin Zhang (South University of Science and Technology of China, P.R. China); Kaishun Wu (Shenzhen University, P.R. China); Qian Zhang (Hong Kong University of Science and Technology, Hong Kong)

SUNG-I02: Software Defined Networking 2

Room: Sung I

Chair: Serge Fdida (UPMC Sorbonne Universités, France)

On the Co-Existence of Distributed and Centralized Routing Control-Planes

Stefano Vissicchio (Université Catholique de Louvain, Belgium); Luca Cittadini (Roma Tre University, Italy); Olivier Bonaventure (Université catholique de Louvain, Belgium); Geoffrey G Xie (Naval Postgraduate School, USA); Laurent Vanbever (Princeton University, USA)

OFFICER: A general Optimization Framework for OpenFlow Rule Allocation and Endpoint Policy Enforcement

Xuan Nam Nguyen and Damien Saucez (INRIA, France); Chadi Barakat (INRIA Sophia Antipolis, France); Thierry Turletti (INRIA, France)

Virtual Machine Migration Planning in Software-Defined Networks

Huandong Wang and Yong Li (Tsinghua University, P.R. China); Ying Zhang (HP Labs, USA); Depeng Jin (Tsinghua University, P.R. China)

The (Surprising) Computational Power of the SDN Data Plane

Calvin Newport and Wenchao Zhou (Georgetown University, USA)

SUNG-II02: Sensor Networks 2

Room: Sung II

Chair: Falko Dressler (University of Paderborn, Germany)

Index Policies for Optimal Mean-Variance Trade-Off of Inter-delivery Times in Real-Time Sensor Networks

Rahul Singh (Texas A&M University, USA); Xueying Guo (Tsinghua University, P.R. China); P R Kumar (Texas A&M University, USA)

SDN-WISE: Design, prototyping and experimentation of a stateful SDN solution for WIreless SEnsor networks

Laura Galluccio (DIEEI, Italy); Sebastiano Milardo (CNIT Catania, Italy); Giacomo Morabito and Sergio Palazzo (University of Catania, Italy)

Beyond Duty Cycling: Wake-up Radio with Selective Awakenings for Long-lived Wireless Sensing Systems

Dora Spenza (University of Rome "La Sapienza", Italy); Michele Magno (ETH Zurich and University of Bologna, Switzerland); Stefano Basagni (Northeastern University, USA); Luca Benini (University of Bologna, Italy); Mario Paoli (Sapienza University of Rome, Italy); Chiara Petrioli (University of Rome "La Sapienza", Italy)

Drawing Dominant Dataset from Big Sensory Data in Wireless Sensor Networks

Siyao Cheng (Harbin Institute of Technology, P.R. China); Zhipeng Cai (Georgia State University, USA); Jianzhong Li and Xiaolin Fang (Harbin Institute of Technology, P.R. China)

TANG02: Internet and Web Security 1

Room: Tang

Chair: Wing Cheong Lau (The Chinese University of Hong Kong, Hong Kong)

Accelerating Regular Expression Matching Over Compressed HTTP

Michela Becchi (University of Missouri - Columbia, USA); Anat Bremler-Barr (Interdisciplinary Center Herzliya, Israel); David Hay (The Hebrew University of Jerusalem, Israel); Omer Kochba (Interdisciplinary Center Herzliya, Israel); Yaron Koral (Princeton University, USA)

Differentially Private Publication of General Time-Serial Trajectory Data

Jingyu Hua, Yue Gao and Sheng Zhong (Nanjing University, P.R. China)

Detecting Distributed Signature-based Intrusion: The Case of Multi-Path Routing Attacks

Jiefei Ma and Alessandra Russo (Imperial College London, United Kingdom); Franck Le (IBM T. J. Watson, USA); Jorge Lobo (ICREA - Universitat Pompeu Fabra, Spain)

JITScope: Protecting Web Users from Control-Flow Hijacking Attacks

Chao Zhang, Mehrdad Niknami and Kevin Chen (UC Berkeley, USA); Chengyu Song (Georgia Institute of Technology, USA); Zhaofeng Chen (Peking University, P.R. China); Dawn Song (UC Berkeley, USA)

16:15 - 17:45**CHING03: Cloud Storage Systems**

Room: Ching

Chair: Xiaowen Chu (Hong Kong Baptist University, Hong Kong)

Online Procurement Auctions for Resource Pooling in Client-Assisted Cloud Storage Systems

Jian Zhao, Xiaowen Chu, Hai Liu and Yiu-Wing Leung (Hong Kong Baptist University, Hong Kong); Zongpeng Li (University of Calgary, Canada)

Provably Delay Efficient Data Retrieving in Storage Clouds

Yin Sun (the Ohio State University, USA); Zizhan Zheng (University of California, Davis, USA); Can Emre Koksal (The Ohio State University, USA); Kyu-Han Kim (Hewlett-Packard Laboratories, USA); Ness B. Shroff (The Ohio State University, USA)

StoreApp: A Shared Storage Appliance for Efficient and Scalable Virtualized Hadoop Clusters

Yanfei Guo, Jia Rao and Dazhao Cheng (University of Colorado at Colorado Springs, USA); Changjun Jiang (Tongji University, P.R. China); Cheng-Zhong Xu (Wayne State University, USA); Xiaobo Zhou (University of Colorado at Colorado Springs, USA)

Location-aware Associated Data Placement for Geo-distributed Data-intensive Applications

Boyang Yu and Jianping Pan (University of Victoria, Canada)

MING-II03: Cognitive Radio Networks 3

Room: Ming II

Chair: Dimitrios Koutsonikolas (University at Buffalo, SUNY, USA)

Robust Optimization of Cognitive Radio Networks Powered by Energy Harvesting

Shimin Gong (Nanyang Technological University, Singapore); Lingjie Duan (Singapore University of Technology and Design (SUTD), Singapore); Ping Wang (Nanyang Technological University, Singapore)

Optimal Multicast in Dense Multi-Channel Multi-Radio Wireless Networks

Rahul Urgaonkar (IBM Research, USA); Prithwish Basu and Saikat Guha (Raytheon BBN Technologies, USA); Ananthram Swami (Army Research Lab., USA)

WINET: Indoor White Space Network Design

Jincheng Zhang (The Chinese University of Hong Kong, Hong Kong); Wenjie Zhang (The Chinese University of HongKong, Hong Kong); Minghua Chen (The Chinese University of Hong Kong, P.R. China); Zhi Wang (Tsinghua University, P.R. China)

MadeCR: Correlation-based Malware Detection for Cognitive Radio

Yanzhi Dou, Kexiong (Curtis) Zeng, Yaling Yang and Danfeng Yao (Virginia Tech, USA)

SUNG-I03: Routing and Traffic Engineering

Room: Sung I

Chair: Hong Xu (City University of Hong Kong, Hong Kong)

Minimum Control Latency of Dynamic Networks

Weiguo Dai, Zhaoquan Gu and Xiao Lin (Tsinghua University, P.R. China); Qiang-Sheng Hua (Huazhong University of Science and Technology, P.R. China); Francis C.M. Lau (The University of Hong Kong, Hong Kong)

Optimized Network Traffic Engineering using Segment Routing

Randeep Bhatia and Fang Hao (Bell Labs, Alcatel-Lucent, USA); M. Kodialam (Bell Labs, USA); T. V. Lakshman (Bell Labs, Alcatel-Lucent, USA)

Compact Location Encodings for Scalable Internet Routing

Feng Wang (Liberty University, USA); Lixin Gao and Xiaozhe Shao (University of Massachusetts at Amherst, USA); Hiroaki Harai and Kenji Fujikawa (National Institute of Information and Communications Technology, Japan)

Policy-Compliant Path Diversity and Bisection Bandwidth

Rowan Klöti and Vasileios Kotronis (ETH Zurich, Switzerland); Bernhard Ager (ETH Zürich, Switzerland); Xenofontas Dimitropoulos (FORTH-ICS, Greece)

SUNG-II03: Sensor Networks 3

Room: Sung II

Chair: Jelena Mišić (Ryerson University, Canada)

Local Face-View Barrier Coverage in Camera Sensor Networks

Zuoming Yu (College of Zhangjiagang, Jiangsu University of Science and Technogoly, P.R. China); Fan Yang (the Ohio State University, USA); Jin Teng, Adam C. Champion and Dong Xuan (The Ohio State University, USA)

On Heterogeneous Neighbor Discovery in Wireless Sensor Networks

Lin Chen (Yale University, USA); Ruolin Fan (UCLA, USA); Kaigui Bian (Peking University, P.R. China); Lin Chen (The University of Paris-Sud, France); Mario Gerla (University of California at Los Angeles, USA); Tao Wang and XiaoMing Li (Peking University, P.R. China)

On 2-Way Neighbor Discovery in Wireless Networks with Directional Antennas

Hao Cai (University of Massachusetts, Amherst, USA); Tilman Wolf (University of Massachusetts, USA)

VM-Tracking: Visual-Motion Sensing Integration for Real-time Human Tracking

Qiang Zhai, Sihao Ding and Xinfeng Li (The Ohio State University, USA); Fan Yang (the Ohio State University, USA); Jin Teng (The Ohio State University, USA); Junda Zhu (OSU, USA); Dong Xuan (The Ohio State University, USA); Yuan F. Zheng (Ohio State University, USA); Wei Zhao (University of Macau, P.R. China)

TANG03: Internet and Web Security 2

Room: Tang

Chair: Vojislav B. Mišić (Ryerson University, Canada)

Original SYN: Finding Machines Hidden Behind Firewalls

Xu Zhang, Jeffrey Knockel and Jediah Crandall (University of New Mexico, USA)

Agile Virtualized Infrastructure to Proactively Defend Against Cyber Attacks

Fida Gillani (UNC Charlotte, USA); Ehab Al-Shaer (University of North Carolina Charlotte, USA); Samantha Lo (Georgia Institute of Technology, USA); Qi Duan (University of North Carolina at Charlotte, USA); Mostafa Ammar and Ellen Zegura (Georgia Institute of Technology, USA)

Adversary-aware IP Address Randomization for Proactive Agility Against Sophisticated Attackers

Jafar Haadi Jafarian (CyberDNA, UNC Charlotte, USA); Ehab Al-Shaer (University of North Carolina Charlotte, USA); Qi Duan (University of North Carolina at Charlotte, USA)

Dynamic Defense Strategy against Advanced Persistent Threat with Insiders

Pengfei Hu (University of California, Davis, USA); Hongxing Li (University of California at Davis, USA); Hao Fu (University of California, Davis, USA); Derya Cansever (Army CERDEC, USA); Prasant Mohapatra (University of California, Davis, USA)

Wednesday, April 29

08:30 - 10:00

BALLROOM-A03: Joint Source Coding and Network Coding

Room: Ballroom A

Chair: Chong Luo (Microsoft Research, P.R. China)

Content Caching and Delivery over Heterogeneous Wireless Networks

Jad Hachem (University of California, Los Angeles, USA); Nikhil Karamchandani (Indian Institute of Technology Bombay, India); Suhas Diggavi (University of California Los Angeles, USA)

On Optimal Diversity in Network-Coding-Based Routing in Wireless Networks

Qiao Xiang (McGill University, Canada); Hongwei Zhang (Wayne State University, USA); Jianping Wang (City University of Hong Kong, Hong Kong); Guoliang Xing (Michigan State University, USA); Shan Lin (Stony Brook University, USA); Xue Liu (McGill University, Canada)

Low-Delay Distributed Source Coding for Time-Varying Sources with Unknown Statistics

Fangzhou Chen (The Ohio State University, USA); Bin Li (University of Illinois at Urbana-Champaign, USA); Can Emre Koksal (The Ohio State University, USA)

Network Coding-Based Multicast in Multi-Hop CRNs under Uncertain Spectrum Availability

Yuben Qu and Chao Dong (College of Communications Engineering, PLA University of Science and Technology, P.R. China); Haipeng Dai (Nanjing University & State Key Laboratory for Novel Software Technology, P.R. China); Fan Wu (Shanghai Jiao Tong University, P.R. China); Shaojie Tang (University of Texas at Dallas, USA); Hai Wang and Chang Tian (College of Communications Engineering, PLA University of Science and Technology, P.R. China)

BALLROOM-B03: Next Generation Cellular Networks

Room: Ballroom B

Chair: Diep N. Nguyen (University of Arizona, USA)

Trajectory Aware Macro-cell Planning for Mobile Users

Shubhadip Mitra (IIT Kanpur, India); Sayan Ranu (IIT Madras, India); Vinay Kumar Kolar (IBM Research, India); Arnab Bhattacharya (IIT Kanpur, India); Ravi Kokku, Aditya Telang and Sriram Raghavan (IBM Research, India)

A Correlated Shadowing Model for Urban Wireless Networks

Francois Baccelli (UT Austin & The University of Texas at Austin, USA); Xinchen Zhang (The University of Texas at Austin & Qualcomm Inc., USA)

Supporting WiFi and LTE Co-existence

Sangki Yun (University of Texas at Austin, USA); Lili Qiu (The University of Texas at Austin, USA)

SPIRO: Turning Elephants into Mice with Efficient RF Transport

Eugene Chai and Kang G. Shin (University of Michigan, USA); Sung-Ju Lee (KAIST, Korea); Jeongkeun Lee (HP Labs, USA); Raul Etkin (Samsung Information Systems America, USA)

BALLROOM-C03: Mobile and Wireless Network Measurements 2

Room: Ballroom C

Chair: Giovanni Pau (UPMC Sorbonne Universités & UCLA, France)

Measurement and Modeling of User Transitioning Among Networks

Sookhyun Yang (University of Massachusetts Amherst, USA); Jim Kurose (University of Massachusetts at Amherst, USA); Simon Heimlicher (Technicolor, France); Arun Venkataramani (UMass Amherst, USA)

On Factors Affecting the Usage and Adoption of a Nation-wide TV Streaming Service

Dmytro Karamshuk (King's College London, United Kingdom); Nishanth Sastry (King's College London & Kings College London, United Kingdom); Andrew Secker and Jigna Chandaria (BBC R&D, United Kingdom)

A Behavior-aware Profiling of Handheld Devices

Xuetao Wei (University of Cincinnati, USA); Nicholas Valler (CrowdCompass & Cvent, USA); Harsha V. Madhyastha (UC Riverside, USA); Iulian Neamtiu (UC, Riverside, USA); Michalis Faloutsos (University of California, Riverside, USA)

Exploring Full-Duplex Gains in Multi-Cell Wireless Networks: A Spatial Stochastic Framework

Shu Wang, Vignesh Venkateswaran and Xinyu Zhang (University of Wisconsin-Madison, USA)

CHING04: Cloud Computing

Room: Ching

Chair: Di Niu (University of Alberta, Canada)

HybridSwap: A Scalable and Synthetic Framework for Guest Swapping on Virtualization Platform

Pengfei Zhang (National University of Defense Technology, P.R. China); Xi Li (Central South University, P.R. China)

Application-specific configuration selection in the cloud: impact of provider policy and potential of systematic testing

Mohammad Hajjat (Purdue University, USA); Ruiqi Liu (Rice University, USA); Yiyang Chang (Purdue University, USA); T. S. Eugene Ng (Rice University, USA); Sanjay Rao (Purdue University, USA)

Energy-Efficient Heuristics for Job Assignment in Processor-Sharing Server Farms

Jing Fu, Jun Guo, Eric W. M. Wong and Moshe Zukerman (City University of Hong Kong, Hong Kong)

Need for Speed: CORA Scheduler for Optimizing Completion-Times in the Cloud

Zhe Huang (Hong Kong University of Science and Technology, Hong Kong); Bharath Balasubramanian (ATT Labs Research, USA); Michael Wang (Princeton University, USA); Tian Lan (George Washington University, USA); Danny H.K. Tsang (HKUST, Hong Kong); Mung Chiang (Princeton University, USA)

MING-II04: Resource Markets in Wireless Networks

Room: Ming II

Chair: Sherman S. M. Chow (Chinese University of Hong Kong, Hong Kong)

HySIM: A Hybrid Spectrum and Information Market for TV White Space Networks

Yuan Luo, Lin Gao and Jianwei Huang (The Chinese University of Hong Kong, Hong Kong)

PPER: Privacy-Preserving Economic-Robust Spectrum Auction in Wireless Networks

Ming Li (University of Nevada, Reno, USA); Pan Li (Mississippi State University, USA); Linke Guo (Binghamton University, USA); Xiaoxia Huang (Shenzhen Institutes of Advanced Technology, Chinese Academy of Sciences, P.R. China)

Differentially Private and Strategy-Proof Spectrum Auction with Approximate Revenue Maximization

Ruihao Zhu and Kang G. Shin (University of Michigan, USA)

A Cloudlet-based Multi-lateral Resource Exchange Framework for Mobile Users

Yu Wu and Lei Ying (Arizona State University, USA)

SUNG-I04: Scheduling and Buffer Management 1

Room: Sung I

Chair: Ben Liang (University of Toronto, Canada)

On the Complexity of Optimal Routing and Content Caching in Heterogeneous Networks

Mostafa Dehghani (University of Massachusetts Amherst, USA); Anand Seetharam (California State University Monterey Bay, USA); Bo Jiang (University of Massachusetts Amherst, USA); Ting He and Theodoros Salonidis (IBM Research, USA); Jim Kurose and Don Towsley (University of Massachusetts at Amherst, USA); Ramesh K Sitaraman (University of Massachusetts, Amherst & Akamai Technologies, USA)

Service-Martingales: Theory and Applications to the Delay Analysis of Random Access Protocols

Felix Poloczek (University of Warwick / TU Berlin, Germany); Florin Ciucu (University of Warwick, United Kingdom)

Optimal Scheduling of A Large-Scale Multiclass Parallel Server System with Ergodic Cost

Ari Arapostathis and Anup Biswas (University of Texas at Austin, USA); Guodong Pang (Penn State University, USA)

Priority Algorithm for Near-data Scheduling: Throughput and Heavy-Traffic Optimality

Qiaomin Xie and Yi Lu (University of Illinois at Urbana-Champaign, USA)

SUNG-II04: Sensor Networks 4

Room: Sung II

Chair: Shiwen Mao (Auburn University, USA)

Minimum Connected Dominating Set Construction in Wireless Networks under the Beeping Model

Jiguo Yu and Lili Jia (Qufu Normal University, P.R. China); Dongxiao Yu (The University of Hong Kong, Hong Kong); Guangshun Li (Qufu Normal University, P.R. China); Xiuzhen Cheng (George Washington Univ, USA)

SURF: A Connectivity-based Space Filling Curve Construction Algorithm in High Genus 3D Surface WSNs

Chen Wang and Hongbo Jiang (Huazhong University of Science and Technology, P.R. China)

Modeling Link Correlation in Low-Power Wireless Networks

Zhiwei Zhao, Wei Dong, Gaoyang Guan and Jiajun Bu (Zhejiang University, P.R. China); Tao Gu (RMIT University, Australia); Chun Chen (Zhejiang University, P.R. China)

Time-constrained Data Harvesting in WSNs: Theoretical Foundation and Algorithm Design

Lin Chen (The University of Paris-Sud, France); Wei Wang (Zhejiang University, P.R. China); Hua Huang and Shan Lin (Stony Brook University, USA)

TANG04: Privacy

Room: Tang

Chair: Thorsten Strufe (TU Dresden, Germany)

Personalized Location Privacy in Mobile Networks: A Social Group Utility Approach

Xiaowen Gong (Arizona State University, USA); Xu Chen (University of Goettingen, Germany); Kai Xing (University of Science and Technology of China, P.R. China); Dong-Hoon Shin, Mengyuan Zhang and Junshan Zhang (Arizona State University, USA)

Enhancing Privacy through Caching in Location-Based Services

Ben Niu (State Key Laboratory of Information Security, Institute of Information Engineering, CAS, P.R. China); Qinghua Li (University of Arkansas, USA); Xiaoyan Zhu (Xidian University, P.R. China); Guohong Cao (The Pennsylvania State University, USA); Hui Li (Xidian University, P.R. China)

Verifiable Privacy-preserving Monitoring for Cloud-assisted mHealth Systems

Linke Guo (Binghamton University, USA); Yuguang Fang (University of Florida, USA); Ming Li (University of Nevada, Reno, USA); Pan Li (Mississippi State University, USA)

Efficient Secure Outsourcing of Large-scale Linear Systems of Equations

Sergio Salinas, Changqing Luo, Xuhui Chen and Pan Li (Mississippi State University, USA)

10:30 - 12:00

BALLROOM-ABC02: Panel A

Funding Priorities and Research Directions in Wireless Networking and Mobile Communications

Room: Ballroom ABC

Chair: Wei Zhao (University of Macau, Macao)

CHING05: Resource Provisioning in Cloud Computing

Room: Ching

Chair: Fangming Liu (Huazhong University of Science and Technology, P.R. China)

When Hybrid Cloud Meets Flash Crowd: Towards Cost-Effective Service Provisioning

Yipei Niu and Bin Luo (Huazhong University of Science & Technology, P.R. China); Fangming Liu (Huazhong University of Science and Technology, P.R. China); Jiangchuan Liu (Simon Fraser University, Canada); Bo Li (Hong Kong University of Science and Technology, Hong Kong)

A Truthful $(1-\epsilon)$ -Optimal Mechanism for On-demand Cloud Resource Provisioning

Xiaoxi Zhang and Chuan Wu (The University of Hong Kong, Hong Kong); Zongpeng Li (University of Calgary, Canada); Francis C.M. Lau (The University of Hong Kong, Hong Kong)

Capturing Resource Tradeoffs in Fair Multi-Resource Allocation

Doron Zarchy (Hebrew University of Jerusalem, Israel); David Hay (The Hebrew University of Jerusalem, Israel); Michael Schapira (Hebrew University of Jerusalem, USA)

Optimization for Speculative Execution in a MapReduce-like Cluster

Huanle Xu and Wing Cheong Lau (The Chinese University of Hong Kong, Hong Kong)

MING-II05: Fault Tolerance and Survivability 1

Room: Ming II

Chair: Hongwei Zhang (Wayne State University, USA)

Approximation Algorithm for Minimum Weight Fault-Tolerant Virtual Backbone in Homogeneous Wireless Sensor Network

Zhao Zhang (Zhejiang Normal University, P.R. China); Yishuo Shi (Xinjiang University, P.R. China)

Congestion-Aware Single Link Failure Recovery in Hybrid SDN Networks

Cing-Yu Chu (New York University, USA); Kang Xi (AT&T Labs, USA); Min Luo (Huawei Technologies, USA); H. Jonathan Chao (Polytechnic Institute of New York University, USA)

iPath: Intelligent And Optimal Path Selection for Byzantine Fault Tolerant Communication

Shehla Rana (University of Illinois Urbana Champaign, USA); Nitin Vaidya (University of Illinois at Urbana-Champaign, USA)

On Sample-Path Staleness in Lazy Data Replication

Xiaoyong Li, Daren Cline and Dmitri Loguinov (Texas A&M University, USA)

SUNG-I05: Scheduling and Buffer Management 2

Room: Sung I

Chair: I-Hong Hou (Texas A&M University, USA)

Optimal Scheduling for Jobs with Progressive Deadlines

Kristen Gardner and Mor Harchol-Balter (Carnegie Mellon University, USA); Sem Borst (Alcatel-Lucent, Bell Labs & Eindhoven University of Technology, USA)

On Multiplexing Flows: Does it Hurt or Not?

Florin Ciucu (University of Warwick, United Kingdom); Felix Poloczek (University of Warwick / TU Berlin, Germany)

The Power of Slightly More than One Sample in Randomized Load Balancing

Lei Ying (Arizona State University, USA); R. Srikant (University of Illinois at Urbana-Champaign, USA); Xiaohan Kang (Arizona State University, USA)

Price of Fairness for Opportunistic and Priority Schedulers

Malhar Mehta, Veeraruna Kavitha and Hemachandra N. (IIT Bombay, India)

SUNG-II05: Vehicular Networks

Room: Sung II

Chair: Falko Dressler (University of Paderborn, Germany)

Data Preference Matters: A New Perspective of Safety Data Dissemination in Vehicular Ad Hoc Networks

Qiao Xiang and Xi Chen (McGill University, Canada); Linghe Kong (McGill University & Shanghai Jiao Tong University, Canada); Lei Rao (General Motors Research Lab, USA); Xue Liu (McGill University, Canada)

A Consensus-based Approach for Platooning with Inter-Vehicular Communications

Stefania Santini ("Federico II", Italy); Alessandro Salvi (University of Napoli, Italy); Antonio Saverio Valente (University of Naples Federico II & Media Motive, Italy); Antonio Pescapé (University of Napoli Federico II, Italy); Michele Segata (University of Trento & University of Innsbruck, Italy); Renato Lo Cigno (University of Trento, Italy)

VeRV: A Temporal and Data-Concerned Verification Framework for the Vehicle Bus Systems

Shuo Zhang, Fei He and Ming Gu (Tsinghua University, P.R. China)

Bridging Link Power Asymmetry in Mobile Whitespace Networks

Sanjib Sur (University of Wisconsin - Madison, USA); Xinyu Zhang (University of Wisconsin-Madison, USA)

TANG05: Smartphones

Room: Tang

Chair: Jun Luo (Nanyang Technological University, Singapore)

Energy-Aware Video Streaming on Smartphones

Wenjie Hu and Guohong Cao (The Pennsylvania State University, USA)

Fine-grained Sleep Monitoring: Hearing Your Breathing with Smartphones

Yanzhi Ren and Chen Wang (Stevens Institute of Technology, USA); Jie Yang (Florida State University, USA); Yingying Chen (Stevens Institute of Technology, USA)

iSelf: Towards Cold-Start Emotion Labeling using Transfer Learning with Smartphones

Boyan Sun and Qiang Ma (Tsinghua University, P.R. China); Shanfeng Zhang (The Hong Kong University of Science and Technology, Hong Kong); Kebin Liu (Tsinghua University, P.R. China); Yunhao Liu (Tsinghua University & The Hong Kong University of Science and Technology, P.R. China)

All or None? The Dilemma of Handling WiFi Broadcast Traffic in Smartphone Suspend Mode

Ge Peng, Gang Zhou, David T. Nguyen and Xin Qi (College of William and Mary, USA)

13:30 - 15:00

BALLROOM-A04: Theoretical Foundations in Networking Problems 1

Room: Ballroom A

Chair: Di Niu (University of Alberta, Canada)

The Online Disjoint Set Cover Problem and its Applications

Ashwin Pananjady (University of California, Berkeley, USA); Vivek Bagaria (Indian Institute of Technology Madras, India); Rahul Vaze (TIFR Mumbai, India)

Stochastic and fluid index policies for resource allocation problems

Maialet Larranaga (LAAS, CNRS. INP Toulouse, France); Urtzi Ayesta (CNRS-LAAS and Ikerbasque-University of the Basque Country, Spain); Maaike Verloop (CNRS, France)

Delay Models in Ethernet Long-Reach Passive Optical Networks

Abhishek Dixit (University of Ghent & IBBT, Belgium); Bart Lannoo (Ghent University - iMinds, Belgium); Didier Colle (iMinds - Ghent University, Belgium); Mario Pickavet and Piet Demeester (Ghent University - iMinds, Belgium)

Throughput-Optimal Broadcast on Directed Acyclic Graphs

Abhishek Sinha (Massachusetts Institute of Technology, USA); Georgios S. Paschos (Huawei Technologies France, France); Chih-ping Li (Qualcomm, USA); Eytan Modiano (MIT, USA)

BALLROOM-B04: LTE Networks

Room: Ballroom B

Chair: Rui Zhang (University of Hawaii, USA)

Efficient Resource Scheduling for a Secondary Network in Shared Spectrum

Matthew A Clark (University of Southern California & The Aerospace Corporation, USA); Konstantinos Psounis (University of Southern California, USA)

Fair and Optimal Resource Allocation for LTE Multicast (eMBMS): Group Partitioning and Dynamics

Jiasi Chen and Mung Chiang (Princeton University, USA); Jeffrey J Erman and Guangzhi Li (AT&T Labs - Research, USA); K. K. Ramakrishnan (University of California, Riverside, USA); Rakesh K Sinha (AT&T Labs - Research, USA)

FiWi Enhanced LTE-A HetNets with Unreliable Fiber Backhaul Sharing and WiFi Offloading

Hamzeh Beyranvand (Sharif University of Technology, Iran); Martin Lévesque (University of Pittsburgh, USA); Martin Maier (Institut National de la Recherche Scientifique (INRS), Canada); Jawad Salehi (Sharif University of Technology, Iran)

Mitigating Macro-Cell Outage in LTE-Advanced Deployments

Rajarajan Sivaraj (University of California, Davis, USA); Ioannis Broustis (AT&T Labs Research, USA); Nemmara K. Shankaranarayanan (AT&T Laboratories - Research, USA); Prasant Mohapatra (University of California, Davis, USA); Vaneet Aggarwal (Purdue University, USA)

BALLROOM-C04: Scheduling in Wireless Networks

Room: Ballroom C

Chair: Jinsong Han (Xi'an Jiaotong University, P.R. China)

Latency-Aware Rate Adaptation in 802.11n Home Networks

Chi-Yu Li (UCLA, USA); Chunyi Peng (Ohio State University, USA); Songwu Lu (University of California at Los Angeles, USA); Xinbing Wang (Shanghai Jiaotong University, P.R. China); Ranveer Chandra (Microsoft Research, USA)

On the Universality of Age-Based Scheduling in Wireless Networks

Bin Li (University of Illinois at Urbana-Champaign, USA); Atilla Eryilmaz (Ohio State University, USA); R. Srikant (University of Illinois at Urbana-Champaign, USA)

Minimum-Latency Beaconing Schedule in Duty-Cycled Multihop Wireless Networks

Lixin Wang (Paine College, USA); Peng-Jun Wan (Illinois Institute of Technology, USA); Kyle Young (Paine College, USA)

Provable Fairness for TDMA Scheduling

Marcin Bienkowski, Jaroslaw Byrka, Krzysztof Chrobak and Tomasz Jurkiewicz (University of Wroclaw, Poland); Dariusz Kowalski (University of Liverpool, United Kingdom)

CHING06: Cloud Performance

Room: Ching

Chair: Chuan Wu (The University of Hong Kong, Hong Kong)

ActCap: Accelerating MapReduce on Heterogeneous Clusters with Capability-Aware Data Placement

Bo Wang, Jinlei Jiang and Guangwen Yang (Tsinghua University, P.R. China)

AE: An Asymmetric Extremum Content Defined Chunking Algorithm for Fast and Bandwidth-Efficient Data Deduplication

Yucheng Zhang (Huazhong University of Science and Technology, P.R. China); Hong Jiang (University of Nebraska at Lincoln, USA); Dan Feng, Wen Xia, Min Fu, Fangting Huang and Yukun Zhou (Huazhong University of Science and Technology, P.R. China)

Near Optimal Placement of Virtual Network Functions

Liane Lewin-Eytan (Yahoo! Research, Israel); Joseph (Seffi) Naor (Technion, Israel); Rami Cohen (IBM Research - Haifa, Israel); Danny Raz (Technion, Israel)

Enhancing Reliability and Response Times via Replication in Computing Clusters

Zhan Qiu and Juan Perez (Imperial College London, United Kingdom)

MING-II06: Fault Tolerance and Survivability 2

Room: Ming II

Chair: Zhuo Lu (University of Memphis, USA)

Fault-Tolerant Coverage with Maximum Lifetime in Wireless Sensor Networks

James Willson (The University of New Mexico, USA); Zhao Zhang (Zhejiang Normal University, P.R. China); Weili Wu (UT Dallas, USA); Ding-Zhu Du (University of Texas, Dallas, USA)

GEARSHIFT: Guaranteeing Availability Requirements in SLAs using Hybrid Fault Tolerance

Andres J Gonzalez (Telenor Research, Norway); Bjarne E. Helvik and Prakriti Tiwari (Norwegian University of Science and Technology, Norway); Denis M Becker (HIST, Norway); Otto J Wittner (UNINETT, Norway)

Robust Geometric Forest Routing with Tunable Load Balancing

Rein Houthooft, Sahel Sahaaf, Wouter Tavernier and Filip De Turck (Ghent University - iMinds, Belgium); Didier Colle (iMinds - Ghent University, Belgium); Mario Pickavet (Ghent University - iMinds, Belgium)

Real-time failure prediction in online services

Mohammed Shatnawi (Microsoft and Simon Fraser University, USA); Mohamed Hefeeda (Simon Fraser University & Qatar Computing Research Institute, Canada)

SUNG-I06: Scheduling and Buffer Management 3

Room: Sung I

Chair: Hong Xu (City University of Hong Kong, Hong Kong)

Low-Complexity Multi-Resource Packet Scheduling for Network Functions Virtualization

Xin Li and Chen Qian (University of Kentucky, USA)

Performance Analysis for Overflow Loss Systems of Processor-Sharing Queues

Yin-Chi Chan, Jun Guo, Eric W. M. Wong and Moshe Zukerman (City University of Hong Kong, Hong Kong)

Priority Queueing with Multiple Packet Characteristics

Pavel S Chuprikov (St. Petersburg Academic University, Russia); Sergey Nikolenko (Steklov Mathematical Institute at St Petersburg, Russia); Kirill Kogan (IMDEA Networks Institute, Spain)

Achieving Utility-Delay-Reliability Tradeoff in Stochastic Network Optimization with Finite Buffers

Sucha Supittayapornpong and Michael J. Neely (University of Southern California, USA)

SUNG-II06: Wireless Access Networks

Room: Sung II

Chair: Ming Li (University of Nevada, Reno, USA)

Enabling TDMA for Today's Wireless LANs

Zhice Yang (Hong Kong University of Science and Technology, Hong Kong); Jiansong Zhang (Microsoft Research Asia, P.R. China); Kun Tan (Microosft Research Asia, P.R. China); Qian Zhang (Hong Kong University of Science and Technology, Hong Kong); Yongguang Zhang (Microsoft Research Asia, P.R. China)

Convergence Properties of General Network Selection Games

Ehsan Monsef (Illinois Institute of Technology, USA); Alireza Keshavarz-Haddad (Rice University, USA); Ehsan Aryafar (Intel Labs, USA); Jafar Saniie (IIT, USA); Mung Chiang (Princeton University, USA)

Outsourcing Coordination and Management of Home Wireless Access Points through an Open API

Ashish Patro (University of Wisconsin-Madison, USA); Suman Banerjee (University of Wisconsin, USA)

CodeRepair: PHY-layer Partial Packet Recovery Without the Pain

Jun Huang and Guoliang Xing (Michigan State University, USA); Jianwei Niu (Beihang University, P.R. China); Shan Lin (Stony Brook University, USA)

TANG06: Mobile Applications and Economics

Room: Tang

Chair: Guoliang Xue (Arizona State University, USA)

WiGest: A Ubiquitous WiFi-based Gesture Recognition System

Heba Abdelnasser (Alexandria University, Egypt); Moustafa Youssef (Egypt-Japan University of Science and Technology (EJUST), Egypt); Khaled A. Harras (Carnegie Mellon University, USA)

Automatic Generation of Mobile App Signatures from Traffic Observations

Qiang Xu (NEC Labs America & University of Michigan, USA); Yong Liao (Symantec Inc, USA); Stanislav Miskovic (Symantec, USA); Mario Baldi (Politecnico di Torino & Symantec Corp., Italy); Z. Morley Mao (University of Michigan, USA); Antonio Nucci (Narus inc., USA); Thomas Andrews (University of Michigan, USA)

Backpressure Meets Taxes: Faithful Data Collection in Stochastic Mobile Phone Sensing Systems

Shusen Yang and Usman Adeel (Imperial College London, United Kingdom); Julie A McCann (Imperial College, United Kingdom)

Sponsoring Mobile Data: An Economic Analysis of the Impact on Users and Content Providers

Carlee Joe-Wong (Princeton University, USA); Sangtae Ha (University of Colorado at Boulder, USA); Mung Chiang (Princeton University, USA)

15:30 - 17:00

BALLROOM-A05: Theoretical Foundations in Networking Problems 2

Room: Ballroom A

Chair: Kui Wu (University of Victoria, Canada)

Fast optimal nonconcave resource allocation

Pan Lai and Rui Fan (Nanyang Technological University, Singapore)

Local Detection of Infections in Heterogeneous Networks

Chris Milling and Constantine Caramanis (The University of Texas at Austin, USA); Shie Mannor (Technion & McGill University, Israel); Sanjay Shakkottai (The University of Texas at Austin, USA)

Flow-Based Feasibility Test of Linear Interference Alignment with Arbitrary Interference Topology

Peng-Jun Wan and Fahad Al-Dhelaan (Illinois Institute of Technology, USA); Sai Ji (Nanjing University of Information Science & Technology, P.R. China); Lei Wang (Dalian University of Technology, P.R. China); Ophir Frieder (Georgetown University, USA)

Copula Analysis for Statistical Network Calculus

Fang Dong, Kui Wu and Venkatesh Srinivasan (University of Victoria, Canada)

BALLROOM-B05: Theoretical Foundations in Social Networks 1

Room: Ballroom B

Chair: Renato Lo Cigno (University of Trento, Italy)

Cliques in Hyperbolic Random Graphs

Tobias Friedrich and Anton Krohmer (Friedrich Schiller University of Jena, Germany)

Construction of Simple Graphs with a Target Joint Degree Matrix and Beyond

Minas Gjoka, Bálint Tillman and Athina Markopoulou (University of California, Irvine, USA)

On the Progressive Spread over Strategic Diffusion: Asymptotic and Computation

Jungseul Ok, Jinwoo Shin and Yung Yi (KAIST, Korea)

De-anonymizing scale-free social networks by percolation graph matching

Carla-Fabiana Chiasseroni (Politecnico di Torino, Italy); Michele Garetto (Università di Torino, Italy); Emilio Leonardi (Politecnico di Torino, Italy)

BALLROOM-C05: The Mobile Internet: Measurements and Economics

Room: Ballroom C

Chair: Jiangchuan Liu (Simon Fraser University, Canada)

Secondary Markets for Mobile Data: Feasibility and Benefits of Traded Data Plans

Liang Zheng (City University of Hong Kong, Hong Kong); Carlee Joe-Wong (Princeton University, USA); Chee Wei Tan (City University of Hong Kong, Hong Kong); Sangtae Ha (University of Colorado at Boulder, USA); Mung Chiang (Princeton University, USA)

Off-Path Round Trip Time Measurement via TCP/IP Side Channels

Geoffrey Alexander and Jedidiah Crandall (University of New Mexico, USA)

Around the Web in Six Weeks: Documenting a Large-Scale Crawl

Sarker Tanzir Ahmed (Texas A&M University, USA); Clint Sparkman (Texas A&M & United States Air Force, USA); Hsin-Tsang Lee (Microsoft, USA); Dmitri Loguinov (Texas A&M University, USA)

Financial Analysis of 4G Network Deployment

Yanjiao Chen (Hong Kong University of Science and Technology, Hong Kong); Lingjie Duan (Singapore University of Technology and Design (SUTD), Singapore); Qian Zhang (Hong Kong University of Science and Technology, Hong Kong)

CHING07: Big Data Processing

Room: Ching

Chair: Chuan Wu (The University of Hong Kong, Hong Kong)

SmartEye: Real-time and Efficient Cloud Image Sharing for Disaster Environments

Yu Hua (Huazhong University of Science and Technology, P.R. China); Wenbo He (McGill University, Canada); Xue Liu (McGill University, Canada); Dan Feng (Huazhong University of Science and Technology, P.R. China)

Modeling Randomized Data Streams in Caching, Data Processing, and Crawling Applications

Sarker Tanzir Ahmed and Dmitri Loguinov (Texas A&M University, USA)

Temporal Update Dynamics under Blind Sampling

Xiaoyong Li, Daren Cline and Dmitri Loguinov (Texas A&M University, USA)

Optimal Communication Structures for Big Data Aggregation

William Culhane (Purdue University, USA); Kirill Kogan (IMDEA Networks Institute, Spain); Patrick Eugster (Purdue University, USA); Chamikara Jayalath (Google, USA)

MING-II07: RFID 1

Room: Ming II

Chair: Bin Xiao (The Hong Kong Polytechnic University, Hong Kong)

Human Object Estimation via Backscattered Radio Frequency Signal

Han Ding and Jinsong Han (Xi'an Jiaotong University, P.R. China); Alex X. Liu (Michigan State University, USA); Jizhong Zhao (Xi'an Jiaotong University, P.R. China); Panlong Yang (Institute of Communication Engineering, PLAUST, P.R. China); Wei Xi (Xi'an Jiaotong University, P.R. China); Zhiping Jiang (Xian Jiaotong University, P.R. China)

Beyond One-dollar Mouse: A Battery-free Device for 3D Human-Computer Interaction via RFID Tags

Qiongzheng Lin, Lei Yang, Yuxin Sun and Tianci Liu (Tsinghua University, P.R. China); Xiang-Yang Li (Illinois Institute of Technology, USA); Yunhao Liu (Tsinghua University & The Hong Kong University of Science and Technology, P.R. China)

TagBooth: Deep Shopping Data Acquisition Powered by RFID Tags

Tianci Liu and Lei Yang (Tsinghua University, P.R. China); Xiangyang Li (Illinois Alcatel-Lucent Tech, USA); Huaiyi Huang (Tsinghua University, P.R. China); Yunhao Liu (Tsinghua University & The Hong Kong University of Science and Technology, P.R. China)

RFID Cardinality Estimation with Blocker Tags

Xiulong Liu (Dalian University of Technology, P.R. China); Bin Xiao (The Hong Kong Polytechnic University, Hong Kong); Keqiu Li (Dalian University of Technology, P.R. China); Jie Wu (Temple University, USA); Alex X. Liu (Michigan State University, USA); Heng Qi and Xin Xie (Dalian University of Technology, P.R. China)

SUNG-I07: Flow and Congestion Control

Room: Sung I

Chair: Hongwei Zhang (Wayne State University, USA)

Comprehensive Understanding of TCP Incast Problem

Wen Chen, Fengyuan Ren, Jing Xie and Chuang Lin (Tsinghua University, P.R. China); Kevin Yin (Cisco System, USA); Fred Baker (Cisco Systems, USA)

TCPRand: Randomizing TCP Payload Size for TCP Fairness in Data Center Networks

Soojeon Lee (ETRI & KAIST, Korea); Myungjin Lee (University of Edinburgh, United Kingdom); Dongman Lee (KAIST, Korea); Hyungsoo Jung (Seoul National University, Korea); Byoung-Sun Lee (ETRI, Korea)

A New Paradigm for Multiflow in Wireless Networks: Theory And Applications

Peng-Jun Wan and Boliu Xu (Illinois Institute of Technology, USA); Lei Wang (Dalian University of Technology, P.R. China); Sai Ji (Nanjing University of Information Science & Technology, P.R. China); Ophir Frieder (Georgetown University, USA)

Distributed Network Resource Allocation for Multi-Tiered Multimedia Applications

Georgios Tychogiorgos (Imperial College, United Kingdom); Athanasios Gkelias (Imperial College London, United Kingdom); Kin K. Leung (Imperial College, United Kingdom)

SUNG-II07: MIMO Networks

Room: Sung II

Chair: Dapeng Oliver Wu (University of Florida, USA)

Hybridcast: Joint Multicast-Unicast Design for Multiuser MIMO Networks

Bo-Xian Wu (National Taiwan University, Taiwan); Kate Ching-Ju Lin (Academia Sinica, Taiwan); Kai-Cheng Hsu and Hung-Yu Wei (National Taiwan University, Taiwan)

Be Responsible: A Novel Communications Scheme for Full-Duplex MIMO Radios

Diep N. Nguyen and Marwan Krunz (University of Arizona, USA)

AirShare: Distributed Coherent Transmission Made Seamless

Omrid Abari, Hariharan Rahul and Dina Katabi (MIT, USA); Mondira Pant (Intel, USA)

Scaling Wireless Full-duplex in Multi-cell Networks

Mohammad Khojastepour (NEC Laboratories America, USA); Karthikeyan Sundaresan and Sampath Rangarajan (NEC Labs America, USA); Mohammad Farajzadeh-Tehrani (Simons Center for Geometry and Physics, Stony Brook University, USA)

TANG07: Network Economics and Pricing

Room: Tang

Chair: Ariel Orda (Technion, Israel)

Formation Games of Reliable Networks

Eli Meirom (Technion - Israel Institute of Technology, Israel); Shie Mannor (Technion & McGill University, Israel); Ariel Orda (Technion, Israel)

Work Capacity of Freelance Markets: Fundamental Limits and Decentralized Schemes

Avhishek Chatterjee (UT Austin, USA); Lav R. Varshney (University of Illinois at Urbana-Champaign, USA); Sriram Vishwanath (University of Texas Austin, USA)

Complexities in Internet Peering: Understanding the "Black" in the "Black Art"

Amen Lodhi (Georgia Institute of Technology, USA); Amogh Dhamdhere (CAIDA, University of California, San Diego, USA); Nikolaos Laoutaris (Telefonica Research, Spain); Constantine Dovrolis (Georgia Institute of Technology, USA)

Improving Learning and Adaptation in Security Games by Exploiting Information Asymmetry

Xiaofan He (North Carolina State University, USA); Huaiyu Dai (NC State University, USA); Peng Ning (North Carolina State University, USA)

Thursday, April 30

08:30 - 10:00

BALLROOM-A06: Theoretical Foundations in Networking Problems 3

Room: Ballroom A

Chair: Yao Liu (University of South Florida, USA)

A Better Constant Approximation for Minimum 3-connected m -dominating Set Problem in Unit Disk Graph using Tutte Decomposition

Wei Wang and Bei Liu (Xi'an Jiaotong University, P.R. China); Donghyun Kim (North Carolina Central University, USA); Deying Li (Renmin University of China, P.R. China); Jingyi Wang and Yaolin Jiang (Xi'an Jiaotong University, P.R. China)

Maximizing Network Capacity of MPR-Capable Wireless Networks

Peng-Jun Wan and Fahad Al-Dhelaan (Illinois Institute of Technology, USA); Xiaohua Jia (City University of Hong Kong, Hong Kong); Baowei Wang and Guowen Xing (Nanjing University of Information Science and Technology, P.R. China)

Routing in Accumulative Multi-hop Networks

Jesús Gómez Vilarebó (CTTC, Spain)

A New Upper Bound on the Control Information Required in Multiple Access Communications

Jie Chuai (The University of Hong Kong, Hong Kong); Victor O. K. Li (University of Hong Kong, P.R. China)

BALLROOM-B06: Theoretical Foundations in Social Networks 2

Room: Ballroom B

Chair: Emilio Leonardi (Politecnico di Torino, Italy)

Pairwise Stochastic Bounded Confidence Opinion Dynamics: Heavy Tails and Stability

Francois Baccelli (UT Austin & The University of Texas at Austin, USA); Avhishek Chatterjee (UT Austin, USA); Sriram Vishwanath (University of Texas Austin, USA)

On the Efficiency-Optimal Markov Chains for Distributed Networking Applications

Chul-Ho Lee and Do Young Eun (North Carolina State University, USA)

Forming external behaviors by leveraging internal opinions

AmirMahdi Ahmadi (Sharif University of Technology, Iran); Sina Dehghani (University of Maryland, USA); Mohammad Taghi Hajiaghayi (University of Maryland, College Park & AT&T Labs --

Research, USA); Hamid Mahini (University of Maryland, College Park, USA); Saeed Seddighin (University of Maryland, USA); Sadra Yazdanbod (Georgia Institute of Technology, USA)

TSearch: Target-Oriented Low-Delay Node Searching in DTNs with Social Network Properties
Li Yan, Haiying Shen and Kang Chen (Clemson University, USA)

BALLROOM-C06: Mobile Offloading

Room: Ballroom C

Chair: Chen-Nee Chuah (University of California, Davis, USA)

Online Scheduling for Delayed Mobile Offloading

Han Deng and I-Hong Hou (Texas A&M University, USA)

Code Offload with Least Context Migration in the Mobile Cloud

Yong Li (The University of Tennessee, Knoxville, USA); Wei Gao (University of Tennessee, USA)

Dynamic Adaptive Techniques for Learning Application Delay Tolerance for Mobile Data Offloading

Ozlem Bilgir Yetim and Margaret Martonosi (Princeton University, USA)

Hermes: Latency Optimal Task Assignment for Resource-constrained Mobile Computing

Yi-Hsuan Kao and Bhaskar Krishnamachari (University of Southern California, USA); Moo-Ryong Ra (AT&T Labs - Research, USA); Fan Bai (General Motors, USA)

CHING08: Optical Networking and its Applications in Datacenters

Room: Ching

Chair: Arun Somani (Iowa State University, USA)

WaveCube: A Scalable, Fault-Tolerant, High-Performance Optical Data Center Architecture

Kai Chen (Hong Kong University of Science and Technology, Hong Kong); Xitao Wen (Northwestern University, USA); Xingyu Ma (UCLA, USA); Yan Chen (Northwestern University, USA); Yong Xia (Conviva, USA); Chengchen Hu (Xi'an Jiaotong University & NTNU, P.R. China); Qunfeng Dong (University of Science and Technology of China & Institute of Networked Systems, P.R. China)

WRH-ONoC: A Wavelength-Reused Hierarchical Architecture for Optical Network on Chips

Feiyang Liu (University of Otago, New Zealand); Haibo Zhang (Universitiy of Otago, New Zealand); Yawen Chen and Zhiyi Huang (University of Otago, New Zealand); Gu Huaxi (Xidian University, P.R. China)

Optimizing Throughput in Optical Networks: The Joint Routing and Power Control Problem

Zizhong Cao (New York University, USA); Paul Claisse (Alcatel-Lucent, USA); Rene Essiambre (Alcatel-Lucent Bell Labs, USA); M. Kodialam (Bell Labs, USA); T. V. Lakshman (Bell Labs, Alcatel-Lucent, USA)

Blast: Accelerating High-Performance Data Analytics Applications by Optical Multicast

Yiting Xia, T. S. Eugene Ng and Xiaoye Sun (Rice University, USA)

MING-II08: RFID 2

Room: Ming II

Chair: Wing Cheong Lau (The Chinese University of Hong Kong, Hong Kong)

Expecting the Unexpected: Fast and Reliable Detection of Missing RFID Tags in the Wild

Muhammad Shahzad and Alex X. Liu (Michigan State University, USA)

Fast RFID Grouping Protocols

Jia Liu (Nanjing University, P.R. China); Bin Xiao (The Hong Kong Polytechnic University, Hong Kong); Shigang Chen (University of Florida, USA); Feng Zhu and Li-jun Chen (Nanjing University, P.R. China)

PLACE: Physical Layer Cardinality Estimation for Large-Scale RFID Systems

Yuxiao Hou and Jiajue Ou (Nanyang Technological University, Singapore); Yuanqing Zheng (The Hong Kong Polytechnic University, Hong Kong); Mo Li (Nanyang Technological University, Singapore)

Anti-counterfeiting via Federated RFID Tags' Fingerprints and Geometric Relationships

Lei Yang (The School of Software, Tsinghua University, P.R. China); Peng Pai and Fan Dang (Tsinghua University, P.R. China); Cheng Wang (Tongji University, Shanghai, P.R. China); Xiang-Yang Li (Illinois Institute of Technology, USA); Yunhao Liu (Tsinghua University & The Hong Kong University of Science and Technology, P.R. China)

SUNG-I08: Medium Access Control 1

Room: Sung I

Chair: Joerg Widmer (IMDEA Networks Institute, Spain)

Sieve: Scalable User Grouping for Large MU-MIMO Systems

Wei-Liang Shen (National Taiwan University, Taiwan); Kate Ching-Ju Lin (Academia Sinica, Taiwan); Ming-Syan Chen (National Taiwan University, Taiwan); Kun Tan (Microosft Research Asia, P.R. China)

Revisiting Overlapped Channels: Efficient Broadcast in Multi-channel Wireless Networks

Jae-Han Lim (University of California, Los Angeles, USA); Katsuhiro Naito (Aichi Institute of Technology, Japan); Ji-Hoon Yun (Seoul National University of Science and Technology, Korea); Mario Gerla (University of California at Los Angeles, USA)

FD2: A Directional Full Duplex Communication System for Indoor Wireless Networks

Ehsan Aryafar (Intel Labs, USA); Alireza Keshavarz-Haddad (Rice University, USA)

CSMA k-SIC - A Class of Distributed MAC Protocols and their Performance Evaluation

Abishek Sankararaman (The University of Texas at Austin, USA); Francois Baccelli (UT Austin & The University of Texas at Austin, USA)

SUNG-II08: Wireless Mesh and Ad Hoc Networks 1

Room: Sung II

Chair: Qiang-Sheng Hua (Huazhong University of Science and Technology, P.R. China)

Scalable Clock Synchronization in Wireless Networks with Low-Duty-Cycle Radio Operations

Hao Huang and Jihoon Yun (University of Nebraska-Lincoln, USA); Ziguo Zhong (University of Nebraska - Lincoln, USA)

On End-to-end Delay Minimization in Wireless Networks under the Physical Interference Model

Yuan Li (National University of Defense Technology, P.R. China); Antonio Capone (Politecnico di Milano, Italy); Di Yuan (Linköping University, Sweden)

Speedup of Information Exchange using Multiple Channels in Wireless Ad Hoc Networks

Dongxiao Yu (The University of Hong Kong, Hong Kong); Yuexuan Wang (The University of Hong Kong, P.R. China); Yu Yan (Tsinghua University, P.R. China); Jiguo Yu (Qufu Normal University, P.R. China); Francis C.M. Lau (The University of Hong Kong, Hong Kong)

PhaseU: Real-time LOS Identification with WiFi

Chenshu Wu and Zheng Yang (Tsinghua University, P.R. China); Zimu Zhou (Hong Kong University of Science and Technology, Hong Kong); Kun Qian (Tsinghua University, P.R. China); Yunhao Liu (Tsinghua University & The Hong Kong University of Science and Technology, P.R. China); Mingyan Liu (University of Michigan, USA)

TANG08: Auctions

Room: Tang

Chair: Minming Li (City University of Hong Kong, Hong Kong)

Socially-Optimal Online Spectrum Auctions for Secondary Wireless Communication

Hongxing Li (University of California at Davis, USA); Chuan Wu (The University of Hong Kong, Hong Kong); Zongpeng Li (University of Calgary, Canada)

Resisting Three-Dimensional Manipulations in Distributed Wireless Spectrum Auctions

Dan Peng, Shuo Yang, Fan Wu and Guihai Chen (Shanghai Jiao Tong University, P.R. China); Shaojie Tang (University of Texas at Dallas, USA); Tie Luo (Institute for Infocomm Research & National University of Singapore, Singapore)

ITSEC: An Information-theoretically Secure Framework for Truthful Spectrum Auctions

Zhili Chen and Liusheng Huang (University of Science and Technology of China, P.R. China); Lin Chen (The University of Paris-Sud, France)

Truthful Online Double Auctions for Dynamic Mobile Crowdsourcing

Yueming Wei, Yanmin Zhu and Hongzi Zhu (Shanghai Jiao Tong University, P.R. China); Qian Zhang (Hong Kong University of Science and Technology, Hong Kong); Xue Guangtao (Shanghai Jiao Tong University, P.R. China)

10:30 - 12:00

BALLROOM-BC03: Panel B

What Should the Future Internet be Centered: Information, Service, Mobility, or User?

Room: Ballroom BC

Chair: Xiaohua Jia (City University of Hong Kong, Hong Kong)

Information-Centric Networking (ICN) or Named Data Networking (NDN) aimed to provide efficient information access over the Internet by directly naming and operating on information objects. Service-Centric Networking (SCN) was later introduced to meet the needs that Internet is not only a place for information access, but also a platform for providing and obtaining services. As the ever-growing mobile users access the Internet, Mobility-centric networking (MCN) was proposed upon the notion of self-certifying globally unique IDs (GUID). In recent years, as the tussles between giant clouds and autonomous users intensified, the privacy and security of users published data in social networks has become a major concern of the society. User-Centric Networking (UCN) emerges as a driving force aiming to protect users' rights over the internet, such as the ownership of users' published data, information privacy and security. What should the future Internet be centered: Information, service, mobility, or user?

CHING09: Secure Search in Cloud Computing

Room: Ching

Chair: Sherman S. M. Chow (Chinese University of Hong Kong, Hong Kong)

SEISA: Secure and Efficient Encrypted Image Search With Access Control

Jiawei Yuan and Shucheng Yu (University of Arkansas at Little Rock, USA); Linke Guo (Binghamton University, USA)

Inverted Index Based Multi-Keyword Public-key Searchable Encryption with Strong Privacy Guarantee

Bing Wang (Virginia Tech, USA); Wei Song (Wuhan University, P.R. China); Wenjing Lou (Virginia Tech & National Science Foundation, USA); Thomas Hou (Virginia Tech, USA)

Generalized Pattern Matching String Search on Encrypted Data in Cloud Systems

Dongsheng Wang (National University of Defense Technology, P.R. China); Xiaohua Jia and Cong Wang (City University of Hong Kong, Hong Kong); Kan Yang (University of Waterloo, Canada); Shaojing Fu and Ming Xu (National University of Defense Technology, P.R. China)

Catch You If You Lie to Me: Efficient Verifiable Conjunctive Keyword Search over Large Dynamic Encrypted Cloud Data

Wenhai Sun and Xuefeng Liu (Xidian University, P.R. China); Wenjing Lou (Virginia Tech & National Science Foundation, USA); Thomas Hou (Virginia Tech, USA); Hui Li (Xidian University, P.R. China)

MING-II09: Cooperative Networking

Room: Ming II

Chair: Renato Lo Cigno (University of Trento, Italy)

Incentivizing Sharing in Realtime D2D Streaming Networks: A Mean Field Game Perspective

Jian Li, Rajarshi Bhattacharyya, Suman Paul and Srinivas G Shakkottai (Texas A&M University, USA); Vijay Subramanian (University of Michigan, USA)

Interference Alignment Using Shadow Channel

Bo Chen (The Ohio State University, USA); Vivek Yenamandra (the Ohio State University, USA); Kannan Srinivasan (The Ohio State University, USA)

VSMC MIMO: A Spectral Efficient Scheme for Cooperative Relay in Cognitive Radio Networks

Chao Kong, Zengwen Yuan and Xushen Han (Shanghai Jiao Tong University, P.R. China); Feng Yang and Xinbing Wang (Shanghai Jiaotong University, P.R. China); Tao Wang (Peking University, P.R. China); Songwu Lu (University of California at Los Angeles, USA)

Bits and Coins: Supporting Collaborative Consumption of Mobile Internet

Dimitris Syrivelis (Centre for Research and Technology Hellas, Greece); George Iosifidis (Yale University, USA); Dimosthenis Delimpasis (University of Thessaly, and CERTH, Greece); Kostas Chouinos (University of Thessaly, Greece); Thanasis Korakis (Polytechnic Institute of New York University, USA); Leandros Tassiulas (Yale University, USA)

SUNG-I09: Medium Access Control 2

Room: Sung I

Chair: Kate Ching-Ju Lin (Academia Sinica, Taiwan)

A Coded Generalization of Selective Repeat ARQ

Jason Cloud (MIT, USA); Douglas Leith (Hamilton, Ireland); Muriel Médard (MIT, USA)

Scheduling in Wireless Networks with Full-Duplex Cut-through Transmission

Yang Yang (Ohio State University, USA); Ness B. Shroff (The Ohio State University, USA)

A-DCF: Design and Implementation of Delay and Queue Length based Wireless MAC

Hojin Lee, Sangwoo Moon and Yung Yi (KAIST, Korea)

Harmony: Content Resolution for Smart Devices using Acoustic Channel

Mostafa Uddin and Tamer Nadeem (Old Dominion University, USA)

SUNG-II09: Wireless Mesh and Ad Hoc Networks 2

Room: Sung II

Chair: Qiang-Sheng Hua (Huazhong University of Science and Technology, P.R. China)

On Setting-Up Asynchronous Ad Hoc Wireless Networks

Tomasz Jurdzinski (University of Wroclaw, Poland); Dariusz Kowalski (University of Liverpool, United Kingdom); Michał Różański and Grzegorz Stachowiak (University of Wroclaw, Poland)

ChASER: Channel-Aware Symbol Error Reduction for High-Performance WiFi Systems in Dynamic Channel Environment

Okhwan Lee (Samsung Electronics, Korea); Weiping Sun, Jihoon Kim and Hyuk Lee (Seoul National University, Korea); Bo Ryu (EpiSys Science, USA); Jungwoo Lee and Sunghyun Choi (Seoul National University, Korea)

Capacity Analysis of Hybrid Wireless Networks with Long-Range Social Contacts Behavior

Ronghui Hou (Xidian University, P.R. China); Yu Cheng (Illinois Institute of Technology, USA); Jiandong Li and Min Sheng (Xidian University, P.R. China); King-Shan Lui (The University of Hong Kong, Hong Kong)

Quantized Conflict Graphs for Wireless Network Optimization

Yanchao Zhao and Wenzhong Li (Nanjing University, P.R. China); Jie Wu (Temple University, USA); Sanglu Lu (Nanjing University, P.R. China)

TANG09: Crowdsensing

Room: Tang

Chair: Qinghua Li (University of Arkansas, USA)

Multi-Task Assignment for CrowdSensing in Mobile Social Networks

Mingjun Xiao (University of Science and Technology of China, P.R. China); Jie Wu (Temple University, USA); Liusheng Huang (University of Science and Technology of China, P.R. China); Yunsheng Wang (Kettering University, USA); Cong Liu (Sun Yat-sen University, P.R. China)

Crowdsending Under (Soft) Control

John P Rula and Fabian E. Bustamante (Northwestern University, USA)

Contextual-Code: Simplifying Information Pulling from Targeted Sources in Physical World

Yang Tian and Kaigui Bian (Peking University, P.R. China); Jacky Shen (Microsoft Research Asia, P.R. China); Xiaochen Liu and Xiaoguang Li (Peking University, P.R. China); Thomas Moscibroda (Microsoft Research, USA)

User Recruitment for Mobile Crowdsensing over Opportunistic Networks

Merkourios Karaliopoulos (Centre for Research and Technology Hellas, Greece); Orestis Telelis (University of Piraeus, Greece); Iordanis Koutsopoulos (Athens University of Economics and Business and CERTH & CERTH, Greece)

13:30 - 15:00

BALLROOM-A07: Content Centric and Named Data Networking

Room: Ballroom A

Chair: Haiyong Xie (University of Science and Technology of China & Central Research, Huawei Technologies, USA)

Efficient Analysis of Caching Strategies under Dynamic Content Popularity

Michele Garetto (Università di Torino, Italy); Emilio Leonardi and Stefano Traverso (Politecnico di Torino, Italy)

Can Web pages be Classified Using Anonymized TCP/IP Headers?

Sean Sanders (University of North Carolina, USA); Jasleen Kaur (University of North Carolina at Chapel Hill, USA)

Least Recently Used caches under the Shot Noise Model

Emilio Leonardi (Politecnico di Torino, Italy); Giovanni Luca Torrisi (CNR, Italy)

BFAST: Unified and Scalable Index for NDN Forwarding Architecture

Huichen Dai, Jianyuan Lu, Yi Wang and Bin Liu (Tsinghua University, P.R. China)

BALLROOM-B07: Real World Social Networks

Room: Ballroom B

Chair: Zongpeng Li (University of Calgary, Canada)

MOOC Performance Prediction via Clickstream Data and Social Learning Networks

Christopher Brinton and Mung Chiang (Princeton University, USA)

Timely Video Popularity Forecasting based on Social Networks

Jie Xu (University of California, Los Angeles, USA); Mihaela van der Schaar (University of California, Los Angeles (UCLA), USA); Jiangchuan Liu and Haitao Li (Simon Fraser University, Canada)

On the Efficiency of Social Recommender Networks

Felix Ming Fai Wong, Zhenming Liu and Mung Chiang (Princeton University, USA)

Persistence and Availability of Floating Content in a Campus Environment

Shahzad Ali (IMDEA Networks Institute, Spain); Gianluca A. Rizzo (HES SO Valais, Switzerland); Vincenzo Mancuso (IMDEA Networks Institute, Spain); Marco G Ajmone Marsan (Politecnico di Torino & IMDEA Networks, Italy)

BALLROOM-C07: Charging, Smart Grids, and Content Distribution

Room: Ballroom C

Chair: Jianping Wang (City University of Hong Kong, Hong Kong)

Peak-Minimizing Online EV Charging: Price-of-Uncertainty and Algorithm Robustification

Shizhen Zhao and Xiaojun Lin (Purdue University, USA); Minghua Chen (The Chinese University of Hong Kong, P.R. China)

P 3: Joint Optimization of Charger Placement and Power Allocation for Wireless Power Transfer

Sheng Zhang, Zhuzhong Qian and Fanyu Kong (Nanjing University, P.R. China); Jie Wu (Temple University, USA); Sanglu Lu (Nanjing University, P.R. China)

Rate Alteration Attacks in Smart Grid

Subhankar Mishra, Xiang Li, Alan Kuhnle and My T. Thai (University of Florida, USA)

Distributed Algorithms for Content Allocation in Interconnected Content Distribution Networks

Valentino Pacifici (Royal Institute of Technology (KTH), Sweden); György Dán (KTH Royal Institute of Technology, Sweden)

CHING10: Security in Cloud Computing

Room: Ching

Chair: Cong Wang (City University of Hong Kong, Hong Kong)

Distinct Element Counting in Distributed Dynamic Data Streams

Wenji Chen and Yong Guan (Iowa State University, USA)

Assessing Attack Vulnerability in Networks with Uncertainty

Thang N. Dinh (Virginia Commonwealth University, USA); My T. Thai (University of Florida, USA)

Secure Cloud Storage Hits Distributed String Equality Checking: More Efficient, Conceptually Simpler, and Provably Secure

Fei Chen (Shenzhen University & The Chinese University of Hong Kong, P.R. China); Tao Xiang (Chongqing University, P.R. China); Yuanyuan Yang (Stony Brook University, USA); Cong Wang (City University of Hong Kong, Hong Kong); Shengyu Zhang (The Chinese University of Hong Kong, Hong Kong)

TR-MABE: White-Box Traceable and Revocable Multi-authority Attribute-based Encryption and Its Applications to Multi-level Privacy-preserving e-Healthcare Cloud Computing Systems

Jun Zhou, Zhenfu Cao and Xiaolei Dong (Shanghai Jiao Tong University, P.R. China); Xiaodong Lin (University of Ontario Institute of Technology, Canada)

MING-II10: Short Range Wireless Technologies 1

Room: Ming II

Chair: Joerg Widmer (IMDEA Networks Institute, Spain)

Chirp Signal-Based Aerial Acoustic Communication for Smart Devices

Hyewon Lee (Seoul National University, Korea); Tae Hyun Kim (Soundly, Korea); Jun Won Choi (Hanyang University, Korea); Sunghyun Choi (Seoul National University, Korea)

Steering with Eyes Closed: mm-Wave Beam Steering without In-Band Measurement

Thomas Nitsche (IMDEA Networks & Universidad Carlos III de Madrid, Spain); Adriana B. Flores and Edward W. Knightly (Rice University, USA); Joerg Widmer (IMDEA Networks Institute, Spain)

Ultrasonic Intra-body Networking: Interference Modeling, Stochastic Channel Access and Rate Control

Zhangyu Guan (State University of New York at Buffalo, USA); G. Enrico Santagati and Tommaso Melodia (Northeastern University, USA)

Dancing with Light: Predictive In-frame Rate Selection for Visible Light Networks

Jialiang Zhang and Xinyu Zhang (University of Wisconsin-Madison, USA); Gang Wu (University of Electronic Science and Technology of China, P.R. China)

SUNG-I10: Internet Monitoring and Measurement 1

Room: Sung I

Chair: Rocky Chang (The Hong Kong Polytechnic University, Hong Kong)

Sequential and Adaptive Sampling for Matrix Completion in Network Monitoring Systems

Kun Xie and Lele Wang (State University of New York at Stony Brook, USA); Xin Wang (Stony Brook University, USA); Gaogang Xie (Institute of Computing Technology, Chinese Academy of Sciences, P.R. China); Guangxing Zhang (Institute of Computing Technology Chinese Academy of Sciences, P.R. China); Dongliang Xie (Stony Brook University & Beijing University of Posts and Telecommunications, P.R. China); Jigang Wen (Chinese Academy of Science & Institute of Computing Technology, P.R. China)

Do we need a perfect ground-truth for benchmarking Internet traffic classifiers?

M. Rosário Oliveira (Universidade Técnica de Lisboa, Instituto Superior Técnico and CEMAT, Portugal); Rui Valadas (Instituto de Telecomunicações and DEEC, Instituto Superior Técnico, Universidade de Lisboa, Portugal); Paulo Salvador (DETI, University of Aveiro, Instituto de Telecomunicações, Portugal); João Neves (CEMAT and Technical University of Lisbon, Portugal)

Modeling Repeating Behaviors in Packet Arrivals: Detection and Measurement

Jianfeng Li, Jing Tao and Xiaobo Ma (Xi'an Jiaotong University, P.R. China); Junjie Zhang (Wright State University, USA); Xiaohong Guan (Xi'an Jiaotong University & Tsinghua University, P.R. China)

An Empirical Mixture Model for Large-Scale RTT Measurements

Romain Fontugne (National Institute of Informatics & JFLI, Japan); Johan Mazel and Kensuke Fukuda (National Institute of Informatics, Japan)

SUNG-II10: Indoor Localization

Room: Sung II

Chair: S.-H. Gary Chan (The Hong Kong University of Science and Technology, P.R. China)

Fundamental Limits of RSS Fingerprinting based Indoor Localization

Yutian Wen (Shanghai Jiaotong University, P.R. China); Xiaohua Tian (Shanghai Jiao Tong University, P.R. China); Xinbing Wang (Shanghai Jiaotong University, P.R. China); Songwu Lu (University of California at Los Angeles, USA)

The Collocation of Measurement Points in Large Open Indoor Environment

Kaikai Sheng, Zhicheng Gu, Xueyu Mao, Xiaohua Tian, Weijie Wu and Xiaoying Gan (Shanghai Jiao Tong University, P.R. China); Xinbing Wang (Shanghai Jiaotong University, P.R. China)

Static Power of Mobile Devices: Self-updating Radio Maps for Wireless Indoor Localization

Chenshu Wu, Zheng Yang, Chaowei Xiao and Chaofan Yang (Tsinghua University, P.R. China); Yunhao Liu (Tsinghua University & The Hong Kong University of Science and Technology, P.R. China); Mingyan Liu (University of Michigan, USA)

Fusing Noisy Fingerprints with Distance Bounds for Indoor Localization

Suining He and S.-H. Gary Chan (The Hong Kong University of Science and Technology, P.R. China); Lei Yu (Sun Yat-sen University, P.R. China); Ning Liu (Sun Yat-Sen University, P.R. China)

TANG10: Crowdsourcing

Room: Tang

Chair: Yanjiao Chen (Hong Kong University of Science and Technology, Hong Kong)

Crowdsourcing with Tullock Contests: A New Perspective

Tie Luo (Institute for Infocomm Research & National University of Singapore, Singapore); Salil S Kanhere (The University of New South Wales, Australia); Hwee Pink Tan (Singapore Management University & TCS-SMU iCity Lab, Singapore); Fan Wu (Shanghai Jiao Tong University, P.R. China); Hongyi Wu (University of Louisiana at Lafayette, USA)

Crowdsourced Live Streaming over Cloud

Fei Chen (Simon Fraser University, P.R. China); Cong Zhang (Simon Fraser University, Canada); Feng Wang (The University of Mississippi, USA); Jiangchuan Liu (Simon Fraser University, Canada)

Revealing, Characterizing, and Detecting Crowdsourcing Spammers: A Case Study in Community Q&A

Aifang Xu, Xiaonan Feng and Ye Tian (University of Science and Technology of China, P.R. China)

High Quality Participant Recruitment in Vehicle-based Crowdsourcing using Predictable Mobility

Zongjian He (The Hong Kong Polytechnic University, Hong Kong); Jiannong Cao (Hong Kong Polytechnic Univ, Hong Kong); Xuefeng Liu (The Hong Kong Polytechnic University, Hong Kong)

15:30 - 17:00

BALLROOM-A08: Router and Switch Design

Room: Ballroom A

Chair: Bin Liu (Tsinghua University, P.R. China)

TimeFlip: Scheduling Network Updates with Timestamp-based TCAM Ranges

Tal Mizrahi, Ori Rottenstreich and Yoram Moses (Technion, Israel)

Independent Counter Estimation Buckets

Gil Einziger, Benny Fellman and Yaron Kassner (Technion, Israel)

Tapping into the Router's Unutilized Processing Power

Marat Radan and Isaac Keslassy (Technion, Israel)

Leveraging Traffic Repetitions for High-Speed Deep Packet Inspection

Anat Bremler-Barr (Interdisciplinary Center Herzliya, Israel); Shimrit Tzur David (The Interdisciplinary Center, Herzliya, Israel); Yotam Harchol and David Hay (The Hebrew University of Jerusalem, Israel)

BALLROOM-B08: Online Social Networks

Room: Ballroom B

Chair: Feng Wang (The University of Mississippi, USA)

Sampling Online Social Networks via Heterogeneous Statistics

Xin Wang (University of Science and Technology of China, P.R. China); Richard T. B. Ma (National University of Singapore, Singapore); Yinlong Xu and Zhipeng Li (University of Science and Technology of China, P.R. China)

Unveiling the Adoption and Cascading Process of OSN-based Gifting Applications

M. Rezaur Rahman, Jinyoung Han and Chen-Nee Chuah (University of California, Davis, USA)

Information sharing in distributed stochastic bandits

Swapna Buccapatnam (Princeton University, USA); Jian Tan (IBM Research, USA); Li Zhang (IBM T. J. Watson Research Center, USA)

DPCP: A Protocol for Optimal Pull Coordination in Decentralized Social Networks

Huanle Xu, Pili Hu and Wing Cheong Lau (The Chinese University of Hong Kong, Hong Kong); Qiming Zhang (Nottingham Trent University, United Kingdom); Yang Wu (The Chinese University of Hong Kong, Hong Kong)

BALLROOM-C08: Demand Response in Smart Grids

Room: Ballroom C

Chair: Yu Hua (Huazhong University of Science and Technology, P.R. China)

Comprehensive Understanding of Operation Cost Reduction Using Energy Storage for IDCs

Haihang Zhou (SJTU, P.R. China); Jianguo Yao (Shanghai Jiao Tong University, P.R. China); Xue Liu (McGill University, Canada)

A Truthful Incentive Mechanism for Emergency Demand Response in Colocation Data Centers

Linquan Zhang (University of Calgary, Canada); Shaolei Ren (Florida International University, USA); Chuan Wu (The University of Hong Kong, Hong Kong); Zongpeng Li (University of Calgary, Canada)

An Online Procurement Auction for Power Demand Response in Storage-Assisted Smart Grids

Ruiting Zhou and Zongpeng Li (University of Calgary, Canada); Chuan Wu (The University of Hong Kong, Hong Kong)

When Smart Grid Meets Geo-distributed Cloud: An Auction Approach to Datacenter Demand Response

Zhi Zhou and Fangming Liu (Huazhong University of Science and Technology, P.R. China); Zongpeng Li (University of Calgary, Canada); Hai Jin (Huazhong University of Science and Technology, P.R. China)

CHING11: Security in Mobile Cloud Computing

Room: Ching

Chair: Cong Wang (City University of Hong Kong, Hong Kong)

Harnessing Encrypted Data in Cloud for Secure and Efficient Image Sharing from Mobile Devices

Helei Cui, Xingliang Yuan and Cong Wang (City University of Hong Kong, Hong Kong)

SMOC: A Secure Mobile Cloud Computing Platform

Zijiang Hao and Yutao Tang (College of William and Mary, USA); Yifan Zhang (State University of New York at Binghamton, USA); Edmund Novak (William and Mary, USA); Nancy Carter and Qun Li (College of William and Mary, USA)

Fine-Grained Data Sharing in Cloud Computing for Mobile Devices

Jun Shao (Zhejiang Gongshang University, P.R. China); Xiaodong Lin (University of Ontario Institute of Technology, Canada); Rongxing Lu (Nanyang Technological University, Singapore)

Your Song Your Way: Rhythm-Based Two-Factor Authentication for Multi-Touch Mobile Devices

Yimin Chen and Jingchao Sun (Arizona State University, USA); Rui Zhang (University of Hawaii, USA); Yanchao Zhang (Arizona State University, USA)

MING-II11: Short Range Wireless Technologies 2

Room: Ming II

Chair: Joerg Widmer (IMDEA Networks Institute, Spain)

Adaptive Online Power-Management for Bluetooth Low Energy

Philipp Kindt (Lehrstuhl für Realzeit-Computersysteme (RCS) & Technische Universität München, Germany); Mathias Gopp (Lehrstuhl für Realzeit-Computersysteme, Technische Universität München, Germany); Daniel Yunge (Lehrstuhl für Realzeit - Computersysteme, Technische Universität München, Germany); Samarjit Chakraborty (Technical University München, Germany)

Ambient Rendezvous: Energy-Efficient Neighbor Discovery via Acoustic Sensing

Keyu Wang (Hong Kong University of Science and Technology, Hong Kong); Zheng Yang (Tsinghua University, P.R. China); Zimu Zhou (Hong Kong University of Science and Technology, Hong Kong); Yunhao Liu (Tsinghua University & The Hong Kong University of Science and Technology, P.R. China); Lionel Ni (Hong Kong University of Science and Technology, Hong Kong)

Characterizing Home Wireless Performance: The Gateway View

Ioannis Pefkianakis (HP Labs, USA); Henrik Lundgren (Technicolor, France); Augustin Soule (Thomson, France); Jaideep Chandrashekhar (Technicolor Labs, USA); Pascal Le Guyadec, Christophe Diot and Martin May (Technicolor, France); Karel Van Doorselaer and Koen Van Oost (Technicolor, Belgium)

VINCE: Exploiting Visible Light Sensing for Smartphone-based NFC Systems

Jianwei Niu (Beihang University, P.R. China); Fei Gu (BeiHang University, P.R. China); Ruogu Zhou and Guoliang Xing (Michigan State University, USA); Wei Xiang (Beihang University, P.R. China)

SUNG-I11: Internet Monitoring and Measurement 2

Room: Sung I

Chair: Rocky Chang (The Hong Kong Polytechnic University, Hong Kong)

A Measurement Study on the TCP Behaviors in HSPA+ Networks on High-speed Rails

Li Li and Ke Xu (Tsinghua University, P.R. China); Dan Wang (The Hong Kong Polytechnic University, Hong Kong); Chunyi Peng (Ohio State University, USA); Qingyang Xiao (Tsinghua University, P.R. China); Rashid Mijumbi (Universitat Politècnica de Catalunya, Spain)

What is Wrecking Your Data Plan? A Measurement Study of Mobile Web Overhead

Abner Mendoza (Texas A&M University, USA); Kapil Singh (IBM Research, USA); Guofei Gu (Texas A&M University, USA)

Measuring the Mixing Time of a Network

Xenofon Foukas (The University of Edinburgh, United Kingdom); Antonio Carzaniga (University of Lugano, Switzerland); Alexander Wolf (Imperial College London, United Kingdom)

Ricci Curvature of the Internet Topology

Chien-Chun Ni, Yu-Yao Lin, Jie Gao and David Gu (Stony Brook University, USA); Emil Saucan (Technion - Israel Institute of Technology, Israel)

SUNG-II11: Localization

Room: Sung II

Chair: Hongzi Zhu (Shanghai Jiao Tong University, P.R. China)

Network-side Positioning of Cellular-band Devices with Minimal Effort

Ayon Chakraborty, Luis Ortiz and Samir R. Das (Stony Brook University, USA)

A Fistful of Pings: Accurate and Lightweight Anycast Enumeration and Geolocation

Danilo Cicalese, Diana Zeaiter Joumblatt and Dario Rossi (Telecom ParisTech, France); Marc-Olivier Buob (UPMC Sorbonne Universités, France); Jordan Augé (Telecom ParisTech, France); Timur Friedman (UPMC Sorbonne Universités, France)

Fingerprint-free Tracking with Dynamic Enhanced Field Division

Qingquan Zhang (University of Maryland, Baltimore County, USA); Ziqiao Zhou (University of North Carolina at Chapel Hill, USA); Wei Xu (Shanghai Jiao Tong University, P.R. China); Jing Qi (Shanghai JiaoTong University, P.R. China); Chenxi Guo (Shanghai Jiaotong University, P.R. China); Ping Yi (Shanghai Jiao Tong University, P.R. China); Ting Zhu (University of Maryland, Baltimore County, USA); Sheng Xiao (Hunan University, P.R. China)

Noise-tolerant Localization From Incomplete Range Measurements for Wireless Sensor Networks

Fu Xiao (Nanjing University of Posts and Telecommunications, P.R. China); Chaoheng Sha (Nanjing University of Posts & Telecommunications, P.R. China); Lei Chen, Lijuan Sun and Ruchuan Wang (Nanjing University of Posts and Telecommunications, P.R. China)

TANG11: Incentives and Reputation in Crowdsourcing

Room: Tang

Chair: Wei Gao (University of Tennessee, USA)

Providing Long-Term Participation Incentive in Participatory Sensing

Lin Gao (The Chinese University of Hong Kong, Hong Kong); Fen Hou (University of Macau, Macao); Jianwei Huang (The Chinese University of Hong Kong, Hong Kong)

Incentivize Crowd Labeling under Budget Constraint

Qi Zhang (Shanghai Jiao Tong University, P.R. China); Yutian Wen (Shanghai Jiaotong University, P.R. China); Xiaohua Tian and Xiaoying Gan (Shanghai Jiao Tong University, P.R. China); Xinbing Wang (Shanghai Jiaotong University, P.R. China)

The Importance of Being Earnest in Crowdsourcing Systems

Alberto Tarable (Politecnico di Torino, Italy); Alessandro Nordio (IEIIT-CNR, Italy); Emilio Leonardi (Politecnico di Torino, Italy); Marco G Ajmone Marsan (Politecnico di Torino & IMDEA Networks, Italy)

Truthful Incentive Mechanisms for Crowdsourcing

Xiang Zhang, Guoliang Xue and Ruozhou Yu (Arizona State University, USA); Dejun Yang (Colorado School of Mines, USA); Jian Tang (Syracuse University, USA)

Program

Time	Bayview A	Bayview B	Grand Ballroom B	Grand Ballroom C	Marina	Seacliff A	Seacliff B	Seacliff C+D
Tuesday, April 12								
11:00-12:30	Tue-A.3: Cloud Computing I	Tue-A.1: Flows in SDN			Tue-A.6: Game Theory	Tue-A.4: Wireless Access	Tue-A.5: Storage	Tue-A.2: Energy Efficiency in Sensor Networks
14:00-15:30	Tue-B.5: Cellular Networks	Tue-B.3: Modeling I	Tue-B.1: Datacenter Networks I	Tue-B.2: IoT	Tue-B.8: Optimization I	Tue-B.6: Network Science I	Tue-B.7: Content Distribution Networks	Tue-B.4: Mobile Security
16:00-17:30	Tue-C.5: Wireless Technologies	Tue-C.3: WLAN Optimization	Tue-C.1: Big Data	Tue-C.2: Localization	Tue-C.8: Scheduling for Cloud Computing	Tue-C.6: Routing I	Tue-C.7: Network Management	Tue-C.4: Mobile Apps
Wednesday, April 13								
08:30-10:00	Wed-A.5: Connected Cars	Wed-A.3: Multimedia Networking	Wed-A.1: Software Defined Networks I	Wed-A.2: Energy Awareness for Wireless Networks	Wed-A.8: Jamming	Wed-A.6: Network Economics	Wed-A.7: Caching	Wed-A.4: Resource Allocation I
10:30-12:00	Wed-B.4: Network Measurements	Wed-B.2: Theory for Sensor Networks		Wed-B.1: Wi-Fi				Wed-B.3: Privacy
13:30-15:00	Wed-C.5: MIMO Networks	Wed-C.3: Wireless Network Optimization	Wed-C.1: Datacenter Networks II	Wed-C.2: Online Social Networks I	Wed-C.8: Data Offloading	Wed-C.6: Cellular Networks Management	Wed-C.7: Modeling II	Wed-C.4: Mobile Sensing
15:30-17:00	Wed-D.5: Multi-hop Wireless	Wed-D.3: Network Security I	Wed-D.1: SDN for Security & Management	Wed-D.2: Renewable Energy	Wed-D.8: Traffic Analysis	Wed-D.6: Scheduling	Wed-D.7: Optimization II	Wed-D.4: Visible Light Communications
Thursday, April 14								
08:30-10:00	Thu-A.5: Crowdsourcing	Thu-A.3: Sensor Networks	Thu-A.1: Flow Control in Datacenter Networks	Thu-A.2: Cloud Computing II	Thu-A.8: Wireless Networks Economics	Thu-A.6: Routing II	Thu-A.7: Cognitive Radio Networks	Thu-A.4: Wearables
10:30-12:00	Thu-B.4: RFID	Thu-B.2: Mobile Videos		Thu-B.1: Software Defined Networks II				Thu-B.3: Antennas
13:30-15:00	Thu-C.5: Wireless Scheduling	Thu-C.3: Spectrum Sharing	Thu-C.1: Online Social Networks II	Thu-C.2: Network Security II	Thu-C.8: Modeling III	Thu-C.6: TCP	Thu-C.7: Network Science II	Thu-C.4: Cellular Networks Coverage

15:30-17:00	Thu-D.5: Cloud Storage Systems	Thu-D.3: Streaming Video	Thu-D.1: Optimization III	Thu-D.2: Resource Allocation II				Thu-D.4: Heterogeneous Networks
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Tuesday, April 12

Tuesday, April 12, 11:00 - 12:30

Tue-A.1: Flows in SDN

Room: Bayview B

Chair: Ting He (IBM Research, USA)

Controlling Flow Reconfigurations in SDN

Stefano Paris (Huawei Technologies Co. Ltd. & Université Paris Descartes, France); Apostolos Destounis (Huawei Technologies France Research Center, France); Lorenzo Maggi (Huawei Technologies & Mathematical and Algorithmic Sciences Lab, France); Georgios S. Paschos (Huawei Technologies, France); Jeremie Leguay (Huawei Technologies, France Research Center, France)

Measurement-based Flow Characterization in Centrally Controlled Networks

Zdravko Bozakov (EMC Research Europe, Ireland); Amr Rizk (Technische Universität Darmstadt, Germany); Divyashri Bhat (University of Massachusetts, USA); Michael Zink (University of Massachusetts Amherst, USA)

On Consistent Migration of Flows in SDNs

Sebastian Brandt (ETH Zurich, Switzerland); Klaus-Tycho Förster (ETH Zurich & Microsoft Research, Switzerland); Roger Wattenhofer (ETH Zurich, Switzerland)

Is Every Flow on The Right Track?: Inspect SDN Forwarding with RuleScope

Kai Bu (Zhejiang University, P.R. China); Xitao Wen (Northwestern University, USA); Bo Yang (Zhejiang University, P.R. China); Yan Chen (Northwestern University, USA); Li Erran Li (Bell Labs, Alcatel-Lucent, USA); Xiaolin Chen (Northwestern University, Chuxiong Normal University)

Tue-A.2: Energy Efficiency in Sensor Networks

Room: Seadcliff C+D

Chair: Falko Dressler (University of Paderborn, Germany)

A PTAS to Minimize Mobile Sensor Movement for Target Coverage Problem

Zhiyin Chen, Xiaofeng Gao, Fan Wu and Guihai Chen (Shanghai Jiao Tong University, P.R. China)

DualSync: Taming Clock Skew Variation for Synchronization in Low-Power Wireless Networks

Meng Jin, Tianzhang Xing, Xiaojiang Chen, Xin Meng and Dingyi Fang (Northwest University, P.R. China); Yuan He (Tsinghua University, P.R. China)

Talk More Listen Less: Energy-Efficient Neighbor Discovery in Wireless Sensor Networks

Ying Qiu, Shi-Ning Li, Xiangsen Xu and Zhigang Li (Northwestern Polytechnical University, P.R. China)

A Hybrid Framework Combining Solar Energy Harvesting and Wireless Charging for Wireless Sensor Networks

Cong Wang, Ji Li, Yuanyuan Yang and Fan Ye (Stony Brook University, USA)

Tue-A.3: Cloud Computing I

Room: Bayview A

Chair: Leandros Tassiulas (Yale University, USA)

GEM: An Analytic Geometrical Approach to Fast Event Matching for Multi-dimensional Content-based Publish/Subscribe Services

Wenhai Fan (Beijing University of Posts and Telecommunications, P.R. China); Yuanan Liu (Beijing University of Posts and Telecom, P.R. China); Bihua Tang (Beijing University of Posts and Telecommunications, P.R. China)

Cheetah: An Efficient Flat Addressing Scheme for Fast Query Services in Cloud Computing

Yu Hua (Huazhong University of Science and Technology, P.R. China)

A Hierarchical Edge Cloud Architecture for Mobile Computing

Liang Tong (University of Tennessee, Knoxville, USA); Yong Li (The University of Tennessee, Knoxville, USA); Wei Gao (University of Tennessee, USA)

Providing Bandwidth Guarantees, Work Conservation and Low Latency Simultaneously in the Cloud

Shuihai Hu (The Hong Kong University of Science and Technology, P.R. China); Wei Bai and Kai Chen (Hong Kong University of Science and Technology, Hong Kong); Chen Tian (Nanjing University, P.R. China); Ying Zhang (Hewlett Packard Labs, USA); Haitao Wu (Microsoft Research Asia, P.R. China)

Tue-A.4: Wireless Access

Room: Seacliff A

Chair: Renato Lo Cigno (University of Trento, Italy)

Listen Channel Randomization for Faster Wi-Fi Direct Device Discovery

Weiping Sun and Changmok Yang (Seoul National University, Korea); Sunggeun Jin (Daegu University, USA); Sunghyun Choi (Seoul National University, Korea)

Experimental Evaluation of Large Scale WiFi Multicast Rate Control

Varun Gupta and Craig Gutterman (Columbia University, USA); Yigal Bejerano (Bell-Labs, Alcatel-Lucent, USA); Gil Zussman (Columbia University, USA)

MobTrack: Locating Indoor Interfering Radios With A Single Device

Changlai Du and Ruide Zhang (Virginia Tech, USA); Wenjing Lou (Virginia Tech & National Science Foundation, USA); Thomas Hou (Virginia Tech, USA)

The S-Aloha Capacity: Beyond the e^{-1} Myth

Luca Barletta, Flaminio Borgonovo and Ilario Filippini (Politecnico di Milano, Italy)

Tue-A.5: Storage

Room: Seacliff B

Chair: Arun Somani (Iowa State University, USA)

Enabling Secure and Effective Near-duplicate Detection over Encrypted In-network Storage

Helei Cui, Xingliang Yuan, Yifeng Zheng and Cong Wang (City University of Hong Kong, Hong Kong)

T-Update: A Tree-structured Update Scheme with Top-Down Transmission in Erasure-coded Systems

Xiaoqiang Pei, Yijie Wang, Xingkong Ma and Fangliang Xu (National University of Defense Technology, P.R. China)

Blending On-Demand and Spot Instances to Lower Costs for In-Memory Storage

Zichen Xu, Christopher Stewart, Nan Deng and Xiaorui Wang (The Ohio State University, USA)

On the Synchronization Bottleneck of OpenStack Swift-like Cloud Storage Systems

Thierry Titcheu Chekam (University of Luxembourg & Tsinghua University, Luxembourg); Ennan Zhai (Yale University, USA); Zhenhua Li and Yong Cui (Tsinghua University, P.R. China); Kui Ren (State University of New York at Buffalo, USA)

Tue-A.6: Game Theory

Room: Marina

Chair: Thang N. Dinh (Virginia Commonwealth University, USA)

A Multi-player Markov Stopping Game for Delay-tolerant and Opportunistic Resource Sharing Networks

Xiaofan He (North Carolina State University, USA); Huaiyu Dai (NC State University, USA); Peng Ning and Rudra Dutta (North Carolina State University, USA)

To delay or not: temporal vaccination games on networks

Abhijin Adiga, Srinivasan Venkatramanan and Anil Kumar S Vullikanti (Virginia Tech, USA)

Nash Equilibrium and the Price of Anarchy in Priority Based Network Routing

Benjamin Grimmer and Sanjiv Kapoor (Illinois Institute of Technology, USA)

Exit Equilibrium: Towards Understanding Voluntary Participation in Security Games

Parinaz Naghizadeh Ardabili and Mingyan Liu (University of Michigan, USA)

Tuesday, April 12, 14:00 - 15:30

Tue-B.1: Datacenter Networks I

Room: Grand Ballroom B

Chair: Baochun Li (University of Toronto, Canada)

Synergistic Policy and Virtual Machine Consolidation in Cloud Data Centers

Lin Cui (Jinan University, P.R. China); Richard Cziva (University of Glasgow, United Kingdom); Fung Po Tso (Liverpool John Moores University, United Kingdom); Dimitrios P Pezaros (University of Glasgow, United Kingdom)

Dynamic Scaling of Virtual Clusters with Bandwidth Guarantee in Cloud Data Centers

Lei Yu (Georgia Institute of Technology, USA); Zhipeng Cai (Georgia State University, USA)

Deadlock-Free Local Fast Failover for Arbitrary Data Center Networks

Brent Stephens (Rice University & University of Wisconsin, Madison, USA); Alan Cox (Rice University, USA)

Dynamic SDN Controller Assignment in Data Center Networks: Stable Matching with Transfers

Tao Wang, Fangming Liu and Jian Guo (Huazhong University of Science and Technology, P.R. China); Hong Xu (City University of Hong Kong, Hong Kong)

Tue-B.2: IoT

Room: Grand Ballroom C

Chair: Lars C Wolf (Technische Universität Braunschweig, Germany)

PSync: Visible Light-Based Time Synchronization for Internet of Things (IoT)

Xiangfa Guo, Mobashir Mohammad, Sudipta Saha, Mun Choon Chan and Seth Gilbert (National University of Singapore, Singapore); Derek Leong (Institute for Infocomm Research, Singapore)

Demultiplexing Activities of Daily Living in IoT enabled Smarthomes

Palanivel Andiappan Kodeswaran and Ravi Kokku (IBM Research, India); Madhumita Mallick (Indian Institute of Technology, Kharagpur, India); Sayandee Sen (IBM Research, India)

EMIT: An Efficient MAC Paradigm for the Internet of Things

Arjun Bakshi, Lu Chen, Kannan Srinivasan and Can Emre Koksal (The Ohio State University, USA); Atilla Eryilmaz (Ohio State University, USA)

RAM: Radar-based Activity Monitor

Md Abdullah Al Hafiz Khan (University of Maryland, Baltimore County, USA); Ruthvik Kukkapalli, Piyush Waradpande and Sekar Kulandaivel (UMBC, USA); Nilanjan Banerjee (University of Maryland, Baltimore County, USA); Nirmalya Roy and Ryan Robucci (University of Maryland Baltimore County, USA)

Tue-B.3: Modeling I

Room: Bayview B

Chair: Przemyslaw Pawelczak (Delft University of Technology, The Netherlands)

Non-Asymptotic Delay Bounds for (k,l) Fork-Join Systems and Multi-Stage Fork-Join Networks

Markus Fidler (Leibniz Universität Hannover, Germany); Yuming Jiang (Norwegian University of Science and Technology (NTNU), Norway)

Information Source Detection in Networks: Possibility and Impossibility Results

Kai Zhu and Lei Ying (Arizona State University, USA)

Heavy Hitters in Streams and Sliding Windows

Ran Ben Basat (Technion, Israel); Gil Einziger (Politecnico di Torino, Italy); Roy Friedman and Yaron Kassner (Technion, Israel)

Variability-aware Request Replication for Latency Curtailment

Zhan Qiu, Juan Perez and Peter G Harrison (Imperial College London, United Kingdom)

Tue-B.4: Mobile Security

Room: Seacliff C+D

Chair: Liran Ma (Texas Christian University, USA)

Wanda: securely introducing mobile devices

Timothy Pierson (Dartmouth College, USA); Xiaohui Liang (University of Massachusetts Boston & University of Massachusetts Boston, USA); Ronald Peterson and David Kotz (Dartmouth College, USA)

EyeVeri: A Secure and Usable Approach for Smartphone User Authentication

Chen Song (The State University of New York at Buffalo, USA); Aosen Wang and Kui Ren (State University of New York at Buffalo, USA); Wenyao Xu (SUNY Buffalo, USA)

Secure Fingertip Mouse for Mobile Devices

Zhen Ling, Luo Junzhou and Qi Chen (Southeast University, P.R. China); Qinggang Yue (University of Massachusetts Lowell, USA); Ming Yang (Southeast University, P.R. China); Wei Yu (Towson University, USA); Xinwen Fu (University of Massachusetts Lowell, USA)

Proactive Patrol Dispatch Surveillance System by Inferring Mobile Trajectories of Multiple Intruders Using Binary Proximity Sensors

Dahee Jeong (Ewha Womans University, Korea); Minkyung Cho (Korea Advanced Institute of Science and Technology, Korea); Omprakash Gnawali (University of Houston, USA); HyungJune Lee (Ewha Womans University, Korea)

Tue-B.5: Cellular Networks

Room: Bayview A

Chair: Sangtae Ha (University of Colorado at Boulder, USA)

Localization of LTE Measurement Records with Missing Information

Avik Ray (The University of Texas at Austin, USA); Supratim Deb (AT&T Labs - Research, USA); Pantelis Monogioudis (NOKIA, USA)

Coordinated Multi-Point Transmissions Based On Interference Alignment and Neutralization

Zhao Li and Sha Cui (Xidian University, P.R. China); Kang G. Shin (University of Michigan, USA); Jun Gu (Xidian University, P.R. China)

An SDR-based Experimental Study of Outband D2D Communications

Arash Asadi (TU Darmstadt, Germany); Vincenzo Mancuso (IMDEA Networks Institute, Spain); Rohit Gupta (National Instruments, Germany)

Resource pooling in CDMA cell-based systems through uplink power control

Antonis Dimakis and Spyros Papafragkos (Athens University of Economics and Business, Greece)

Tue-B.6: Network Science I

Room: Seacliff A

Chair: Wenyue Wang (NC State University, USA)

Robust Monitor Placement for Network Tomography in Dynamic Networks

Ting He (IBM Research, USA); Liang Ma (IBM TJ Watson Research Center, USA); Athanasios Gkelias (Imperial College London, United Kingdom); Kin K. Leung (Imperial College, United Kingdom); Ananthram Swami (Army Research Lab., USA); Don Towsley (University of Massachusetts at Amherst, USA)

Robust Network Tomography: k -identifiability and Monitor Assignment

Wei Ren and Wei Dong (Zhejiang University, P.R. China)

Distributed Spectral Decomposition in Networks by Complex Diffusion and Quantum Random Walk

Konstantin Avrachenkov (INRIA Sophia Antipolis, France); Philippe Jacquet (Alcatel Lucent Bell Labs, France); Jithin K. Sreedharan (INRIA, France)

Cost-aware Targeted Viral Marketing in Billion-scale Networks

Hung T Nguyen (Virginia Commonwealth University & School of Engineering, USA); Thang N. Dinh (Virginia Commonwealth University, USA); My T. Thai (University of Florida, USA)

Tue-B.7: Content Distribution Networks

Room: Seacliff B

Chair: Jussi Kangasharju (University of Helsinki, Finland)

Coordinated Caching in Planet-Scale CDNs: Analysis of Feasibility and Benefits

Kianoosh Mokhtarian and Hans-Arno Jacobsen (University of Toronto, Canada)

Characterizing Caching Workload of a Large Commercial Content Delivery Network

M. Zubair Shafiq (University of Iowa, USA); Amir R. Khakpour (Verizon Digital Media Services, USA); Alex X. Liu (Michigan State University, USA)

Placing Dynamic Content in Caches with Small Population

Mathieu Leconte (Huawei, France); Georgios S. Paschos (Huawei Technologies, France); Lazaros Gkatzikis (Mathematical and Algorithmic Sciences Lab, France Research Center, Huawei Technologies Co. Ltd., France); Moez Draief (Huawei, France); Spyridon Vassilaras (France Research Center, Huawei Technologies, France); Symeon Chouvardas (University of Athens, Greece)

Popularity-Driven Content Caching

Suoheng Li (University of Science and Technology of China, P.R. China); Jie Xu (University of Miami, USA); Mihaela van der Schaar (UCLA, USA); Weiping Li (University of Science and Technology of China, P.R. China)

Tue-B.8: Optimization I

Room: Marina

Chair: Sanjiv Kapoor (Illinois Institute of Technology, USA)

NetCodCCN: a Network Coding approach for Content-Centric Networks

Jonnahtan Saltarin and Eirina Bourtsoulatze (University of Bern, Switzerland); Nikolaos Thomos (University of Essex, United Kingdom); Torsten Ingo Braun (University of Bern, Switzerland)

Multicast Traffic Engineering for Software-Defined Networks

Liang-Hao Huang, Hsiang-Chun Hsu, Shan-Hsiang Shen, De-Nian Yang and Wen-Tsuen Chen (Academia Sinica, Taiwan)

Dynamic Virtual Machine Management via Approximate Markov Decision Process

Zhenhua Han (The University of Hong Kong); Haisheng Tan (Jinan University, Guangzhou, P.R. China); Guihai Chen (Shanghai Jiao Tong University, P.R. China); Rui Wang (The South University of Science and Technology of China, P.R. China); Yifan Chen (South University of Science and Technology of China, P.R. China); Francis C.M. Lau (The University of Hong Kong, Hong Kong)

Radiation Constrained Wireless Charger Placement

Haipeng Dai (Nanjing University & State Key Laboratory for Novel Software Technology, P.R. China); Yunhuai Liu (Third Research Institute of Ministry of Public Security, P.R. China); Alex X. Liu (Michigan State University, USA); Lingtao Kong (Nanjing University & State Key Laboratory for Novel Software Technology, P.R. China); Guihai Chen (Shanghai Jiao Tong University, P.R. China); Tian He (University of Minnesota, USA)

Tuesday, April 12, 16:00 - 17:30

Tue-C.1: Big Data

Room: Grand Ballroom B

Chair: Wenye Wang (NC State University, USA)

Approximate Matching of Persistent LExicon using Search-Engines For Classifying Mobile App Traffic

Gyan Ranjan (Symantec Corporation); Alok Tongaonkar (Symantec Corporation, USA); Ruben Torres (Symantec, USA)

Macro-scale Mobile App Market Analysis using Customized Hierarchical Categorization

Xi Liu and Pang-Ning Tan (Michigan State University, USA); Han Hee Song (Cisco, USA); Mario Baldi (Politecnico di Torino & Cisco Systems, Italy)

Streaming Big Data meets Backpressure in Distributed Network Computation

Apostolos Destounis (Huawei Technologies France Research Center, France); Georgios S. Paschos (Huawei Technologies, France); Iordanis Koutsopoulos (Athens University of Economics and Business, Greece)

Practical and Secure Nearest Neighbor Search on Encrypted Large-Scale Data

Boyang Wang (University of Arizona, USA); Yantian Hou (Utah State University, USA); Ming Li (University of Arizona, USA)

Tue-C.2: Localization

Room: Grand Ballroom C

Chair: Mun Choon Chan (National University of Singapore, Singapore)

FitLoc: Fine-grained and Low-cost Device-free Localization for Multiple Targets over Various Areas

Liqiong Chang and Xiaojiang Chen (Northwest University, P.R. China); Yu Wang (University of North Carolina at Charlotte, USA); Dingyi Fang (Northwest University, P.R. China); Ju Wang (Northwest University); Tianzhang Xing and Zhanyong Tang (Northwest University, P.R. China)

Flash-Loc: Flashing Mobile Phones for Accurate Indoor Localization

Fan Yang (the Ohio State University, USA); Qiang Zhai, Guoxing Chen and Adam C. Champion (The Ohio State University, USA); Junda Zhu (University of Macau, P.R. China); Dong Xuan (The Ohio State University, USA)

AMIL: Localizing Neighboring Mobile Devices Through a Simple Gesture

Hao Han (Intelligent Automation, Inc., USA); Shanhe Yi and Qun Li (College of William and Mary, USA); Shen Guobin and Yunxin Liu (Microsoft Research Asia, P.R. China); Edmund Novak (William and Mary, USA)

UrbanEye: An Outdoor Localization System for Public Transport

Rohit Verma (Indian Institute of Technology, Kharagpur, India); Aviral Shrivastava (IIT Kharagpur, India); Bivas Mitra (Indian Institute of Technology Kharagpur, India); Sujoy Saha (National Institute of Technology, India); Niloy Ganguly (Indian Institute of Technology Kharagpur, India); Subrata Nandi (National Institute of Technology, Durgapur, India); Sandip Chakraborty (Indian Institute of Technology Kharagpur, India)

Tue-C.3: WLAN Optimization

Room: Bayview B

Chair: Sunghyun Choi (Seoul National University, Korea)

Accurate WiFi Packet Delivery Rate Estimation and Applications

Muhammad Owais Khan (University of Texas at Austin, USA); Lili Qiu (The University of Texas at Austin, USA)

Modeling, Performance Analysis, and Optimization of Single Hop IEEE 802.11 Networks with Large Propagation Delays: Challenges and Solutions

Abhijit Bhattacharya and Anurag Kumar (Indian Institute of Science, India)

WiFi Can Be the Weakest Link of Round Trip Network Latency In the Wild

Changhua Pei, Youjian Zhao, Guo Chen and Ruming Tang (Tsinghua University, P.R. China); Yuan Meng (Beijing University of Posts and Telecommunications, P.R. China); Minghua Ma (Tsinghua University, P.R. China); Ken Ling (Carnegie Mellon University, P.R. China); Dan Pei (Tsinghua University, P.R. China)

An Approximation Algorithm for AP Association under User Migration Cost Constraint

Wangkit Wong (The Hong Kong University of Science and Technology, Hong Kong); Avishek Thakur (Hong Kong University Of Science And Technology, Hong Kong); S.-H. Gary Chan (The Hong Kong University of Science and Technology, P.R. China)

Tue-C.4: Mobile Apps

Room: Seacliff C+D

Chair: Jun Luo (Nanyang Technological University, Singapore)

VADS: Visual Attention Detection with a Smartphone

Zhiping Jiang (Xian Jiaotong University, P.R. China); Jinsong Han (Xi'an Jiaotong University, P.R. China); Chen Qian (University of Kentucky, USA); Wei Xi, Kun Zhao and Han Ding (Xi'an Jiaotong University, P.R. China); Shaojie Tang (University of Texas at Dallas, USA); Jizhong Zhao (Xi'an Jiaotong University, P.R. China); Panlong Yang (Institute of Communication Engineering, PLAUST, P.R. China)

Smokey: Ubiquitous Smoking Detection with Commercial WiFi Infrastructures

Xiaolong Zheng and Jiliang Wang (Tsinghua University, P.R. China); Longfei Shangguan (Princeton University, USA); Zimu Zhou (ETH Zurich, Switzerland); Yunhao Liu (Tsinghua University, P.R. China)

CamK: a Camera-based Keyboard for Small Mobile Devices

Yafeng Yin (Nanjing University, P.R. China); Qun Li (College of William and Mary, USA); Lei Xie (Nanjing University, P.R. China); Shanhe Yi (College of William and Mary, USA); Edmund Novak (William and Mary, USA); Sanglu Lu (Nanjing University, P.R. China)

Zephyr: Ubiquitous Accurate multi-Sensor Fusion-based Respiratory Rate Estimation Using Smartphones

Heba Aly (University of Maryland, USA); Moustafa Youssef (Egypt-Japan University of Science and Technology (EJUST), Egypt)

Tue-C.5: Wireless Technologies

Room: Bayview A

Chair: Kate Ching-Ju Lin (Academia Sinica, Taiwan)

Continuous and Fine-grained Breathing Volume Monitoring from Afar Using Wireless Signals

Phuc Nguyen (University of Colorado Denver, USA); Xinyu Zhang (University of Wisconsin-Madison, USA); Ann Halbower (University of Colorado School of Medicine and Children's Hospital Colorado, USA); Tam Vu (University of Colorado Denver & University of Colorado, Denver, USA)

Decoding Interfering Signals With Less Receiving Antennas

Zhao Li and XiaoQin Dai (Xidian University, P.R. China); Kang G. Shin (University of Michigan, USA)

Exploiting Channel Diversity for Rate Adaptation in Backscatter Communication Networks

Wei Gong (Simon Fraser University, Canada); Haoxiang Liu (Hong Kong University of Science and Technology, P.R. China); Kebin Liu, Qiang Ma and Yunhao Liu (Tsinghua University, P.R. China)

On Signaling Power: Communications over Wireless Energy

Raul G. Cid-Fuentes (Universitat Politècnica de Catalunya, Spain); M. Yousof Naderi, Stefano Basagni and Kaushik Chowdhury (Northeastern University, USA); Albert Cabellos-Aparicio (Universitat Politècnica de Catalunya, Spain); Eduard Alarcon (Technical University of Catalonia, Spain)

Tue-C.6: Routing I

Room: Seacliff A

Chair: Yuan He (Tsinghua University, P.R. China)

Rapid Convergence versus Policy Expressiveness in Interdomain Routing

Alexander Gurney, Sanjeev Khanna and Yang Li (University of Pennsylvania, USA)

Pop-Routing: Centrality-based Tuning of Control Messages for Faster Route Convergence

Leonardo Maccari and Renato Lo Cigno (University of Trento, Italy)

Network Utility Maximization with Path Cardinality Constraints

Yingjie Bi (Cornell University, USA); Chee Wei Tan (City University of Hong Kong, Hong Kong); Kevin Tang (Cornell University, USA)

iBGP2: a scalable iBGP redistribution mechanism leading to optimal routing

Marc-Olivier Buob (Nokia Bell Labs, France); Anthony Lambert (Orange Labs, France); Steve Uhlig (UK & Queen Mary, University of London, United Kingdom)

Tue-C.7: Network Management

Room: Seacliff B

Chair: Hong Xu (City University of Hong Kong, Hong Kong)

SCMon: leveraging Segment Routing to improve network monitoring

François Aubry (Université Catholique de Louvain, Belgium); David Lebrun (Université Catholique de Louvain); Stefano Vissicchio and Minh Thanh Khong (Université Catholique de Louvain, Belgium); Yves Deville (Université Catholique de Louvain, Belgium); Olivier Bonaventure (Université catholique de Louvain, Belgium)

Cloudlet Load Balancing in Wireless Metropolitan Area Networks

Mike Jia (Australian National University, Australia); Weifa Liang (The Australian National University, Australia); Zichuan Xu (Australian National University, Australia); Meitian Huang (The Australian National University, Australia)

Reducing Dense Virtual Networks for Fast Embedding

Toru Mano, Takeru Inoue, Kimihiro Mizutani and Osamu Akashi (NTT Network Innovation Labs., Japan)

FOCUS: Shedding Light on the High Search Response Time in the Wild

Dapeng Liu, Youjian Zhao, Kaixin Sui, Lei Zou and Dan Pei (Tsinghua University, P.R. China); Qingqian Tao, Xiyang Chen and Dai Tan (Baidu, P.R. China)

Tue-C.8: Scheduling for Cloud Computing

Room: Marina

Chair: Wei Gao (University of Tennessee, USA)

Scheduling for Cloud-Based Computing Systems to Support Soft Real-Time Applications

Yuhuan Du (University of Texas at Austin, USA); Gustavo de Veciana (The University of Texas at Austin, USA)

Symbiosis: Network-Aware Task Scheduling in Data-Parallel Frameworks

Jingjie Jiang, Shiyao Ma and Bo Li (Hong Kong University of Science and Technology, Hong Kong); Baochun Li (University of Toronto, Canada)

Scheduling with Multi-level Data Locality: Throughput and Heavy-traffic Optimality

Qiaomin Xie (University of Illinois at Urbana-Champaign, USA); Ali Yekkehkhany (University of Illinois Urbana-Champaign, USA); Yi Lu (University of Illinois at Urbana-Champaign, USA)

Scheduling Jobs with Non-uniform Demands on Multiple Servers without Interruption

Sungjin Im (University of California, Merced, USA); Mina Naghshnejad (UC Merced, USA); Mukesh Singhal (University of California at Merced, USA)

Wednesday, April 13

Wednesday, April 13, 08:30 - 10:00**Wed-A.1: Software Defined Networks I**

Room: Grand Ballroom B

Chair: Ting He (IBM Research, USA)

Software Defined Networks: It's About Time

Tal Mizrahi (Technion); Yoram Moses (Technion, Israel)

FLIP the (Flow) Table: Fast Lightweight Policy-preserving SDN Updates

Stefano Vissicchio (Université Catholique de Louvain, Belgium); Luca Cittadini (Roma Tre University, Italy)

Cupid: Congestion-free Consistent Data Plane Update In Software Defined Networks

Wen Wang and Wenbo He (McGill University, Canada); Jinshu Su (National University of Defence Technology, P.R. China); YiXin Chen (McGill University, Canada)

Compiling Packet Forwarding Rules for Switch Pipelined Architecture

Hamadi Salaheddine (UQAM, Canada); Khalil Blaiech (Université du Québec à Montréal, Canada); Petko Valtchev (UQAM & University of Montreal, Canada); Radu State (University of Luxembourg, Luxembourg); Cherkaoui Omar (University of Quebec in Montreal, Canada)

Wed-A.2: Energy Awareness for Wireless Networks

Room: Grand Ballroom C

Chair: Song Chong (KAIST, Korea)

BattTracker: Enabling Energy Awareness for Smartphone Using Li-ion Battery Characteristics

Jonghoe Koo and Kitaek Lee (Seoul National University, Korea); Wonbo Lee (Samsung Electronics, Korea); Yong Seok Park (Samsung electronics, Korea); Sunghyun Choi (Seoul National University, Korea)

DAFEE: A Decomposed Approach for Energy Efficient Networking in Multi-Radio Multi-Channel Wireless Networks

Lu Liu (Illinois Institute of Technology, USA); Xianghui Cao (Southeast University, P.R. China); Wenlong Shen, Yu Cheng and Lin X. Cai (Illinois Institute of Technology, USA)

From Rateless to Sampleless: Wi-Fi Connectivity Made Energy Efficient

Wei Wang and Yingjie Chen (Hong Kong University of Science and Technology, Hong Kong); Lu Wang (Shenzhen University, P.R. China); Qian Zhang (Hong Kong University of Science and Technology, Hong Kong)

Fiber Optic vs. Wireless Sensors in Energy-Efficient Integrated FiWi Smart Grid Networks: An Energy-Delay and TCO Comparison

Dung Pham Van (Optical Networks Lab, KTH Royal University of Technology, Sweden); Bhaskar Prasad Rimal and Martin Maier (Institut National de la Recherche Scientifique (INRS), Canada)

Wed-A.3: Multimedia Networking

Room: Bayview B

QoE Matters More Than QoS: Why People Stop Watching Cat Videos

Hyunwoo Nam, Kyung Hwa Kim and Henning Schulzrinne (Columbia University, USA)

Caching and Operator Cooperation Policies for Layered Video Content Delivery

Konstantinos Poularakis and George Iosifidis (Yale University, USA); Antonios Argyriou (University of Thessaly, Greece); Iordanis Koutsopoulos (Athens University of Economics and Business, Greece); Leandros Tassiulas (Yale University, USA)

BOLA: Near-Optimal Bitrate Adaptation for Online Videos

Kevin Spiteri (University of Massachusetts, Amherst, USA); Rahul Urgaonkar (Amazon, USA); Ramesh K Sitaraman (University of Massachusetts, Amherst & Akamai Technologies, USA)

CompoundEyes: Near-duplicate Detection in Large Scale Online Video Systems in the Cloud

YiXin Chen and Wenbo He (McGill University, Canada); Yu Hua (Huazhong University of Science and Technology, P.R. China); Wen Wang (McGill University, Canada)

Wed-A.4: Resource Allocation I

Room: Seaciff C+D

Chair: Zhangyu Guan (Northeastern University, USA)

Online Multi-Resource Allocation for Deadline Sensitive Jobs with Partial Values in the Cloud

Zizhan Zheng (University of California, Davis, USA); Ness B. Shroff (The Ohio State University, USA)

Efficiency and Optimality of Largest Deficit First Prioritization: Resource Allocation for Real-Time Applications

Yuhuan Du (University of Texas at Austin, USA); Gustavo de Veciana (The University of Texas at Austin, USA)

On the Modeling and Optimization of Short-Term Performance for Real-Time Wireless Networks

I-Hong Hou (Texas A&M University, USA)

Task Allocation for Distributed Stream Processing

Raphael Eidenbenz and Thomas Locher (ABB Corporate Research, Switzerland)

Wed-A.5: Connected Cars

Room: Bayview A

Chair: Yingying Chen (Stevens Institute of Technology, USA)

How Cars Talk Louder, Clearer and Fairer: Optimizing the Communication Performance of Connected Vehicles via Online Synchronous Control

Xi Chen (McGill University, Canada); Linghe Kong (Shanghai Jiao Tong University, P.R. China); Xue Liu (McGill University, Canada); Lei Rao (Huawei Technologies, USA); Fan Bai (General Motors, USA); Qiao Xiang (McGill University, Canada)

Multi-source Variable-rate Sampled Signal Reconstructions in Vehicular CPS

Andrew Fox and B. V. K. Vijaya Kumar (Carnegie Mellon University, USA); Fan Bai (General Motors, USA)

L 3: Sensing Driving Conditions for Vehicle Lane-Level Localization on Highways

Zhichen Wu and Jianda Li (Shanghai Jiaotong University, P.R. China); Jiadi Yu, Yanmin Zhu, Xue Guangtao and Minglu Li (Shanghai Jiao Tong University, P.R. China)

Detecting Driver Phone Calls in a Moving Vehicle Based on Voice Features

Tianyi Song (GWU, USA); Xiuzhen Cheng (George Washington Univ, USA); Hongjuan Li (The George Washington University, USA); Jiguo Yu (Qufu Normal University, P.R. China); Shengling Wang (Institute of Computing Technology, Chinese Academy of Sciences, P.R. China); Rongfang Bie (Beijing Normal University, P.R. China)

Wed-A.6: Network Economics

Room: Seacliff A

Chair: Jianwei Huang (The Chinese University of Hong Kong, Hong Kong)

An Efficient Auction Mechanism for Service Chains in The NFV Market

Sijia Gu and Zongpeng Li (University of Calgary, Canada); Chuan Wu (The University of Hong Kong, Hong Kong); Chuanhe Huang (Wuhan University, P.R. China)

When group-buying meets cloud computing

Juntao Wang (Shanghai Jiaotong University, P.R. China); Xun Xiao (European Research Center & Huawei Technologies, Germany); Jianping Wang (City University of Hong Kong, Hong Kong); Kejie Lu (University of Puerto Rico at Mayaguez, Puerto Rico); Xiaotie Deng (Shanghai Jiaotong University, P.R. China); Ashwin A Gumaste (Indian Institute of Technology, Bombay, India)

An Online Mechanism for Dynamic Virtual Cluster Provisioning in Geo-Distributed Clouds

WeiJie Shi and Chuan Wu (The University of Hong Kong, Hong Kong); Zongpeng Li (University of Calgary, Canada)

The Impact of Unlicensed Access on Small-Cell Resource Allocation

Cheng Chen, Randall A Berry and Michael Honig (Northwestern University, USA); Vijay Subramanian (University of Michigan, USA)

Wed-A.7: Caching

Room: Seacliff B

Chair: Jussi Kangasharju (University of Helsinki, Finland)

Understanding Sharded Caching Systems

Lorenzo Saino, Ioannis Psaras and George Pavlou (University College London, United Kingdom)

Cache increases the capacity of wireless networks

Li Qiu and Guohong Cao (The Pennsylvania State University, USA)

An $\mathcal{O}(1)$ -Competitive Online Caching Algorithm for Content Centric Networking

Ammar Gharaibeh and Abdallah A Khreishah (New Jersey Institute of Technology, USA); Issa M Khalil (Qatar Computing Research Institute & Qatar Foundation, Qatar)

A Utility Optimization Approach to Network Cache Design

Mostafa Dehghan (University of Massachusetts Amherst, USA); Laurent Massoulié (Microsoft Research - INRIA Joint Center, Sweden); Don Towsley (University of Massachusetts at Amherst, USA); Daniel Menasché (Federal University of Rio de Janeiro, Brazil); Y. C. Tay (National University of Singapore, Singapore)

Wed-A.8: Jamming

Room: Marina

Chair: Qian Wang (Wuhan University, P.R. China)

Friendly Channel-Oblivious Jamming with Error Amplification for Wireless Networks

Zhenghao Zhang and Avishek Mukherjee (Florida State University, USA)

Price-based Friendly Jamming in a MISO Interference Wiretap Channel

Peyman Siyari and Marwan Krunz (University of Arizona, USA); Diep N. Nguyen (University of Technology Sydney, Australia)

Divide-and-Conquer Based Cooperative Jamming: Addressing Multiple Eavesdroppers in Close Proximity

Zhihong Liu and Jiajia Liu (Xidian University, P.R. China); Nei Kato (Tohoku University, Japan); Jian-feng Ma and Qiping Huang (Xidian University, P.R. China)

Jamming Attack on In-band Full-duplex Communications: Detection and Countermeasures

Manjesh K Hanawal (IIT Bombay, India); Diep N. Nguyen (University of Technology Sydney, Australia); Marwan Krunz (University of Arizona, USA)

Wednesday, April 13, 10:30 - 12:00

Wed-B.1: Wi-Fi

Room: Grand Ballroom C

Chair: Daniel Menasché (Federal University of Rio de Janeiro, Brazil)

Augmenting Wide-band 802.11 Transmissions via Unequal Packet Bit Protection

Yaxiong Xie (Nanyang Technological University, Singapore); Zhenjiang Li (City University of Hong Kong, Hong Kong); Mo Li (Nanyang Technological University, Singapore); Kyle Jamieson (Princeton University & University College London, USA)

Just-in-time WLANs: On-demand Interference-managed WLAN Infrastructures

Kimin Lee (KAIST, Korea); Yeonkeun Kim (KAIST); Seokhyun Kim, Jinwoo Shin, Seungwon Shin and Song Chong (KAIST, Korea)

Tuning by Turning: Enabling Phased Array Signal Processing for WiFi with Inertial Sensors

Kun Qian, Chenshu Wu and Zheng Yang (Tsinghua University, P.R. China); Zimu Zhou (ETH Zurich, Switzerland); Xu Wang (Tsinghua University, P.R. China); Yunhao Liu (Tsinghua University & The Hong Kong University of Science and Technology, P.R. China)

A Walk on the Client Side: Monitoring Enterprise Wifi Networks Using Smartphone Channel Scans

Jinghao Shi (University at Buffalo, USA); Lei Meng (University of Notre Dame, USA); Dimitrios Koutsonikolas (University at Buffalo, SUNY, USA); Chunming Qiao (University at Buffalo, USA); Aaron D Striegel (University of Notre Dame, USA); Geoffrey Challen (University at Buffalo, USA)

Wed-B.2: Theory for Sensor Networks

Room: Bayview B

Chair: Lidong Wu (UT Tyler, USA)

Multi-View Coding and Routing of Local Features in Visual Sensor Networks

Alessandro E. C. Redondi, Luca Baroffio, Matteo Cesana and Marco Tagliasacchi (Politecnico di Milano, Italy)

Performance-Guaranteed Strongly Connected Dominating Sets in Heterogeneous Wireless Sensor Networks

ChunYan Liu (Harbin Institute of Technology Shenzhen Graduate School, P.R. China); Hejiao Huang (Harbin Institute of Technology, P.R. China); Hongwei Du (Harbin Institute of Technology Shenzhen Graduate School, P.R. China); Xiaohua Jia (City University of Hong Kong, Hong Kong)

Performance-Guaranteed Approximation Algorithm for Fault-Tolerant Connected Dominating Set in Wireless Networks

Zhao Zhang (Zhejiang Normal University, P.R. China); Jiao Zhou (Xinjiang University, P.R. China); Yuchang Mo (Zhejiang Normal University, P.R. China); Ding-Zhu Du (University of Texas, Dallas, USA)

Pulses in the Sand: Impulse Response Analysis of Wireless Underground Channel

Abdul Salam, Mehmet Can Vuran and Suat Irmak (University of Nebraska-Lincoln, USA)

Wed-B.3: Privacy

Room: Seacliff C+D

Chair: Ming Li (University of Nevada, Reno, USA)

RescueDP: Real-time Spatio-temporal Crowd-sourced Data Publishing with Differential Privacy

Qian Wang, Yan Zhang, Xiao Lu and Zhibo Wang (Wuhan University, P.R. China); Zhan Qin (SUNY at Buffalo, USA); Kui Ren (State University of New York at Buffalo, USA)

Mind Your Probes: De-Anonymization of Large Crowds Through Smartphone WiFi Probe Requests

Adriano Di Luzio, Alessandro Mei and Julinda Stefa (Sapienza University of Rome, Italy)

Catch Me in the Dark: Effective Privacy-preserving Outsourcing of Feature Extractions over Image Data

Qian Wang and Shengshan Hu (Wuhan University, P.R. China); Kui Ren (State University of New York at Buffalo, USA); Jingjun Wang, Zhibo Wang and Minxin Du (Wuhan University, P.R. China)

PriStream: Privacy-Preserving Distributed Stream Monitoring of Thresholded Percentile Statistics

Jingchao Sun (Arizona State University, USA); Rui Zhang (University of Hawaii, USA); Jinxue Zhang and Yanchao Zhang (Arizona State University, USA)

Wed-B.4: Network Measurements

Room: Bayview A

Chair: Przemyslaw Pawelczak (Delft University of Technology, The Netherlands)

Rot at the Roots? Examining Public Timing Infrastructure

Kanthaiah Sivapragasam Vijayalayan (The University of Melbourne, Australia); Darryl Veitch (University of Technology Sydney, Australia)

Accurate Recovery of Internet Traffic Data: A Tensor Completion Approach

Kun Xie and Lele Wang (State University of New York at Stony Brook, USA); Xin Wang (Stony Brook University, USA); Gaogang Xie (Institute of Computing Technology, Chinese Academy of Sciences, P.R. China); Jigang Wen (Chinese Academy of Science & Institute of Computing Technology, P.R. China); Guangxing Zhang (Institute of Computing Technology Chinese Academy of Sciences, P.R. China)

Apps on the Move: A Fine-Grained Analysis of Usage Behavior of Mobile Apps

Lin Yang (Hong Kong University of Science and Technology, Hong Kong); Mingxuan Yuan (Noah's Ark Lab, Huawei, Hong Kong); Wei Wang and Qian Zhang (Hong Kong University of Science and Technology, Hong Kong); Jia Zeng (Noah's Ark Lab, Huawei & Soochow University, Hong Kong)

Characterizing IPv6 control and data plane stability

Ioana Livadariu and Ahmed Mustafa Elmokashfi (Simula Research Laboratory, Norway); Amogh Dhamdhere (CAIDA, University of California, San Diego, USA)

Wednesday, April 13, 13:30 - 15:00**Wed-C.1: Datacenter Networks II**

Room: Grand Ballroom B

Chair: Haiying Shen (Clemson University, USA)

Online and Elastic Resource Reservations for Multi-tenant Datacenters

Carlo Fuerst (TU Berlin, Germany); Stefan Schmid (Aalborg University, Denmark); Lalith Suresh (TU Berlin, Germany); Paolo Costa (Microsoft Research, United Kingdom)

Sneak-Peek: High Speed Covert Channels in Data Center Networks

Rashid Tahir (University of Illinois at Urbana Champaign, USA); Mohammad Taha Khan (Lahore University of Management Sciences, Pakistan); Xun Gong (Google, USA); Adnan Ahmed (Lahore University of Management Sciences, Pakistan); AmirEmad Ghassami (University of Illinois at Urbana-Champaign, USA); Hasanat Kazmi (Lahore University of Management Sciences, Pakistan); Matthew Caesar (University of Illinois at Urbana-Champaign, USA); Fareed Zaffar (LUMS, Pakistan); Negar Kiyavash (University of Illinois at Urbana-Champaign, USA)

A Simple Congestion-Aware Algorithm for Load Balancing in Datacenter Networks

Mehrnoosh Shafiee and Javad Ghaderi (Columbia University, USA)

Flutter: Scheduling Tasks Closer to Data Across Geo-Distributed Datacenters

Zhiming Hu (Nanyang Technological University, Singapore); Baochun Li (University of Toronto, Canada); Jun Luo (Nanyang Technological University, Singapore)

Wed-C.2: Online Social Networks I

Room: Grand Ballroom C

Chair: Zongqing Lu (The Pennsylvania State University, USA)

Profit Maximization for Multiple Products in Online Social Networks

Huiyuan Zhang, Huiling Zhang, Alan Kuhnle and My T. Thai (University of Florida, USA)

Using Crowdsourced Data in Location-based Social Networks to Explore Influence Maximization

Ji Li and Zhipeng Cai (Georgia State University, USA); Mingyuan Yan (University of North Georgia, USA); Yingshu Li (Georgia State University, USA)

Minimum Cost Seed Set for Competitive Social Influence

Yuqing Zhu (California State University, Los Angeles, USA); Deying Li (Renmin University of China, P.R. China); Zhao Zhang (Zhejiang Normal University, P.R. China)

Terminal-Set-Enhanced Community Detection in Social Networks

Guangmo Tong and Lei Cui (The University of Texas at Dallas, USA); Weili Wu (UT Dallas, USA); Cong Liu (The University of Texas at Dallas, USA); Ding-Zhu Du (University of Texas, Dallas, USA)

Wed-C.3: Wireless Network Optimization

Room: Bayview B

Chair: Zhangyu Guan (Northeastern University, USA)

Heavy-Ball: A New Approach to Tame Delay and Convergence in Wireless Network Optimization

Jia Liu and Atilla Eryilmaz (Ohio State University, USA); Ness B. Shroff (The Ohio State University, USA); Elizabeth Serena Bentley (AFRL, USA)

Distributed Optimization in Energy Harvesting Sensor Networks with Dynamic In-network Data Processing

Shusen Yang (University of Liverpool, United Kingdom); Yad Tahir and Po-Yu Chen (Imperial College London, United Kingdom); Alan Marshall (University of Liverpool, United Kingdom); Julie McCann (Imperial College London, United Kingdom)

Capacitated Kinetic Clustering in Mobile Networks by Optimal Transportation Theory

Chien-Chun Ni, Zhengyu Su, Jie Gao and David Gu (Stony Brook University, USA)

Optimal Local Data Exchange in Fiber-Wireless Access Network: A Joint Network Coding and Device Association Design

Jin Wang (Soochow University & City University of Hong Kong, P.R. China); Kejie Lu (University of Puerto Rico at Mayaguez, Puerto Rico); Jianping Wang (City University of Hong Kong, Hong Kong); Chunming Qiao (State University of New York at Buffalo, USA)

Wed-C.4: Mobile Sensing

Room: Seacliff C+D

Chair: Mehmet Can Vuran (University of Nebraska-Lincoln, USA)

Mosaic: A Low-Cost Mobile Sensing System for Urban Air Quality Monitoring

Yi Gao, Wei Dong and Kai Guo (Zhejiang University, P.R. China); Xue Liu (McGill University, Canada); Yuan Chen, Xiaojin Liu, Jiajun Bu and Chun Chen (Zhejiang University, P.R. China)

BlueAer: A fine-grained urban PM2.5 3D monitoring system using mobile sensing

Yidan Hu, Guojun Dai, Jin Fan, Yifan Wu and Hua Zhang (Hangzhou Dianzi University, P.R. China)

Flowing with the Water: On Optimal Monitoring of Water Distribution Networks by Mobile Sensors

Rong Du (KTH Royal Institute of Technology, Sweden); Carlo Fischione (KTH, Sweden); Ming Xiao (Royal Institute of Technology, Sweden)

Toward Real-time and Cooperative Mobile Visual Sensing and Sharing

Huihui Chen (Northwestern Polytechnical University & Luoyang Institute of Science and Technology, P.R. China); Guo Bin and Zhiwen Yu (Northwestern Polytechnical University, P.R. China); Qi Han (Colorado School of Mines, USA)

Wed-C.5: MIMO Networks

Room: Bayview A

Chair: Prasun Sinha (Ohio State University, USA)

Client as a First-Class Citizen: Practical User-Centric Network MIMO Clustering

Wei-Liang Shen and Kate Ching-Ju Lin (Academia Sinica, Taiwan); Ming-Syan Chen (National Taiwan University, Taiwan); Kun Tan (Microsoft Research Asia, P.R. China)

Random Access Signaling for Network MIMO Uplink

Teng Wei (University of Wisconsin - Madison, USA); Xinyu Zhang (University of Wisconsin-Madison, USA)

Dynamic Power Allocation in MIMO Fading Systems Without Channel Distribution Information

Hao Yu and Michael J. Neely (University of Southern California, USA)

BOOST: Base Station ON-OFF Switching Strategy for Energy Efficient Massive MIMO HetNets

Mingjie Feng and Shiwen Mao (Auburn University, USA); Tao Jiang (Huazhong University of Science and Technology, P.R. China)

Wed-C.6: Cellular Networks Management

Room: Seacliff A

Chair: Chunyi Peng (The Ohio State University, USA)

Libra: Impact Assessment of Cellular Load Balancing

Kanthy Nagaraj (Stanford University, USA); Ajay A Mahimkar, Zihui Ge, Aman Shaikh and Jia Wang (AT&T Labs - Research, USA); Kevin Mohr (AT&T Mobility Services, USA); Mark Stockert (AT&T Labs, USA)

Power Adjustment and Scheduling in OFDMA Femtocell Networks

Michael Lin (Pennsylvania State University, USA); Novella Bartolini (Sapienza University of Rome, Italy); Tom La Porta (Pennsylvania State University, USA)

Achieving Delay Rate-function Optimality in OFDM Downlink with Time-correlated Channels

Zhenzhi Qian (The Ohio State University, USA); Bo Ji (Temple University, USA); Kannan Srinivasan and Ness B. Shroff (The Ohio State University, USA)

Detecting and Localizing End-to-End Performance Degradation for Cellular Data Services

Faraz Ahmed (Michigan State University, USA); Jeffrey J Erman and Zihui Ge (AT&T Labs - Research, USA); Alex X. Liu (Michigan State University, USA); Jia Wang and He Yan (AT&T Labs - Research, USA)

Wed-C.7: Modeling II

Room: Seacliff B

Chair: Douglas Blough (Georgia Institute of Technology, USA)

Survivability in Time-varying Networks

Qingkai Liang and Eytan Modiano (MIT, USA)

Cluster-Aided Mobility Predictions

Jaeseong Jeong (KTH Royal Institute of Technology, Sweden); Mathieu Leconte (Huawei, France); Alexandre Proutiere (Microsoft Research, United Kingdom)

Temporal Correlation of the RSS Improves Accuracy of Fingerprinting Localization

Mei Wang (Shanghai Jiao Tong University, P.R. China); Zhehui Zhang (Shanghai Jiaotong University, P.R. China); Xiaohua Tian (Shanghai Jiao Tong University, P.R. China); Xinbing Wang (Shanghai Jiaotong University, P.R. China)

Computing Network Coded Data Coverage in an Opportunistic Data Dissemination Network

Brenton Walker (Swedish Institute of Computer Science, Sweden)

Wed-C.8: Data Offloading

Room: Marina

Chair: Rong Zheng (McMaster University, Canada)

Cooperative Data Offloading in Opportunistic Mobile Networks

Zongqing Lu and Xiao Sun (The Pennsylvania State University, USA); Tom La Porta (Pennsylvania State University, USA)

Opportunistic WiFi Offloading in a Vehicular Environment: Waiting or Downloading Now?

Ning Wang and Jie Wu (Temple University, USA)

Competitive Auctions for Cost-aware Cellular Traffic Offloading with Optimized Capacity Gain

Yuan Zhang (Nanjing University, P.R. China); Siyuan Tang (NanJing University, P.R. China); Tingting Chen (California State Polytechnic University, Pomona, USA); Sheng Zhong (Nanjing University, P.R. China)

Energy-Efficient Dynamic Offloading and Resource Scheduling in Mobile Cloud Computing

Songtao Guo (Southwest University, P.R. China); Bin Xiao (The Hong Kong Polytechnic University, Hong Kong); Yuanyuan Yang (Stony Brook University, USA); Yang Yang (Southwest University, P.R. China)

Wednesday, April 13, 15:30 - 17:00

Wed-D.1: SDN for Security & Management

Room: Grand Ballroom B

Chair: Jinyuan (Stella) Sun (University of Tennessee, USA)

Contextual, Flow-Based Access Control with Scalable Host-based SDN Techniques

Curtis Taylor, Douglas MacFarland, Doran Smestad and Craig A. Shue (Worcester Polytechnic Institute, USA)

FOUM: A Flow-Ordered Consistent Update Mechanism for Software-Defined Networking in Adversarial Settings

Jingyu Hua, Xin Ge and Sheng Zhong (Nanjing University, P.R. China)

DDoS Attack Detection under SDN Context

Yang Xu and Yong Liu (New York University, USA)

Efficient Round-Trip Time Monitoring in OpenFlow Networks

Alon Atary and Anat Bremler-Barr (Interdisciplinary Center Herzliya, Israel)

Wed-D.2: Renewable Energy

Room: Grand Ballroom C

Chair: Prasun Sinha (Ohio State University, USA)

Hybrid Renewable Energy Routing for ISP Networks

Julien Mineraud (University of Helsinki, Finland); Liang Wang (University of Cambridge, United Kingdom); Sasitharan Balasubramaniam (Tampere University of Technology, Finland); Jussi Kangasharju (University of Helsinki, Finland)

Wind Blows, Traffic Flows: Green Internet Routing under Renewable Energy

Yuan Yang (Tsinghua University, P.R. China); Dan Wang (The Hong Kong Polytechnic University, Hong Kong); Pan Dawei (Harbin Engineering University, P.R. China); Mingwei Xu (Tsinghua University, P.R. China)

Adaptive Connected Dominating Set Discovering Algorithm in Energy-Harvest Sensor Networks

Tuo Shi and Siyao Cheng (Harbin Institute of Technology, P.R. China); Zhipeng Cai (Georgia State University, USA); Jianzhong Li (Harbin Institute of Technology, P.R. China)

Panda: Neighbor Discovery on a Power Harvesting Budget

Robert Margolies (AT&T Research, USA); Guy Grebla (Google, USA); Tingjun Chen, Dan Rubenstein and Gil Zussman (Columbia University, USA)

Wed-D.3: Network Security I

Room: Bayview B

Chair: Shucheng Yu (University of Arkansas at Little Rock, USA)

On Applying Fault Detectors against False Data Injection Attacks in Cyber-Physical Control Systems

Quyen Vu (Singapore University of Technology and Design, Singapore); Rui Tan (Nanyang Technological University, Singapore); David Yau (Singapore University of Technology and Design, Singapore)

A Novel Framework for Modeling and Mitigating Distributed Link Flooding Attacks

Christos Liaskos (Institute of Computer Science, Foundation of Research and Technology, Hellas, Greece); Vasileios Kotronis (ETH Zurich, Switzerland); Xenofontas Dimitropoulos (FORTH-ICS, Greece)

Understanding Security Group Usage in a Public IaaS Cloud

Cheng Jin (University of Minnesota, USA); Abhinav Srivastava (AT&T Labs--Research, USA); Zhi-Li Zhang (University of Minnesota, USA)

Secure Outsourced Skyline Query Processing via Untrusted Cloud Service Providers

Wenxin Chen (University of Hawaii, USA); Mengjun Liu (Wuhan University, P.R. China); Rui Zhang (University of Hawaii, USA); Yanchao Zhang (Arizona State University, USA); Shubo Liu (Wuhan University, P.R. China)

Wed-D.4: Visible Light Communications

Room: Seacliff C+D

Chair: Tam Vu (University of Colorado Denver & University of Colorado, Denver, USA)

SoftLight: Adaptive Visible Light Communication over Screen-Camera Links

Wan Du, Jansen Christian Liando and Mo Li (Nanyang Technological University, Singapore)

CeilingCast: Energy Efficient and Location-Bound Broadcast Through LED-Camera Communication

Jie Hao, Yanbing Yang and Jun Luo (Nanyang Technological University, Singapore)

High-Rate Flicker-Free Screen-Camera Communication with Spatially Adaptive Embedding

Viet Nguyen and Yaqin Tang (WINLAB, Rutgers University, USA); Ashwin Ashok (Carnegie Mellon University, USA); Marco Gruteser (WINLAB / Rutgers University, USA); Kristin Dana (Rutgers University, USA); Wenjun Hu (Yale University, USA); Eric Wengrowski (Rutgers University, USA); Narayan Mandayam (WINLAB, Rutgers University, USA)

Uber-in-Light: Unobtrusive Visible Light Communication Leveraging Complementary Color Channel

Mostafa M. Izz Mohamed (IUPUI, USA); Zhongyuan Li (Stevens Institute of Technology, USA); Hongbo Liu (Indiana University-Purdue University Indianapolis, USA); Yingying Chen (Stevens Institute of Technology, USA); Feng Li (Indiana University-Purdue University Indianapolis, USA)

Wed-D.5: Multi-hop Wireless

Room: Bayview A

Chair: Dimitrios Koutsonikolas (University at Buffalo, SUNY, USA)

Nullification in the Air: Interference Neutralization in Multi-Hop Wireless Networks

Huacheng Zeng, Xu Yuan, Xiaoqi Qin, Yi Shi and Thomas Hou (Virginia Tech, USA); Wenjing Lou (Virginia Tech & National Science Foundation, USA)

Queue-Affectance-based Scheduling in Multi-hop Wireless Networks under SINR Interference Constraints

Changhee Joo (UNIST, Korea); Myeongseon Shin (Ulsan National Institute of Science and Technology, Korea)

Interference-Aware Time-Based Fairness for Multihop Wireless Networks

Douglas Blough (Georgia Institute of Technology, USA); Giovanni Resta (Istituto di Informatica e Telematica, Italy); Paolo Santi (IIT-CNR, Italy)

A Decomposition Principle for Link and Relay Selection in Dual-hop 60 GHz Networks

Zhifeng He and Shiwen Mao (Auburn University, USA)

Wed-D.6: Scheduling

Room: Seacliff A

Chair: Qiang Ye (University of Prince Edward Island, Canada)

MaxWeight Scheduling: "Smoothness" of the Service Process

Rahul Singh (Massachusetts Institute of Technology, USA); Alexander Stolyar (Bell Labs, Alcatel-Lucent, USA)

Timely Wireless Flows with Arbitrary Traffic Patterns: Capacity Region and Scheduling Algorithms

Lei Deng (The Chinese University of Hong Kong, Hong Kong); Chih-Chun Wang (Purdue University, USA); Minghua Chen (The Chinese University of Hong Kong, P.R. China); Shizhen Zhao (Purdue University, USA)

Application-Aware Traffic Scheduling for Workload Offloading in Mobile Clouds

Liang Tong (University of Tennessee, Knoxville, USA); Wei Gao (University of Tennessee, USA)

Optimal Wireless Power Transfer Scheduling for Delay Minimization

Feng Shan, Luo Junzhou and Weiwei Wu (Southeast University, P.R. China); Xiaojun Shen (University of Missouri-Kansas City, USA)

Wed-D.7: Optimization II

Room: Seacliff B

Chair: Xiaohua Xu (Michigan Technological University, USA)

Cyber Maintenance Policy Optimization via Adaptive Learning

Yue Tan (The Ohio State University, USA); Cathy Xia (Ohio-State University, USA)

Online Multi-stage Decisions for Robust Power-Grid Operations under High Renewable Uncertainty

Shizhen Zhao, Xiaojun Lin, Dionysios Aliprantis and Villegas Hugo (Purdue University, USA); Minghua Chen (The Chinese University of Hong Kong, P.R. China)

Update or Wait: How to Keep Your Data Fresh

Yin Sun (the Ohio State University, USA); Elif Uysal-Biyikoglu (METU & Currently on leave at The Ohio State University, Turkey); Roy Yates (Rutgers University, USA); Can Emre Koksal and Ness B. Shroff (The Ohio State University, USA)

Optimizing Coflow Completion Times with Utility Max-Min Fairness

Li Chen, Wei Cui and Baochun Li (University of Toronto, Canada); Bo Li (Hong Kong University of Science and Technology, Hong Kong)

Wed-D.8: Traffic Analysis

Room: Marina

Chair: Wei Gao (University of Tennessee, USA)

Privacy-preserving Deep Packet Inspection in Outsourced Middleboxes

Xingliang Yuan, Xinyu Wang, Jianxiong Lin and Cong Wang (City University of Hong Kong, Hong Kong)

Heavy-Traffic Analysis of QoE Optimality for On-Demand Video Streams Over Fading Channels

Ping-Chun Hsieh and I-Hong Hou (Texas A&M University, USA)

Demographics Inference Through Wi-Fi Network Traffic Analysis

Huixin Li, Zheyu Xu and Haojin Zhu (Shanghai Jiao Tong University, P.R. China); Di Ma (University of Michigan-Dearborn, USA); Shuai Li (University of Minnesota, USA); Kai Xing (University of Science and Technology of China, P.R. China)

Traffic At-a-Glance: Time-Bounded Analytics on Large Visual Traffic Data

Xinfeng Li (The Ohio State University, USA); Gang Li and Fan Yang (the Ohio State University, USA); Jin Teng and Dong Xuan (The Ohio State University, USA); Biao Chen (University of Macau, Macao)

Thursday, April 14

Thursday, April 14, 08:30 - 10:00

Thu-A.1: Flow Control in Datacenter Networks

Room: Grand Ballroom B

Chair: Georgios S. Paschos (Huawei Technologies, France)

MMPTCP: A Multipath Transport Protocol for Data Centers

Morteza Kheirkhah Sabetghadam, Ian Wakeman and George Parisis (University of Sussex, United Kingdom)

Deadline-Aware Bandwidth Sharing by Allocating Switch Buffer in Data Center Networks

Jiao Zhang (Beijing University of Posts and Telecommunications, P.R. China)

OPTAS: Decentralized Flow Monitoring and Scheduling for Tiny Tasks

Ziyang Li, Yiming Zhang and Dongsheng Li (National University of Defense Technology, P.R. China); Kai Chen (Hong Kong University of Science and Technology, Hong Kong); Yuxing Peng (National University of Defense Technology, P.R. China)

ARS: Cross-layer Adaptive Request Scheduling to Mitigate TCP Incast in Data Center Networks

Jiawei Huang (Central South University); Tian He (University of Minnesota, USA); Yi Huang and Jianxin Wang (Central South University, P.R. China)

Thu-A.2: Cloud Computing II

Room: Grand Ballroom C

Chair: Haiying Shen (Clemson University, USA)

Frugal Topology Construction for Stream Aggregation in the Cloud

Rachid Guerraoui (Swiss Federal Institute of Technology (EPFL), Switzerland); Erwan Le Merrer (Technicolor, France); Rhicheck Patra (EPFL, Switzerland); Bao-Duy Tran (Google, Australia)

TailCutter: Wisely Cutting Tail Latency in Cloud CDN under Cost Constraints

Zeqi Lai and Yong Cui (Tsinghua University, P.R. China); Minming Li (City University of Hong Kong, Hong Kong); Zhenhua Li, Ningwei Dai and Yuchi Chen (Tsinghua University, P.R. China)

Randomized Algorithms for Scheduling VMs in the Cloud

Javad Ghaderi (Columbia University, USA)

Successor: Proactive Cache Warm-up of Destination Hosts in Virtual Machine Migration Contexts

Tao Lu, Ping Huang, Morgan Stuart, Yuhua Guo and Xubin He (Virginia Commonwealth University, USA); Ming Zhang (EMC Corporation, USA)

Thu-A.3: Sensor Networks

Room: Bayview B

Chair: Yuqing Zhu (California State University, Los Angeles, USA)

Taming Collisions for Delay Reduction in Low-Duty-Cycle Wireless Sensor Networks

Long Cheng (BUAA & VT); Yu Gu (IBM Watson Health, USA); Jianwei Niu (Beihang University, P.R. China); Ting Zhu (University of Maryland, Baltimore County, USA); Cong Liu (The University of Texas at Dallas, USA); Qingquan Zhang (University of Maryland, Baltimore County, USA); Tian He (University of Minnesota, USA)

Murphy loves CI: Unfolding and Improving Constructive Interference in WSNs

Vijay S Rao (Delft University of Technology, The Netherlands); Madhusuhan Koppal (IISc, India); R Venkatesha Prasad (TU Delft, The Netherlands); T Venkata Prabhakar (IISc, India); Chayan Sarkar and Ignas Niemegeers (Delft University of Technology, The Netherlands)

No-Cost Distance Estimation Using Standard WSN Radios

Georg von Zengen, Yannic Schröder, Stephan Rottmann, Felix Büsching and Lars C Wolf (Technische Universität Braunschweig, Germany)

DiVA: Distributed Voronoi-based Acoustic Source Localization with Wireless Sensor Networks

Xueshu Zheng, Shuailing Yang, Naigao Jin and Lei Wang (Dalian University of Technology, P.R. China); Mathew L. Wymore and Daji Qiao (Iowa State University, USA)

Thu-A.4: Wearables

Room: Seadcliff C+D

Chair: Xiaohua Tian (Shanghai Jiao Tong University, P.R. China)

GlassGesture: Exploring Head Gesture Interface of Smart Glasses

Shanhe Yi and Zhengrui Qin (College of William and Mary, USA); Edmund Novak (William and Mary, USA); Yafeng Yin (Nanjing University, P.R. China); Qun Li (College of William and Mary, USA)

Battery-free Sensing Platform for Wearable Devices: The Synergy Between Two Feet

Qianyi Huang, Yan Mei, Wei Wang and Qian Zhang (Hong Kong University of Science and Technology, Hong Kong)

Leveraging Wearables for Steering and Driver Tracking

Cagdas Karatas, Luyang Liu and Hongyu Li (Rutgers University, USA); Jian Liu (Stevens Institute of Technology, USA); Yan Wang (Binghamton University, USA); Sheng Tan and Jie Yang (Florida State University, USA); Yingying Chen (Stevens Institute of Technology, USA); Marco Gruteser (WINLAB / Rutgers University, USA); Richard Martin (Rutgers University, USA)

Topology Optimization for Galvanic Coupled Wireless Intra-body Communication

Meenupriya Swaminathan, Ufuk Muncuk and Kaushik Chowdhury (Northeastern University, USA)

Thu-A.5: Crowdsourcing

Room: Bayview A

Chair: Qinghua Li (University of Arkansas, USA)

Incentivizing Crowdsourcing Systems with Network Effects

Yanjiao Chen and Baochun Li (University of Toronto, Canada); Qian Zhang (Hong Kong University of Science and Technology, Hong Kong)

Privacy-preserving Verifiable Data Aggregation and Analysis for Cloud-assisted Mobile Crowdsourcing

Gaoqiang Zhuo, Qi Jia and Linke Guo (Binghamton University, USA); Ming Li (University of Nevada, Reno, USA); Pan Li (Case Western Reserve University, USA)

Crowdlet: Optimal Worker Recruitment for Self-Organized Mobile Crowdsourcing

Lingjun Pu (Nankai University, P.R. China); Xu Chen (University of Goettingen, Germany); Jingdong Xu (Nankai Univ, P.R. China); Xiaoming Fu (University of Goettingen, Germany)

Incentive Mechanism for Proximity-based Mobile Crowd Service Systems

Honggang Zhang (University of Massachusetts Boston, USA); Benyuan Liu (University of Massachusetts Lowell, USA); Hengky Susanto (Hong Kong University of Science and Technology, Hong Kong); Guoliang Xue (Arizona State University, USA); Tong Sun (University of Massachusetts Lowell, USA)

Thu-A.6: Routing II

Room: Seacliff A

Chair: Xiaohua Xu (Michigan Technological University, USA)

Path computation in multi-layer networks: Complexity and algorithms

Mohamed Lamine Lamali (Nokia Bell Labs, France); Nasreddine Fergani (Nokia Bell Labs); Johanne Cohen (LRI-CNRS & PRISM-CNRS, France); Hélia Pouyllau (Thales Research and Technology, France)

Optimizing Restoration with Segment Routing

Fang Hao (Bell Labs, Nokia, USA); M. Kodialam (Bell Labs, USA); T. V. Lakshman (Bell Labs, Alcatel-Lucent, USA)

The Quest for Resilient (Static) Forwarding Tables

Marco Chiesa (Université Catholique de Louvain, Belgium); Ilya Nikolaevskiy (Aalto University, Finland); Slobodan Mitrović (École Polytechnique Fédérale de Lausanne, Switzerland); Aurojit Panda (UC Berkeley, USA); Andrei Gurtov (Aalto University, Finland); Aleksander Madry (MIT, USA); Michael Schapira (Hebrew University of Jerusalem, Israel); Scott Shenker (U. C. Berkeley and ICSI, USA)

Anonymous Addresses for Efficient and Resilient Routing in F2F Overlays

Stefanie Roos (TU Dresden, Germany); Martin Beck (Technische Universität Dresden, Germany); Thorsten Strufe (TU Dresden, Germany)

Thu-A.7: Cognitive Radio Networks

Room: Seacliff B

Chair: Rui Zhang (University of Hawaii, USA)

Dynamic Control Channel MAC for Underwater Cognitive Acoustic Networks

Yu Luo (South Dakota School of Mines and Technology, USA); Lina Pu (University of Connecticut, USA); Zheng Peng (University of Connecticut & AquaSeNT LLC., USA); Jun-Hong Cui (University of Connecticut & Jilin University, USA)

SpecWatch: Adversarial Spectrum Usage Monitoring in CRNs with Unknown Statistics

Ming Li, Dejun Yang and Jian Lin (Colorado School of Mines, USA); Ming Li (University of Arizona, USA); Jian Tang (Syracuse University, USA)

A Time-efficient Rendezvous Algorithm with a Full Rendezvous Degree for Heterogeneous Cognitive Radio Networks

Bo Yang (Shenyang Institute of Automation, Chinese Academy of Sciences, P.R. China); Meng Zheng (Shenyang Institute of Automation, Chinese Academy of Sciences, P.R. China); Wei Liang (Shenyang Institute of Automation, P.R. China)

Multi-user lax communications: a multi-armed bandit approach

Orly Avner (Technion, Israel); Shie Mannor (Technion)

Thu-A.8: Wireless Networks Economics

Room: Marina

Chair: Przemyslaw Pawelczak (Delft University of Technology, The Netherlands)

Economics of Public Wi-Fi Monetization and Advertising

Haoran Yu, Man Hon Cheung, Lin Gao and Jianwei Huang (The Chinese University of Hong Kong, Hong Kong)

A Truthful Pricing Mechanism for Sponsored Content in Wireless Networks

Matthew Andrews (Nokia Bell Labs, USA); Yue Jin (Alcatel-Lucent, Ireland); Marty Reiman (Bell Labs, Lucent Technologies, USA)

TDS: Time-Dependent Sponsored Data Plan for Wireless Data Traffic Market

Liang Zhang (The Hong Kong Polytechnic University, Hong Kong); Weijie Wu (Huawei Technologies Co., Ltd, Hong Kong); Dan Wang (The Hong Kong Polytechnic University, Hong Kong)

Quality of Video Oriented Pricing Incentive for Mobile Video Offloading

Honghai Wu and Liang Liu (Beijing University of Posts and Telecommunications, P.R. China); Xi Zhang (Texas A&M University, ECE Department, USA); Huadong Ma (Beijing University of Posts and Telecommunications, P.R. China)

Thursday, April 14, 10:30 - 12:00**Thu-B.1: Software Defined Networks II**

Room: Grand Ballroom C

Chair: Weifa Liang (The Australian National University, Australia)

MED: The Monitor-Emulator-Debugger for Software-Defined Networks

Quanquan Zhi (Institute for Interdisciplinary Information Sciences Tsinghua University, P.R. China); Wei Xu (Tsinghua University, P.R. China)

Network Functions Virtualization with Soft Real-Time Guarantees

Yang Li, Linh Thi Xuan Phan and Boon Thau Loo (University of Pennsylvania, USA)

Aggregation Points Planning for Software-Defined Network Based Smart Grid Communications

Shaowei Wang and Xinxin Huang (Nanjing University, P.R. China)

Deploying Chains of Virtual Network Functions: On the Relation Between Link and Server Usage

Tung-Wei Kuo (Academia Sinica, Taiwan); Bang-Heng Liou (National Tsing Hua University, Taiwan); Kate Ching-Ju Lin (Academia Sinica, Taiwan); Ming-Jer Tsai (National Tsing Hua University, Taiwan)

Thu-B.2: Mobile Videos

Room: Bayview B

Chair: Jussi Kangasharju (University of Helsinki, Finland)

A Unified Framework for Automatic Quality-of-Experience Optimization in Mobile Video Streaming

Yan Liu and Jack Y. B. Lee (The Chinese University of Hong Kong, Hong Kong)

VSync: Cloud Based Video Streaming Service for Mobile Devices

Eilwoo Baik (University of California, Davis, USA); Amit Pande (University of California Davis, CA, USA); Zizhan Zheng and Prasant Mohapatra (University of California, Davis, USA)

Spice: Socially-Driven Learning-Based Mobile Media Prefetching

Chao Wu (Tsinghua University, P.R. China); Xu Chen (University of Goettingen, Germany); Yuezh Zhou (Tsinghua University, P.R. China); Ningyuan Li (Zhongyuan University of Technology, P.R. China); Xiaoming Fu (University of Goettingen, Germany); Yaoxue Zhang (Tsinghua University)

JurCast: Joint User and Rate Allocation for Video Multicast over Multiple APs

Hui Wang, Wei Tsang Ooi and Mun Choon Chan (National University of Singapore, Singapore)

Thu-B.3: Antennas

Room: Seadcliff C+D

Chair: Joerg Widmer (IMDEA Networks Institute, Spain)

Oblivious Neighbor Discovery for Wireless Devices with Directional Antennas

Lin Chen (The University of Paris-Sud, France); Yong Li (Tsinghua University, P.R. China); Athanasios V. Vasilakos (Lulea University of Technology, Sweden)

Antenna Orientation and Range Assignment in WSNs with Directional Antennas

Tien Tran (University of Texas at Dallas, USA); Min Kyung An (Sam Houston State University, USA); Dung Huynh (University of Texas at Dallas, USA)

Practical Antenna Selection for WLAN AP

Seungmin Yoo, Seongwon Kim and Youngwook Son (Seoul National University, Korea); Jaehong Yi (Seoul National University & MWNL, Korea); Sunghyun Choi (Seoul National University, Korea)

Resilient Multi-User Beamforming WLANs: Mobility, Interference, and Imperfect CSI

Oscar Bejarano (Cisco Systems, Inc.); Roger Pierre Fabris Hoefel (Federal University of Rio Grande do Sul, Brazil); Edward W. Knightly (Rice University, USA)

Thu-B.4: RFID

Room: Bayview A

Chair: Jinsong Han (Xi'an Jiaotong University, P.R. China)

Wisent: Robust Downstream Communication and Storage for Computational RFIDs

Jethro Tan and Przemyslaw Pawelczak (Delft University of Technology, The Netherlands); Aaron N Parks and Smith Joshua (University of Washington, USA)

Moving Tag Detection via Physical Layer Analysis for Large-Scale RFID Systems

Chuyu Wang, Lei Xie, Wei Wang, Tao Xue and Sanglu Lu (Nanjing University, P.R. China)

TOP-k Queries for Multi-category RFID Systems

Xiulong Liu and Keqiu Li (Dalian University of Technology, P.R. China); Jie Wu (Temple University, USA); Alex X. Liu (Michigan State University, USA); Xin Xie (Dalian University of Technology, P.R. China); Chunsheng Zhu (The University of British Columbia, Canada); Weilian Xue (Liaoning Normal University, P.R. China)

Ubiquitous Tagless Object Locating with Ambient Harmonic Tags

Yunfei Ma and Edwin Kan (Cornell University, USA)

Thursday, April 14, 13:30 - 15:00

Thu-C.1: Online Social Networks II

Room: Grand Ballroom B

Chair: Yuqing Zhu (California State University, Los Angeles, USA)

De-anonymizing Social Networks and Inferring Private Attributes Using Knowledge Graphs

Jianwei Qian and Xiang-Yang Li (Illinois Institute of Technology, USA); Chunhong Zhang (Beijing University of Posts & Telecommunication, P.R. China); Linlin Chen (Illinois Institute of Technology, USA)

Social Learning Networks: Efficiency Optimization for MOOC Forums

Christopher Brinton (Princeton University, USA); Swapna Buccapatnam (IBM T. J. Watson Research Center, USA); Felix Ming Fai Wong, Mung Chiang and H. Vincent Poor (Princeton University, USA)

High-Precision Shortest Distance Estimation for Large-Scale Social Networks

Jie Cheng (University of Prince Edward Island, Canada); Yangyang Zhang (Harbin Institute of Technology Shenzhen Graduate School, P.R. China); Qiang Ye (University of Prince Edward Island, Canada); Hongwei Du (Harbin Institute of Technology Shenzhen Graduate School, P.R. China)

Adwords Management for Third-parties in SEM: an Optimisation Model and the Potential of Twitter

Dong Wang (Institute of Computing Technology, Chinese Academy of Sciences & INRIA France, P.R. China); Zhenyu Li and Gaogang Xie (Institute of Computing Technology, Chinese Academy of Sciences, P.R. China); Mohamed Ali Kaafar (NICTA & NICTA Australia, Australia); Kavé Salamatian (LISTIC PolyTech, Université de Savoie Chambéry Annecy, France)

Thu-C.2: Network Security II

Room: Grand Ballroom C

Chair: Lixin Wang (Paine College, USA)

Hunting for Invisibility: Characterizing and Detecting Malicious Web Infrastructures through Server Visibility Analysis

Jialong Zhang (Texas A&M University, USA); Xin Hu and Jiyong Jang (IBM Research, USA); Ting Wang (Lehigh University, USA); Guofei Gu (Texas A&M University, USA); Marc Stoecklin (IBM Research, Switzerland)

A Study of Personal Information in Human-chosen Passwords and Its Security Implications

Yue Li (College of William & Mary, USA); Haining Wang (University of Delaware, USA); Kun Sun (George Mason University, USA)

Graph-Based Privacy-Preserving Data Publication

Xiang-Yang Li (Illinois Institute of Technology, USA); Chunhong Zhang (Beijing University of Posts & Telecommunication, P.R. China); Taeho Jung, Jianwei Qian and Linlin Chen (Illinois Institute of Technology, USA)

On the Relative De-anonymizability of Graph Data: Quantification and Evaluation

Shouling Ji (Georgia Institute of Technology, USA); Weiqing Li (Georgia Tech, USA); Shukun Yang (Georgia Institute of Technology); Prateek Mittal (Princeton University, USA); Raheem Beyah (Georgia Institute of Technology, USA)

Thu-C.3: Spectrum Sharing

Room: Bayview B

Chair: Michael Sirivianos (Cyprus University of Technology, Cyprus)

Incentivizing Spectrum Sensing in Database-Driven Dynamic Spectrum Sharing

Bo Gao (Institute of Computing Technology, Chinese Academy of Sciences, P.R. China); Sudeep Bhattacharai, Jung-Min (Jerry) Park and Yaling Yang (Virginia Tech, USA); Min Liu (Institute of Computing Technology, Chinese Academy of Sciences, P.R. China); Kexiong (Curtis) Zeng and Yanzhi Dou (Virginia Tech, USA)

Can the Privacy of Primary Networks in Shared Spectrum be Protected?

Matthew A Clark (University of Southern California & The Aerospace Corporation, USA); Konstantinos Psounis (University of Southern California, USA)

Privacy-Preserving Crowdsourced Spectrum Sensing

Xiaocong Jin and Yanchao Zhang (Arizona State University, USA)

CU-LTE: Spectrally-Efficient and Fair Coexistence Between LTE and Wi-Fi in Unlicensed Bands

Zhangyu Guan and Tommaso Melodia (Northeastern University, USA)

Thu-C.4: Cellular Networks Coverage

Room: Seaciff C+D

Chair: Zhu Wang (State University of New York at Oneonta, USA)

Understanding and Diagnosing Real-World Femtocell Performance Problems

Chunyi Peng (The Ohio State University, USA); Yuanjie Li (University of California at Los Angeles, USA); Zhuoran Li and Jie Zhao (The Ohio State University, USA); Jiaqi Xu (the Ohio State University, USA)

HybridCell: Cellular connectivity on the fringes with demand-driven local cells

Paul Schmitt (UC Santa Barbara, USA); Daniel Iland (University of California, Santa Barbara, USA); Mariya Zheleva (UAlbany SUNY, USA); Elizabeth Belding (University of California, Santa Barbara, USA)

Stochastic Geometric Analysis of Handoffs in User-Centric Cooperative Wireless Networks

Wei Bao (The University of Sydney, Australia); Ben Liang (University of Toronto, Canada)

Shadowing and Coverage in Poisson Buildings

Junse Lee (University of Texas Austin, USA); Xinchen Zhang (The University of Texas at Austin & Qualcomm Inc., USA); Francois Baccelli (UT Austin & The University of Texas at Austin, USA)

Thu-C.5: Wireless Scheduling

Room: Bayview A

Chair: Zhao Zhang (Zhejiang Normal University, P.R. China)

Mobility-Aware Real-Time Scheduling for Low-Power Wireless Networks

Behnam Dezfouli, Marjan Radi and Octav Chipara (University of Iowa, USA)

An Antithetic Coupling Approach to Multi-Chain based CSMA Scheduling Algorithms

Jaewook Kwak and Do Young Eun (North Carolina State University, USA)

Efficient scheduling algorithms for on-demand wireless data broadcast

Zaixin Lu (Washington State University, USA); Weili Wu (UT Dallas, USA); Wei Li (Texas Southern University, USA); Miao Pan (University of Houston, USA)

Approximation Algorithms for Wireless Opportunistic Spectrum Scheduling in Cognitive Radio Networks

Xiaohua Xu and Min Song (Michigan Technological University, USA)

Thu-C.6: TCP

Room: Seacliff A

Chair: Qiang Ye (University of Prince Edward Island, Canada)

Estimation Method for the Delay Performance of Closed-loop Flow Control with Application to TCP

Lübben Ralf (Robert-Bosch GmbH, Germany); Markus Fidler (Leibniz Universität Hannover, Germany)

Revisiting Congestion Control for Multipath TCP with Shared Bottleneck Detection

Simone Ferlin (University of Oslo & Simula Research Laboratory, Norway); Ozgu Alay and Thomas Dreibholz (Simula Research Laboratory, Norway); David Hayes and Michael Welzl (University of Oslo, Norway)

SAMPO: Online Subflow Association for Multipath TCP with Partial Flow Record

Yang Zhang, Hesham Mekky and Zhi-Li Zhang (University of Minnesota, USA); Fang Hao (Bell Labs, Nokia, USA); Sarit Mukherjee (Bell Labs USA, USA); T. V. Lakshman (Bell Labs, Alcatel-Lucent, USA)

TCP Ordo: The cost of ordered processing in TCP Servers

Mohan Kumar Kumar and Ada Gavrilovska (Georgia Institute of Technology, USA)

Thu-C.7: Network Science II

Room: Seacliff B

Chair: Alessandro Mei (Sapienza University of Rome, Italy)

DESIR: Decoy-Enhanced Seamless IP Randomization

Jianhua Sun (College of William and Mary, USA); Kun Sun (George Mason University, USA)

To Live or To Die: Encountering Conflict Information Propagation over Simple Networks

Jie Wang (North Carolina State University, USA); Wenyue Wang (NC State University, USA)

CSMA Networks in a Many-Sources Regime: A Mean-Field Approach

Fabio Cecchi, Sem Borst and Johan van Leeuwaarden (Eindhoven University of Technology, The Netherlands); Philip Whiting (Macquarie University, Australia)

Inductive Coloring: Implementing Basic Communication Primitives with Rayleigh-Fading Interference

Yuxuan Wang (The University of Hong Kong & Zhejiang University, P.R. China); Dongxiao Yu (The University of Hong Kong, Hong Kong); Qipeng Liu (Princeton University, USA); Francis C.M. Lau (The University of Hong Kong, Hong Kong)

Thu-C.8: Modeling III

Room: Marina

Chair: Jinyuan (Stella) Sun (University of Tennessee, USA)

Towards Efficient Content-aware Search over Encrypted Outsourced Data in Cloud

Zhangjie Fu (Nanjing University of Information Science and Technology & State University of New York at Buffalo, P.R. China); Xingming Sun (Nanjing University of Information Science and Technology, P.R. China); Sai Ji (Nanjing University of Information Science & Technology, P.R. China); Guowu Xie (University of California, Riverside, USA)

BD-ZCS: Multi-cell Interference Coordination via Zadoff-Chu Sequence-based Block Diagonalization

Xueyuan Zhao and Dario Pompili (Rutgers University, USA)

CASE: Cache-assisted Stretchable Estimator for High Speed Per-flow Measurement

Yang Li, Hao Wu, Tian Pan, Huichen Dai, Jianyuan Lu and Bin Liu (Tsinghua University, P.R. China)

Distributed Deterministic Broadcasting Algorithms under the SINR Model

Xiang Tian and Jiguo Yu (Qufu Normal University, P.R. China); Liran Ma (Texas Christian University, USA); Guangshun Li (Qufu Normal University, P.R. China); Xiuzhen Cheng (George Washington Univ, USA)

Thursday, April 14, 15:30 - 17:00

Thu-D.1: Optimization III

Room: Grand Ballroom B

Chair: Eylem Ekici (The Ohio State University, USA)

Online Job Allocation with Hard Allocation Ratio Requirement

Han Deng and I-Hong Hou (Texas A&M University, USA)

Probabilistic Demand Allocation for Cloud Service Brokerage

Chenxi Qiu, Haiying Shen and Liuhua Chen (Clemson University, USA)

Engineering Traffic Uncertainty in the OpenFlow Data Plane

Fei Chen (Zhejiang University, P.R. China); Chunming Wu (College of Computer Science, Zhejiang University, P.R. China); Xiaoyan Hong (University of Alabama, USA); Zhouhao Lu (Zhejiang

University, P.R. China); Zhouhao Wang (Zhejiang University & Tsukuba University, P.R. China); Changting Lin (College of Computer Science, Zhejiang University, P.R. China)

Dynamic Routing for Network Throughput Maximization in Software-Defined Networks

Meitian Huang and Weifa Liang (The Australian National University, Australia); Zichuan Xu (Australian National University, Australia); Wenzheng Xu (Sichuan University & Australian National University, P.R. China); Song Guo (The University of Aizu, Japan); Yinlong Xu (University of Science and Technology of China, P.R. China)

Thu-D.2: Resource Allocation II

Room: Grand Ballroom C

Chair: Xiaohua Xu (Michigan Technological University, USA)

Distributed Load Shedding with Minimum Energy

Kostas Choumas (University of Thessaly, Greece); Georgios S. Paschos (Huawei Technologies, France); Thanasis Korakis (New York University, USA); Leandros Tassiulas (Yale University, USA)

Efficient and Flexible Crowdsourcing of Specialized Tasks with Precedence Constraints

Avhishek Chatterjee (University of Illinois at Urbana-Champaign, USA); Michael Borokhovich (University of Texas at Austin, USA); Lav R. Varshney (University of Illinois at Urbana-Champaign, USA); Sriram Vishwanath (University of Texas Austin, USA)

On Demand Elastic Capacity Planning for Service Auto-scaling

Pavel S Chuprikov (Steklov Mathematical Institute at St. Petersburg & IMDEA Networks Institute, Russia); Sergey Nikolenko (St. Petersburg Academic University, Russia); Kirill Kogan (IMDEA Networks Institute, Spain)

Node-based Service-Balanced Scheduling for Provably Guaranteed Throughput and Evacuation Time Performance

Bo Ji (Temple University, USA); Gagan R Gupta (AT&T Labs, USA); Yu Sang (Temple University, USA)

Thu-D.3: Streaming Video

Room: Bayview B

Chair: Thomas Hou (Virginia Tech, USA)

F.Live: Towards Interactive Live Broadcast FTV Experience

Shannon Chen (University of Illinois at Urbana-Champaign, USA); Zhenhuan Gao and Klara Nahrstedt (University of Illinois at Urbana-Champaign)

Cache Content-Selection Policies for Streaming Video Services

Stefan Dernbach (University of Massachusetts, USA); Azin Ashkan (Technicolor, USA); Christophe Diot (Safran, France); Jim Kurose (University of Massachusetts at Amherst, USA); Nina Taft (Google); Udi Weinsberg (Facebook)

Tracker-assisted rate adaptation for MPEG DASH live streaming

Andrea Detti, Bruno Ricci and Nicola Belfari-Melazzi (University of Rome "Tor Vergata", Italy)

Side-Channel Information Leakage of Encrypted Video Stream in Video Surveillance Systems

Hong Li (Institute of Information Engineering, Chinese Academy of Sciences, P.R. China); Yunhua He (The George Washington University, USA); Limin Sun (Institute of Information Engineering, China Academy of Science, Beijing, P.R. China); Xiuzhen Cheng (George Washington Univ, USA); Jiguo Yu (Qufu Normal University, P.R. China)

Thu-D.4: Heterogeneous Networks

Room: Seacliff C+D

Chair: Yu Hua (Huazhong University of Science and Technology, P.R. China)

A QoS-enabled Holistic Optimization Framework for LTE-Advanced Heterogeneous Networks

Rajarajan Sivaraj (University of California, Davis, USA); Ioannis Broustis (AT&T Labs Research, USA); Nemmara K. Shankaranarayanan (AT&T Laboratories - Research, USA); Vaneet Aggarwal (Purdue University, USA); Rittwik Jana (AT&T Labs Research, USA); Prasant Mohapatra (University of California, Davis, USA)

ENCORE: An Energy-Aware Multicell Cooperation in Heterogeneous Networks with Content Caching

Yi-Han Chiang and Wanjiun Liao (National Taiwan University, Taiwan)

Optimal Downlink and Uplink User Association in Backhaul-limited HetNets

Nikolaos Sapountzis and Thrasyvoulos Spyropoulos (EURECOM, France); Navid Nikaein (Eurecom, France); Umer Salim (Intel Mobile Communications, France)

Joint Optimization for Cell Configuration and Offloading in Heterogeneous Networks

Chan-Ching Hsu, J. Morris Chang and Yu-Wen Chen (Iowa State University, USA)

Thu-D.5: Cloud Storage Systems

Room: Bayview A

Chair: Qiang Ye (University of Prince Edward Island, Canada)

Mean-Field-Analysis of Coding versus Replication in Cloud Storage Systems

Bin Li (University of Illinois at Urbana-Champaign, USA); Aditya Ramamoorthy (Iowa State University, USA); R. Srikant (University of Illinois at Urbana-Champaign, USA)

Sketch-based Data Placement among Geo-distributed Datacenters for Cloud Storages

Boyang Yu and Jianping Pan (University of Victoria, Canada)

Reducing Access Latency in Erasure Coded Cloud Storage with Local Block Migration

Yaochen Hu and Di Niu (University of Alberta, Canada)

An Economical and SLO-Guaranteed Cloud Storage Service across Multiple Cloud Service Providers

Guoxin Liu and Haiying Shen (Clemson University, USA)

Program

Datacenter Networks I

Multi-Tenant Multi-Objective Bandwidth Allocation in Datacenters Using Stacked Congestion Control

Chen Tian (Nanjing University, P.R. China); Ali Munir and Alex X. Liu (Michigan State University, USA); Yingtong Liu, Yanzhao Li and Jiajun Sun (Nanjing University, P.R. China); Fan Zhang (Huawei Technologies, Hong Kong); Gong Zhang (Huawei Research, P.R. China)

Survivable and Bandwidth-Guaranteed Embedding of Virtual Clusters in Cloud Data Centers

Ruozhou Yu, Guoliang Xue and Xiang Zhang (Arizona State University, USA); Dan Li (Tsinghua University, P.R. China)

One More Queue is Enough: Minimizing Flow Completion Time with Explicit Priority Notification

Yuanwei Lu (University of Science and Technology of China & Microsoft Research Asia, P.R. China); Guo Chen (Microsoft Research Asia, P.R. China); Kun Tan (Microosft Research Asia, P.R. China); Layong Luo (Microsoft, P.R. China); Yongqiang Xiong (Microsoft Research Asia, P.R. China); Xiaoliang Wang (Nanjing University, P.R. China); EnHong Chen (University of Science and Technology, P.R. China)

CoCloud: Enabling Efficient Cross-Cloud File Collaboration based on Inefficient Web APIs

Jinlong E and Yong Cui (Tsinghua University, P.R. China); Peng Wang (Carnegie Mellon University, USA); Zhenhua Li and Chaokun Zhang (Tsinghua University, P.R. China)

Cloud Computing I

Cluster Fair Queueing: Speeding up Data-Parallel Jobs with Delay Guarantees

Chen Chen, Wei Wang, Shengkai Zhang and Bo Li (Hong Kong University of Science and Technology, Hong Kong)

Scheduling Jobs across Geo-Distributed Datacenters with Max-Min Fairness

Li Chen, Shuhao Liu and Baochun Li (University of Toronto, Canada); Bo Li (Hong Kong University of Science and Technology, Hong Kong)

BAC: Bandwidth-Aware Compression for Efficient Live Migration of Virtual Machines

Chunguang Li, Dan Feng, Yu Hua and Wen Xia (Huazhong University of Science and Technology, P.R. China); Leihua Qin (Huazhong University of Science & Technology, P.R. China); Yue Huang and Yukun Zhou (Huazhong University of Science and Technology, P.R. China)

Malicious Co-Residency on the Cloud: Attacks and Defense

Ahmed Fathy Atya, Zhiyun Qian and Srikanth V. Krishnamurthy (University of California, Riverside, USA); Tom La Porta and Patrick McDaniel (Pennsylvania State University, USA); Lisa Marvel (Army Research Laboratory, USA)

Security in Cloud Computing

When Gene Meets Cloud: Enabling Scalable and Efficient Range Query on Encrypted Genomic Data

Wenhai Sun (Virginia Tech, USA); Ning Zhang (Virginia Tech & Raytheon Company, USA); Wenjing Lou (Virginia Tech & National Science Foundation, USA); Thomas Hou (Virginia Tech, USA)

CASHEIRS: Cloud Assisted Scalable Hierarchical Encrypted Based Image Retrieval System

Xin Li, Qinghan Xue and Mooi Choo Chuah (Lehigh University, USA)

RSPP: A Reliable, Searchable and Privacy-Preserving e-Healthcare System for Cloud-Assisted Body Area Networks

Lei Yang (The University of Kansas, USA); Qingji Zheng (Huawei Research Center, USA); Xinxin Fan (Bosch Research and Technology Center, USA)

Learning Privately: Privacy-Preserving Canonical Correlation Analysis for Cross-Media Retrieval

Qian Wang, Shengshan Hu, Minxin Du and Jingjun Wang (Wuhan University, P.R. China); Kui Ren (State University of New York at Buffalo, USA)

Theory for Social Networks I

Motif Clustering and Overlapping Clustering for Social Network Analysis

Pan Li (University of Illinois Urbana-Champaign, USA); Hoang Dau and Gregory J. Puleo (University of Illinois at Urbana-Champaign, USA); Olgica Milenkovic (University of Illinois at Urbana-Champaign (UIUC), USA)

An Efficient Randomized Algorithm for Rumor Blocking in Online Social Networks

Guangmo Tong and Weili (lily) Wu (University of Texas at Dallas, USA); Ling Guo (Renmin University of China, P.R. China); Deying Li (Renmin University, P.R. China); Cong Liu (The University of Texas at Dallas, USA); Bin Liu (Ocean University of China, P.R. China); Ding-Zhu Du (University of Texas, Dallas, USA)

Incentivizing Strategic Users for Social Diffusion: Quantity or Quality?

Jungseul Ok, Jinwoo Shin and Yung Yi (KAIST, Korea)

Unveiling Polarization in Social Networks: A Matrix Factorization Approach

Md Tanvir A Amin (University of Illinois at Urbana-Champaign, USA); Charu Aggarwal (IBM TJ Watson Research Center, USA); Shuochao Yao (University of Illinois Urbana-Champaign, USA); Tarek Abdelzaher (University of Illinois, Urbana Champaign, USA); Lance Kaplan (US Army Research Laboratory, USA)

Sensor Networks I

Distributed Non-Structure Based Data Aggregation for Duty-Cycle Wireless Sensor Networks

Quan Chen (Harbin Institute of Technology, P.R. China); Hong Gao (University of Harbin Institute Technology, P.R. China); SIyao Cheng and Jianzhong Li (Harbin Institute of Technology, P.R. China); Zhipeng Cai (Georgia State University, USA)

Joint Sensing Duty Cycle Scheduling for Heterogeneous Coverage Guarantee

Kin Sum Liu (Stony Brook University, USA); Tyler Mayer (Stony Brook University & Stony Brook University, USA); Hao Tsung Yang (Stony Brook University, USA); Esther Arkin (State University of New York at Stony Brook, USA); Jie Gao (Stony Brook University, USA); Mayank Goswami (Max-Planck Institute for Informatics, Germany); Matthew P Johnson (City University of New York, USA); Nirman Kumar (University of Memphis, USA); Shan Lin (Stony Brook University, USA)

Multihop Calibration for Mobile Sensing: k-hop Calibratability and Reference Sensor Deployment

Kaibo Fu, Wei Ren and Wei Dong (Zhejiang University, P.R. China)

Photo Crowdsourcing for Area Coverage in Resource Constrained Environments

Yibo Wu (The Pennsylvania State University, USA); Yi Wang (Pennsylvania State University, USA); Guohong Cao (The Pennsylvania State University, USA)

Wireless Access Networks

Perceiving Accurate CSI Phases with Commodity WiFi Devices

Yiwei Zhuo, Hongzi Zhu and Hua Xue (Shanghai Jiao Tong University, P.R. China); Shan Chang (Donghua University, P.R. China)

STRALE: Mobility-Aware PHY Rate and Frame Aggregation Length Adaptation in WLANs

Seongho Byeon, Kangjin Yoon, Changmok Yang and Sunghyun Choi (Seoul National University, Korea)

Enhancing Wireless Performance Using Reflectors

Sihui Han and Kang G. Shin (University of Michigan, USA)

Harnessing Hardware Defects for Improving Wireless Link Performance: Measurements and Applications

Alireza Ameli Renani, Jun Huang, Guoliang Xing and Abdol Esfahanian (Michigan State University, USA)

Optical Networks and Traffic Engineering

Combinatorial Approach for Network Switch Design in Data Center Networks

Ganesh Chennimalai Sankaran (Indian Institute of Technology Madras & HCL Cisco Offshore Development Center, India); Krishna M. Sivalingam (Indian Institute of Technology Madras, India)

Competitive Analysis for Online Scheduling in Software-Defined Optical WAN

Su Jia (Stony Brook University, USA); Xin Jin (Johns Hopkins University, USA); Golnaz Ghasemiesfeh, Jiaxin Ding and Jie Gao (Stony Brook University, USA)

ABSORB: Autonomous Base Station with Optical Reflex Backhaul to Adapt to Fluctuating Demand

Yu Nakayama (University of Tokyo); Takuya Tsutsumi and Kazuki Maruta (Neko 9 Laboratories); Kaoru Sezaki (University of Tokyo, Japan)

Expect the Unexpected: Sub-Second Optimization for Segment Routing

Steven Gay (UCLouvain, Belgium); Renaud Hartert (Google, Switzerland); Stefano Vissicchio (University College London, United Kingdom (Great Britain))

Resource Management in Cloud Computing I

Addressing Job Processing Variability Through Redundant Execution and Opportunistic Checkpointing: A Competitive Analysis

Huanle Xu (Dongguan University of Technology, P.R. China); Gustavo de Veciana (The University of Texas at Austin, USA); Wing Cheong Lau (The Chinese University of Hong Kong, Hong Kong)

Handling Flash Deals with Soft Guarantee in Hybrid Cloud

Yipei Niu (Huazhong University of Science & Technology, P.R. China); Fangming Liu (Huazhong University of Science and Technology, P.R. China); Xincai Fei (Huazhong University of Science & Technology, P.R. China); Bo Li (Hong Kong University of Science and Technology, Hong Kong)

Power of Redundancy:Designing Partial Replication for Multi-tier Applications

Robert Birke (IBM Zurich Research Laboratory, Switzerland); Zhan Qiu (Imperial College London, United Kingdom (Great Britain)); Juan F Perez (Universidad del Rosario & ACEMS, Colombia); Mathias Björkqvist (IBM Zurich Research Lab, Switzerland); Lydia Y. Chen (IBM Zurich Research Laboratory, Switzerland)

Discovering Valuations and Enforcing Truthfulness in a Deadline-Aware Scheduler

Zhe Huang (AT&T Lab Research, USA); S. Matthew Weinberg, Liang Zheng and Mung Chiang (Princeton University, USA); Carlee Joe-Wong (Carnegie Mellon University, USA)

Privacy

Location-Privacy-Aware Review Publication Mechanism for Local Business Service Systems

Xu Zheng and Zhipeng Cai (Georgia State University, USA); Jianzhong Li (Harbin Institute of Technology, P.R. China); Hong Gao (University of Harbin Institute Technology, P.R. China)

Local Private Ordinal Data Distribution Estimation

Shaowei Wang, Yiwen Nie, Pengzhan Wang, Hongli Xu, Wei Yang and Liusheng Huang (University of Science and Technology of China, P.R. China)

Spatiotemporal Correlation-Aware Dummy-Based Privacy Protection Scheme for Location-Based Services

Hai Liu, Xinghua Li, Hui Li, Jian-feng Ma and Xindi Ma (Xidian University, P.R. China)

Preserving Mobile Subscriber Privacy in Open Datasets of Spatiotemporal Trajectories

Marco Gramaglia (Universidad Carlos III de Madrid, Spain); Marco Fiore (National Research Council of Italy, Italy); Alberto Tarable (CNR-IEIIT, Italy); Albert Banchs (Universidad Carlos III de Madrid, Spain)

Network Theory I

Optimal Control for Generalized Network-Flow Problems

Abhishek Sinha (Massachusetts Institute of Technology, USA); Eytan Modiano (MIT, USA)

Generalized Finitary Real-Time Calculus

Kai Lampka (Uppsala Universitet, Sweden); Steffen Bondorf and Jens Schmitt (University of Kaiserslautern, Germany); Nan Guan (Hong Kong Polytechnic University, Hong Kong); Wang Yi (Uppsala University, Sweden)

Maximum-Weighted Subset of Communication Requests Schedulable without Spectral Splitting

Peng-Jun Wan (Illinois Institute of Technology, USA); Huaqiang Yuan (Dongguan University of Technology, P.R. China); Xiaohua Jia (City University of Hong Kong, Hong Kong); Jiliang Wang (Tsinghua University, P.R. China); Zhu Wang (State University of New York at Oneonta, USA)

Augmenting Max-Weight with Explicit Learning for Wireless Scheduling with Switching Costs

Subhashini Krishnasamy (The University of Texas at Austin, USA); Akhil Padinhare Thalasseryveettil (Indian Institute of Science, India); Ari Arapostathis (University of Texas at Austin, USA); Sanjay Shakkottai (The University of Texas at Austin, USA); Rajesh Sundaresan (Indian Institute of Science, India)

RFID Systems I

PHY Assisted Tree-based RFID Identification

Yuxiao Hou and Yuanqing Zheng (The Hong Kong Polytechnic University, Hong Kong)

RF-Scanner: Shelf Scanning with Robot-assisted RFID Systems

Jia Liu, Feng Zhu and Yanyan Wang (Nanjing University, P.R. China); Xia Wang (Nanjing University & Zaozhuang University, P.R. China); Qingfeng Pan and Li-jun Chen (Nanjing University, P.R. China)

DBF: A General Framework for Anomaly Detection in RFID Systems

Min Chen (Google Inc., USA); Jia Liu (Nanjing University, P.R. China); Shigang Chen and Yan Qiao (University of Florida, USA); Yuanqing Zheng (The Hong Kong Polytechnic University, Hong Kong)

Fast Downstream to Many (Computational) RFIDs

Henko Aantjes, Amjad Majid and Przemyslaw Pawelczak (Delft University of Technology, The Netherlands); Jethro Tan (Preferred Networks, Japan); Aaron N Parks and Smith Joshua (University of Washington, USA)

MIMO and Beamforming

BUSH: Empowering Large-Scale MU-MIMO in WLANs With Hybrid Beamforming

Zhe Chen (School of Computer Science, Fudan University & Engineering Research Center of Cyber Security Auditing and Monitoring, Ministry of Education, P.R. China); Xu Zhang, Sulei Wang and Yuedong Xu (Fudan University, P.R. China); Jie Xiong (Singapore Management University, Singapore); Xin Wang (Fudan University, P.R. China)

Beamforming in the Body: Energy-efficient and Collision-free Communication for Implants

Meenupriya Swaminathan (Northeastern University, USA); Anna Vizziello (University of Pavia, Italy); Davy Duong (Temple University, USA); Pietro Savazzi (Università degli Studi di Pavia, Italy); Kaushik Chowdhury (Northeastern University, USA)

Smart Underground Antenna Arrays: A Soil Moisture Adaptive Beamforming Approach

Abdul Salam and Mehmet Can Vuran (University of Nebraska-Lincoln, USA)

Tracking mm-Wave Channel Dynamics: Fast Beam Training Strategies under Mobility

Joan Palacios, Danilo De Donno and Joerg Widmer (IMDEA Networks Institute, Spain)

Software Defined Networks I

Minimizing Flow Statistics Collection Cost of SDN Using Wildcard Requests

Hongli Xu and Zhuolong Yu (University of Science and Technology of China, P.R. China); Chen Qian (University of California at Santa Cruz, USA); Xiang-Yang Li and Zichun Liu (University of Science and Technology of China, P.R. China)

Traffic Aware Placement of Interdependent NFV Middleboxes

Wenrui Ma (Florida International University, USA); Oscar Sandoval (University of Virginia, USA); Jonathan Beltran, Deng Pan and Niki Pissinou (Florida International University, USA)

Towards Rule Enforcement Verification for Software Defined Networks

Peng Zhang (Xi'an Jiaotong University, P.R. China)

RFlow+: An SDN-based WLAN Monitoring and Management Framework

RhongHo Jang (Inha University, Korea); DongGyu Cho (University of Inha, Korea); Youngtae Noh and Daehun Nyang (Inha University, Korea)

Cloud Storage

Latency Analysis for Distributed Storage

Parimal Parag and Archana Bura (Indian Institute of Science, India); Jean-Francois Chamberland (Texas A&M University, USA)

Taming Tail Latency for Erasure-coded, Distributed Storage Systems

Vaneet Aggarwal and Jingxian Fan (Purdue University, USA); Tian Lan (George Washington University, USA)

DSC: Dynamic Stripe Construction for Asynchronous Encoding in Clustered File System

Shuzhan Wei, Yongkun Li, Yinlong Xu and Si Wu (University of Science and Technology of China, P.R. China)

One-tag Checker: Message-locked Integrity Auditing on Encrypted Cloud Deduplication Storage

Xuefeng Liu (Xidian University, P.R. China); Wenhui Sun (Virginia Tech, USA); Wenjing Lou (Virginia Tech & National Science Foundation, USA); Qingqi Pei (Xidian University, P.R. China); Zhang Yuqing (University of Chinese Academy of Sciences, P.R. China)

Load Balancing

Load Balancing with Bounded Convergence in Dynamic Networks

Michael Dinitz (Johns Hopkins University, USA); Jeremy Fineman (Georgetown University, USA); Seth Gilbert (National University of Singapore, Singapore); Calvin Newport (Georgetown University, USA)

Scalable Software-Defined Networking through Hybrid Switching

Hongli Xu (University of Science and Technology of China, P.R. China); He Huang (Soochow University, P.R. China); Shigang Chen (University of Florida, USA); Gongming Zhao (University of Science and Technology of China, P.R. China)

Load Balancing Over Symmetric Virtual Topologies

Syed Mohammad Irteza, Hafiz Muhammad Mohsin Bashir and Talal Anwar (Lahore University of Management Sciences, Pakistan); Ihsan Ayyub Qazi (Lahore University of Management Sciences (LUMS), Pakistan & UC Berkeley, USA); Fahad Dogar (Tufts University, USA)

BD-CAT: Balanced Dynamic Content Addressing in Trees

Stefanie Roos (University of Waterloo, Canada); Martin Byrenheid, Clemens Deusser and Thorsten Strufe (TU Dresden, Germany)

Big Data Processing

AccountTrade: Accountable Protocols for Big Data Trading Against Dishonest Consumers

Taeho Jung (University of Notre Dame, USA); Xiang-Yang Li and Wenchao Huang (University of Science and Technology of China, P.R. China); Jianwei Qian, Linlin Chen, JunZe Han and Jiahui Hou (Illinois Institute of Technology, USA); Cheng Su (University of Science and Technology of China, P.R. China)

Verifiable Social Data Outsourcing

Xin Yao (Arizona State University, USA); Rui Zhang (University of Delaware, USA); Yanchao Zhang (Arizona State University, USA); Yaping Lin (Hunan University, P.R. China)

On Localizing Urban Events with Instagram

Prasanna Giridhar (UIUC, USA); Shiguang Wang (University of Illinois at Urbana-Champaign, USA); Tarek Abdelzaher (University of Illinois, Urbana Champaign, USA); Raghu Ganti (IBM T J Watson Research Center, USA); Lance Kaplan (US Army Research Laboratory, USA); Jemin George (Army Research Laboratory, USA)

LRC: Dependency-Aware Cache Management for Data Analytics Clusters

Yinghao Yu (The Hong Kong University of Science and Technology, Hong Kong); Wei Wang (Hong Kong University of Science and Technology, Hong Kong); Jun Zhang and Khaled B. Letaief (The Hong Kong University of Science and Technology, Hong Kong)

Internet Security I

Network Anti-Spoofing with SDN Data plane

Yehuda Afek (Tel-Aviv University, Israel); Anat Bremler-Barr (Interdisciplinary Center Herzliya, Israel); Lior Shafir (Tel Aviv University, Israel)

FloodDefender: Protecting Data and Control Plane Resources under SDN-aimed DoS Attacks

Shang Gao, Zhe Peng and Bin Xiao (The Hong Kong Polytechnic University, Hong Kong); Hu Aiqun (Southeast University, P.R. China); Kui Ren (State University of New York at Buffalo, USA)

DDoS Attack on Cloud Auto-scaling Mechanisms

Anat Bremler-Barr and Mor Sides (Interdisciplinary Center Herzliya, Israel); Eli Brosh (Nexcar, Israel)

Securing MultiPath TCP: Design & Implementation

Mathieu Jadin (Université Catholique de Louvain, Belgium); Gautier Tihon (Université Catholique de Louvain); Olivier Pereira (Université Catholique de Louvain, Belgium); Olivier Bonaventure (Université catholique de Louvain, Belgium)

Scheduling I

Load Balancing in Large-Scale Systems with Multiple Dispatchers

Mark van der Boor, Sem Borst and Johan van Leeuwaarden (Eindhoven University of Technology, The Netherlands)

Optimizing Stochastic Scheduling in Fork-Join Queueing Models: Bounds and Applications

Wasir R. KhudaBukhsh and Amr Rizk (Technische Universität Darmstadt, Germany); Alexander Frömmgen (TU Darmstadt, Germany); Heinz Koepll (Technische Universität Darmstadt, Germany)

Measurement-Based Delay Optimal Scheduler for Multi-Class Traffic in Wireless Networks

Arjun Anand (The University of Texas, Austin, USA); Gustavo de Veciana (The University of Texas at Austin, USA)

Throughput Optimization with Latency Constraints

Alex Davydov (Steklov Math. Institute, Russia); Pavel S Chuprikov (Steklov Mathematical Institute at St. Petersburg & IMDEA Networks Institute, Russia); Sergey I Nikolenko (Steklov Mathematical Institute at St Petersburg, Russia); Kirill Kogan (IMDEA Networks Institute, Spain)

Energy Harvesting and Wireless Charging

Optimal Energy Requesting Strategy for RF-based Energy Harvesting Wireless Communications

Yu Luo, Lina Pu, Yanxiao Zhao and Guodong Wang (South Dakota School of Mines and Technology, USA); Min Song (Michigan Technological University, USA)

Optimizing Wireless Charger Placement for Directional Charging

Haipeng Dai (Nanjing University & State Key Laboratory for Novel Software Technology, P.R. China); Xiaoyu Wang (Nanjing University, P.R. China); Alex X. Liu (Michigan State University, USA); Huizhen Ma (Nanjing University, P.R. China); Guihai Chen (Shanghai Jiao Tong University, P.R. China)

Secure Resource Allocations for Polarization-Enabled Cooperative Cognitive Radio Networks With Energy Harvesting Capability

Fei Wang (Texas A&M University, USA); Xi Zhang (Texas A&M University, ECE Department, USA)

CatCharger: Deploying Wireless Charging Lanes in a Metropolitan Road Network through Categorization and Clustering of Vehicle Traffic

Li Yan and Haiying Shen (University of Virginia, USA); Juanjuan Zhao (Shenzhen Institutes of Advanced Technology, P.R. China); Chengzhong Xu (Shenzhen Institutes of Advanced Technology, Chinese Academy of Sciences, USA); Feng Luo (Clemson University, USA); Chenxi Qiu (Pennsylvania State University)

Mobile Applications I

Surviving Screen-off Battery through Out-of-band Wi-Fi Coordination

Xianjin Xia and Shi-Ning Li (Northwestern Polytechnical University, P.R. China); Yu Zhang (Northwestern Polytechnical University & RMIT University, P.R. China); Lin Li (Northwestern Polytechnical University, P.R. China); Tao Gu (RMIT University, Australia); Yongji Liu and Yan Pan (Northwestern Polytechnical University, P.R. China)

iGuard: A Real-Time Anti-Theft System for Smartphones

Meng Jin (Northwest University, P.R. China); Yuan He (Tsinghua University, P.R. China); Dingyi Fang, Xiaojiang Chen, Xin Meng and Tianzhang Xing (Northwest University, P.R. China)

ER: Early Recognition of Inattentive Driving Leveraging Audio Devices on Smartphones

Xiangyu Xu (Shanghai Jiao Tong University, P.R. China); Hang Gao (Shanghai Jiao Tong University); Jiadi Yu (Shanghai Jiao Tong University, P.R. China); Yingying Chen (Stevens Institute of Technology, USA); Yanmin Zhu, Guangtao Xue and Minglu Li (Shanghai Jiao Tong University, P.R. China)

Every Pixel Counts: Fine-Grained UI Rendering Analysis for Mobile Applications

Yi Gao and Luo Yang (Zhejiang University, P.R. China); Daqing Chen (China Mobile, P.R. China); Haocheng Huang and Wei Dong (Zhejiang University, P.R. China); Mingyuan Xia and Xue Liu (McGill University, Canada); Jiajun Bu (Zhejiang University, P.R. China)

Multimedia Streaming

QDLCoding: QoS-Differentiated Low-Cost Video Encoding Scheme for Online Video Service

Guanyu Gao (Nanyang Technological University (NTU), Singapore); Yonggang Wen and Han Hu (Nanyang Technological University, Singapore)

MOMD: A Multi-Object Multi-Dimensional Auction for Crowdsourced Mobile Video Streaming

Ming Tang (The Chinese University of Hong Kong, Hong Kong); Shou Wang (Tsinghua University, P.R. China); Lin Gao (Harbin Institute of Technology (Shenzhen), P.R. China); Jianwei Huang (The Chinese University of Hong Kong, Hong Kong); Lifeng Sun (Tsinghua University, P.R. China)

Low Latency Low Loss Streaming using In-Network Coding and Caching

Kazuhisa Matsuzono (National Institute of Information and Communication Technology (NICT), Japan); Hitoshi Asaeda (National Institute of Information and Communications Technology (NICT), Japan); Thierry Turletti (INRIA & Université Côte d'Azur, France)

FEC for VoIP using Dual-Delay Streaming Codes

Ahmed Badr and Ashish Khisti (University of Toronto, Canada); Wai-Tian Tan, Xiaoqing Zhu and John Apostolopoulos (Cisco Systems, USA)

Cache Management

Rethinking CDN Design with Distributed Time-Varying Traffic Demands

Guoming Tang (National University of Defense Technology, P.R. China); Kui Wu (University of Victoria, Canada); Richard Brunner (Ericsson, Canada)

Proactive Retention Aware Caching

Samta Shukla and Alhussein A. Abouzeid (Rensselaer Polytechnic Institute, USA)

Popularity-Aware Caching Increases the Capacity of Wireless Networks

Li Qiu and Guohong Cao (The Pennsylvania State University, USA)

Caching-aware Recommendations: Nudging User Preferences towards better Caching Performance

Livia E. Chatzileftheriou (Athens University of Economics and Business); Merkourios Karaliopoulos and Iordanis Koutsopoulos (Athens University of Economics and Business, Greece)

Crowdsensing I

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Secret-Sharing-Based Secure User Recruitment Protocol for Mobile Crowdsensing

Mingjun Xiao (University of Science and Technology of China, P.R. China); Jie Wu (Temple University, USA); Sheng Zhang (Nanjing University, P.R. China); Jiapeng Yu (University of Science and Technology of China, P.R. China)

Context-Aware Data Quality Estimation in Mobile Crowdsensing

Shengzhong Liu, Zhenzhe Zheng and Fan Wu (Shanghai Jiao Tong University, P.R. China); Shaojie Tang (University of Texas at Dallas, USA); Guihai Chen (Shanghai Jiao Tong University, P.R. China)

When Data Acquisition Meets Data Analytics: A Distributed Active Learning Framework for Optimal Budgeted Mobile Crowdsensing

Qiang Xu and Rong Zheng (McMaster University, Canada)

Make a Difference: Diversity-Driven Social Mobile Crowdsensing

Man Hon Cheung (The Chinese University of Hong Kong, Hong Kong); Fen Hou (University of Macau, Macao); Jianwei Huang (The Chinese University of Hong Kong, Hong Kong)

Cloud Computing II

Provably Efficient Algorithms for Joint Placement and Allocation of Virtual Network Functions

Yu Sang and Bo Ji (Temple University, USA); Gagan R Gupta (AT&T Labs, USA); Xiaojiang Du (Temple University, USA); Lin Ye (Harbin Institute of Technology, P.R. China)

AccurateML: Information-aggregation-based Approximate Processing for Fast and Accurate Machine Learning on MapReduce

Rui Han (Institute Of Computing Technology, Chinese Academy of Sciences, P.R. China); Fan Zhang (Chinese Academy of Sciences, P.R. China); Zhentao Wang (Institute Of Computing Technology, Chinese Academy of Sciences, P.R. China)

On the Latency-Accuracy Tradeoff in Approximate MapReduce Jobs

Juan F Perez (Universidad del Rosario & ACEMS, Colombia); Robert Birke and Lydia Y. Chen (IBM Zurich Research Laboratory, Switzerland)

Approximation Algorithms for the NFV Service Distribution Problem

Hao Feng (University of Southern California, USA); Jaime Llorca (Nokia Bell Labs, USA); Antonia Tulino (Bell Labs, USA & Università Federico II, Italy); Danny Raz (Nokia and Technion, Israel); Andreas Molisch (University of Southern California, USA)

Network Monitoring

List of Shared Risk Link Groups Representing Regional Failures with Limited Size

János Tapolcai (Budapest University of Technology and Economics, Hungary); Lajos Rónyai (Budapest University of Technology and Economics (BME), Hungary); Balázs Vass and László Gyimóthi (Budapest University of Technology and Economics, Hungary)

SLA-Verifier: Stateful and Quantitative Verification for Service Chaining

Ying Zhang (Facebook, USA); Wenfei Wu (Tsinghua University, P.R. China); Sujata Banerjee (VMware, USA); Joon-Myung Kang and Mario A Sanchez (Hewlett Packard Labs, USA)

Progressive Damage Assessment and Network Recovery after Massive Failures

Stefano Ciavarella (University La Sapienza, Italy); Novella Bartolini (Sapienza University of Rome, Italy); Hana Khamfroush (Penn State University, USA); Tom La Porta (Pennsylvania State University, USA)

DyMo: Dynamic Monitoring of Large Scale LTE-Multicast Systems

Yigal Bejerano (Bell-Labs, Alcatel-Lucent, USA); Chandru Raman (Mobile Networks, Nokia, USA); Chun-Nam Yu (Bell Labs, Nokia, USA); Varun Gupta and Craig Gutterman (Columbia University, USA); Tomas Young and Hugo Infante (Mobile Networks, Nokia, USA); Yousef Abdelmalek (Verizon Wireless, USA); Gil Zussman (Columbia University, USA)

Networking Economics I

Cooperative and Competitive Operator Pricing for Mobile Crowdsourced Internet Access

Meng Zhang (The Chinese University of Hong Kong, P.R. China); Lin Gao (Harbin Institute of Technology (Shenzhen), P.R. China); Jianwei Huang (The Chinese University of Hong Kong, Hong Kong); Michael Honig (Northwestern University, USA)

Optimising 5G infrastructure markets: The Business of Network Slicing

Dario Bega (IMDEA Networks, Spain); Marco Gramaglia and Albert Banchs (Universidad Carlos III de Madrid, Spain); Vincenzo Sciancalepore (NEC Europe Ltd., Germany); Konstantinos Samdanis (Huawei, Germany); Xavier Costa-Perez (NEC Laboratories Europe, Germany)

Network Slicing Games: Enabling Customization in Multi-Tenant Networks

Pablo Caballero (The University of Texas at Austin, USA); Albert Banchs (Universidad Carlos III de Madrid, Spain); Gustavo de Veciana (The University of Texas at Austin, USA); Xavier Costa-Perez (NEC Laboratories Europe, Germany)

On Optimal Service Differentiation in Congested Network Markets

Mao Zou (University of Science and Technology of China, P.R. China); Richard T. B. Ma (National University of Singapore, Singapore); Xin Wang and Yinlong Xu (University of Science and Technology of China, P.R. China)

Medium Access Control

Multi-User Downlink with Single-User Uplink can Starve TCP

Peshal Nayak (Rice University, India); Michele Garetto (Università di Torino, Italy); Edward W. Knightly (Rice University, USA)

Impacts of Channel Selection on Industrial Wireless Sensor-Actuator Networks

Dolvara Gunatilaka (Washington University in St. Louis, USA); Mo Sha (State University of New York at Binghamton, USA); Chenyang Lu (Washington University in St. Louis, USA)

Random Access with Repeated Contentions for Emerging Wireless Technologies

Andrea Baiocchi (University of Roma Sapienza, Italy); Ilenia Tinnirello (University of Palermo, Italy); Domenico Garlisi (Universita' di Palermo & CNIT Italian National Consortium for Telecommunications, Italy); Alice Lo Valvo (University of Palermo, Italy)

Switch: Enabling Transmitter and Receiver Participation in Seamless Lightweight Control

Chao-Fang Shih and Raghupathy Sivakumar (Georgia Institute of Technology, USA)

Cognitive Radio Network

Pilot-Based Full-Duplex Spectrum-Sensing and Multichannel-MAC Over Non-Time-Slotted Cognitive Radio Networks

Wenchi Cheng (Xidian University, P.R. China); Xi Zhang (Texas A&M University, ECE Department, USA); Hailin Zhang (Xidian University, P.R. China)

A 2D Heterogeneous Rendezvous Protocol for Multi-wideband Cognitive Radio Networks

Xingya Liu (Lamar University, USA); Linda Jiang Xie (University of North Carolina at Charlotte, USA)

A Novel Coupled Queueing Model to Control Traffic via QoS-Aware Collision Pricing in Cognitive Radio Networks

Changhee Joo (UNIST, Korea); Ness B. Shroff (The Ohio State University, USA)

Modeling and Performance Analysis of Wi-Fi Networks Coexisting with LTE-U

Amr Abdelfattah (Sorbonne Universites, France); Naceur Malouch (UPMC Sorbonne Universités - LIP6/CNRS, France)

Multimedia Networking

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A Control Theoretic Approach to ABR Video Streaming: A Fresh Look at PID-based Rate Adaptation

Yanyuan Qin and Ruofan Jin (University of Connecticut, USA); Shuai Hao (AT&T Labs - Research, USA); Krishna R Pattipati (University of Connecticut, USA); Feng Qian (Indiana University, USA); Subhabrata Sen (AT&T Labs - Research, USA); Bing Wang and Chaoqun Yue (University of Connecticut, USA)

Modeling and Analyzing the Influence of Chunk Size Variation on Bitrate Adaptation in DASH

Tong Zhang, Fengyuan Ren, Wenxue Cheng, Xiaohui Luo, Ran Shu and Xiaolan Liu (Tsinghua University, P.R. China)

Beyond the Touch: Interaction-Aware Mobile Live Game Streaming with Gazing Pattern

Prediction

Cong Zhang, Qiyun He and Jiangchuan Liu (Simon Fraser University, Canada); Zhi Wang (Tsinghua University, P.R. China)

MASH: A Rate Adaptation Algorithm for Multiview Video Streaming over HTTP

Khaled Diab and Mohamed Hefeeda (Simon Fraser University, Canada)

Energy Efficiency and Smart Grid

Electric Grid Power Flow Model Camouflage Against Topology Leaking Attacks

Ian Markwood and Yao Liu (University of South Florida, USA); Kevin Kwiat (Air Force Research Laboratory, USA); Charles A Kamhoua (US Army Research Laboratory & Network Science Division, USA)

How They Interact? Understanding Cyber and Physical Interactions against Fault Propagation in Smart Grid

Zhuo Lu (University of South Florida, USA); Mingkui Wei (Sam Houston State University, USA); Xiang Lu (Institute of Information Engineering, CAS, P.R. China)

Cost of Differential Privacy in Demand Reporting for Smart Grid Economic Dispatch

Xin Lou (Advanced Digital Sciences Centre, Singapore); Rui Tan (Nanyang Technological University, Singapore); David Yau (Advanced Digital Sciences Center, Singapore); Peng Cheng (Zhejiang University & Singapore University of Technology and Design, P.R. China)

Energy-Delay Tradeoff for Request Bundling on Smartphones

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

Panel A

Security I

Botnet Protocol Inference in the Presence of Encrypted Traffic

Lorenzo De Carli (Colorado State University, USA); Ruben Torres (Symantec, USA); Gaspar Modelo-Howard and Alok Tongaonkar (Symantec); Somesh Jha (University of Wisconsin-Madison)

CCSP: a Compressed Certificate Status Protocol

Antonios A. Chariton (University of Crete, Greece); Eirini Degkleri and Panagiotis Ilia (FORTH - ICS, Greece); Panagiotis Papadopoulos (FORTH - ICS & University of Crete, Greece); Evangelos Markatos (ICS-FORTH, Greece)

SybilSCAR: Sybil Detection in Online Social Networks via Local Rule based Propagation

Binghui Wang, Le Zhang and Neil Gong (Iowa State University, USA)

Password Correlation: Quantification, Evaluation and Application

Shouling Ji (Zhejiang University, P.R. China & Georgia Institute of Technology, USA); Shukun Yang (ECE, USA); Anupam Das (Carnegie Mellon University, USA); Xin Hu (IBM Research, USA); Raheem Beyah (Georgia Institute of Technology, USA)

Theory of Social Networks II

Scalable Bicriteria Algorithms for the Threshold Activation Problem in Online Social Networks

Alan Kuhnle, Tianyi Pan, Md Abdul Alim and My T. Thai (University of Florida, USA)

Why approximate when you can get the exact? Optimal Targeted Viral Marketing at Scale

Xiang Li and Johnathan Smith (University of Florida, USA); Thang N. Dinh (Virginia Commonwealth University, USA); My T. Thai (University of Florida, USA)

Viral Marketing with Positive Influence

Zhao Zhang (Zhejiang Normal University, P.R. China); Yishuo Shi (Xinjiang University, P.R. China); James Willson (The University of Texas at Dallas, USA); Ding-Zhu Du (University of Texas, Dallas, USA); Guangmo Tong (University of Texas at Dallas, USA)

On the Rao-Blackwellization and Its Application for Graph Sampling via Neighborhood Exploration

Chul-Ho Lee (Florida Institute of Technology, USA); Xin Xu and Do Young Eun (North Carolina State University, USA)

Sensor Networks II

Energy-Efficient Joint Communication-Motion Planning for Relay-Assisted Wireless Robot Surveillance

Yunlong Wu and Bo Zhang (National University of Defense Technology, P.R. China); Shaoshi Yang (University of Southampton, United Kingdom (Great Britain)); Xiaodong Yi and Xuejun Yang (National University of Defense Technology, P.R. China)

Constructing Connected Dominating Sets in Battery-Free Networks

Tuo Shi, Siyao Cheng and Jianzhong Li (Harbin Institute of Technology, P.R. China); Zhipeng Cai (Georgia State University, USA)

Universal Path Tracing for Large-Scale Sensor Networks

Yi Gao, Wei Dong, Xiaoyu Zhang and Wenbin Wu (Zhejiang University, P.R. China)

CFOSynt: Carrier Frequency Offset Assisted Clock Syntonization for Wireless Sensor Networks

Fujuan Guo (University of Nebraska- Lincoln, USA); Baofeng Zhou and Mehmet Can Vuran (University of Nebraska-Lincoln, USA)

Wireless Networks I

Efficient Remote Radio Head Switching Scheme in Cloud Radio Access Network: A Load Balancing Perspective

Xiaojian Lin and Shaowei Wang (Nanjing University, P.R. China)

Group Discovery Time in Device-to-Device (D2D) Proximity Services (ProSe) Networks

David Griffith (NIST, USA); Aziza Ben Mosbah (NIST & Télécom SudParis, USA); Richard Rouil (National Institute of Standards and Technology, USA)

Crowdsourcing Spectrum Data Decoding

Roberto Calvo-Palomino (IMDEA Networks Institute & Universidad Carlos III de Madrid, Spain); Domenico Giustiniano (IMDEA Networks Institute, Spain); Vincent Lenders (Armasuisse, Switzerland); Aymen Fakhreddine (IMDEA Networks Institute & Universidad Carlos III de Madrid, Spain)

Datacenter Networks II

Joint Bidding and Geographical Load Balancing for Datacenters: Is Uncertainty a Blessing or a Curse?

Ying Zhang (The Chinese University of Hongkong, Hong Kong); Lei Deng (The Chinese University of Hong Kong, Hong Kong); Minghua Chen (The Chinese University of Hong Kong, P.R. China); Peijian Wang (Xi'an Jiaotong University, P.R. China)

Flicr: Flow-Level Congestion-Aware Routing for Direct-Connect Data Centers

Milad Sharif (Barefoot Networks, USA); Abdul Kabbani (Google Inc, USA)

Optimal Multicast in Virtualized Datacenter Networks with Software Switches

Rui Zhu and Di Niu (University of Alberta, Canada); Baochun Li (University of Toronto, Canada);

Zongpeng Li (University of Calgary, Canada)

Rate-Aware Flow Scheduling for Commodity Data Center Networks

Ziyang Li (National University of Defense Technology, P.R. China); Wei Bai (Hong Kong University of Science and Technology, Hong Kong); Kai Chen (Hong Kong University of Science and Technology, P.R. China); Dongsu Han (KAIST, Korea); Yiming Zhang (NUDT & NiceX Lab, P.R. China); Dongsheng Li (National University of Defense Technology, P.R. China); Hongfang Yu (University of Electronic Science and Technology of China, P.R. China)

Resource Allocation in Clouds

Interconnecting Heterogeneous Devices in the Personal Mobile Cloud

Yong Li (The University of Tennessee, Knoxville, USA); Wei Gao (University of Pittsburgh, USA)

Considering Resource Demand Misalignments To Reduce Resource Over-Provisioning in Cloud Datacenters

Liuhsia Chen (Clemson University, USA); Haiying Shen (University of Virginia, USA)

Efficient Minimization of Sum and Differential Costs on Machines with Job Placement Constraints

Jaya Prakash Champati and Ben Liang (University of Toronto, Canada)

Transparent Cross-technology Communication over Data Traffic

Wenchao Jiang and Zhimeng Yin (University of Minnesota, USA); Song Min Kim (George Mason University, USA); Tian He (University of Minnesota, USA)

Big Data and Learning

Optimize Web Browsing on Heterogeneous Mobile Platforms: A Machine Learning Based Approach

Jie Ren, Ling Gao and Hai Wang (Northwest University, P.R. China); Zheng Wang (Lancaster University, United Kingdom (Great Britain))

Better with Fewer Bits: Improving the Performance of Cardinality Estimation of Large Data Streams

Qingjun Xiao (SouthEast University of China, P.R. China); You Zhou and Shigang Chen (University of Florida, USA)

Joint Spatial and Temporal Classification of Mobile Traffic Demands

Angelo Forno (IFSTTAR, ENTPE, Université de Lyon & CITI-INRIA, France); Marco Fiore (National Research Council of Italy, Italy); Razvan Stanica (INSAVALOR (CITI - INSA DE LYON), France)

Spatiotemporal Modeling and Prediction in Cellular Networks: A Big Data Enabled Deep Learning Approach

Jing Wang, Jian Tang, Zhiyuan Xu and Yanzhi Wang (Syracuse University, USA); Guoliang Xue (Arizona State University, USA); Xing Zhang (Beijing University of Posts and Telecommunications, P.R. China); Dejun Yang (Colorado School of Mines, USA)

Network Theory II

Fundamental Limits of Failure Identifiability by Boolean Network Tomography

Novella Bartolini (Sapienza University of Rome, Italy); Ting He and Hana Khamfroush (Penn State University, USA)

Network Simplification Preserving Bandwidth and Routing Capabilities

Sergey I Nikolenko (Steklov Mathematical Institute at St Petersburg, Russia); Kirill Kogan and Antonio Fernández Anta (IMDEA Networks Institute, Spain)

Economies of Scale in Parallel-Server Systems

Josu Doncel (INRIA, France); Samuli Aalto (Aalto University, Finland); Urtzi Ayesta (CNRS-IRIT and Ikerbasque-University of the Basque Country, Spain)

Complexity vs. Optimality: Unraveling Source-Destination Connection in Uncertain Graphs

Xinzhe Fu, Zhiying Xu, Qianyang Peng and Luoyi Fu (Shanghai Jiao Tong University, P.R. China); Xinbing Wang (Shanghai Jiaotong University, P.R. China)

Coverage and Positioning

SatProbe: Low-Energy and Fast Indoor/Outdoor Detection based on Raw GPS Processing

Kongyang Chen and Guang Tan (SIAT, Chinese Academy of Sciences, P.R. China)

WOLoc: WiFi-only Outdoor Localization using Crowdsensed Hotspot Labels

Jin Wang (Nanyang Technological University & SAP Machine Learning Incubation Team, Singapore); Nicholas Tan, Jun Luo and Sinno Pan (Nanyang Technological University, Singapore)

Can You Find Me Now? Evaluation of Network-based Localization in a 4G LTE Network

Robert Margolies (Google, USA); Richard Becker (AT&T Labs, USA); Simon Byers and Supratim Deb (AT&T Labs - Research, USA); Rittwik Jana, Simon Urbanek and Chris Volinsky (AT&T Labs Research, USA)

ZipWeave: Towards Efficient and Reliable Measurement based Mobile Coverage Maps

Mah-Rukh Fida (The University of Edinburgh, United Kingdom (Great Britain)); Andra Lutu (Simula Research Laboratory, Norway); Mahesh K Marina (The University of Edinburgh, United Kingdom (Great Britain)); Ozgu Alay (Simula Research Laboratory, Norway)

Mobile Applications II

SilentTalk: Lip Reading through Ultrasound Sensing on Mobile Phones

Jiayao Tan (Nanjing University, P.R. China); Cam-Tu Nguyen (Nanjing University, Vietnam); Xiaoliang Wang (Nanjing University, P.R. China)

LiCompass: Extracting Orientation from Polarized Light

Yu-Lin Wei, Hsin-I Wu, Han-Chung Wang and Hsin-Mu Tsai (National Taiwan University, Taiwan); Kate Ching-Ju Lin (National Chiao Tung University, Taiwan); Rayana Boubezari, Hoa Le Minh and Zabih Ghassemlooy (Northumbria University, United Kingdom (Great Britain))

EchoTrack: Acoustic Device-free Hand Tracking on Smart Phones

Huijie Chen and Fan Li (Beijing Institute of Technology, P.R. China); Yu Wang (University of North Carolina at Charlotte, USA)

TUM: Towards Ubiquitous Multi-Device Localization for Cross-Device Interaction

Han Xu (The Hong Kong University of Science and Technology, Hong Kong); Zheng Yang (Tsinghua University, P.R. China); Zimu Zhou (ETH Zurich, Switzerland); Ke Yi (HKUST, Hong Kong); Chunyi Peng (Purdue University, USA)

Online Social Networks I

Active Opinion Formation in Online Social Networks

Wenjun Jiang (Hunan University, P.R. China); Jie Wu (Temple University, USA)

Learning Distributed Representations for Large-scale Dynamic Social Networks

Zhiyuli Aakas, Xun Liang and Zhiming Xu (Renmin University of China, P.R. China)

Behavior in Social Learning Networks: Early Detection for Online Short-Courses

Weiyu Chen and Christopher G. Brinton (Zoomi Inc., USA); Da Cao (Zoomi, Inc, USA); Mung Chiang (Princeton University, USA)

OpinionWalk: An Efficient Solution to Massive Trust Assessment in Online Social Networks

Guangchi Liu and Qi Chen (Montana State University, USA); Qing Yang (University of North Texas, USA); Binhai Zhu (Montana State University, USA); Honggang Wang (University of Massachusetts, Dartmouth & College of Engineering, USA); Wei Wang (San Diego State University, USA)

Cross-Technology Communications

C-Morse: Cross-technology Communication with Transparent Morse Coding

Zhimeng Yin and Wenchao Jiang (University of Minnesota, USA); Song Min Kim (George Mason University, USA); Tian He (University of Minnesota, USA)

WiZig: Cross-Technology Energy Communication over a Noisy Channel

Xiuzhen Guo, Xiaolong Zheng and Yuan He (Tsinghua University, P.R. China)

EMF: Embedding Multiple Flows of Information in Existing Traffic for Concurrent Communication among Heterogeneous IoT Devices

Zicheng Chi (University of Maryland, Baltimore County); Zhichuan Huang (University of Maryland, Baltimore County, USA); Yao Yao (University of Maryland Baltimore County, USA); Tiantian Xie, Hongyu Sun and Ting Zhu (University of Maryland, Baltimore County, USA)

Contact Avoidance Routing in Delay Tolerant Networks

Tomoya Osuki, Kazuya Sakai and Satoshi Fukumoto (Tokyo Metropolitan University, Japan)

Crowdsensing II

CENTURION: Incentivizing Multi-Requester Mobile Crowd Sensing

Haiming Jin (University of Illinois at Urbana-Champaign, USA); Lu Su (State University of New York at Buffalo, USA); Klara Nahrstedt (University of Illinois, USA)

Where Are You From: Home Location Profiling of Crowd Sensors from Noisy and Sparse Crowdsourcing Data

Chao Huang, Dong Wang and Shenglong Zhu (University of Notre Dame, USA)

SpecSense: Crowdsensing for Efficient Querying of Spectrum Occupancy

Ayon Chakraborty, Md Shaifur Rahman, Himanshu Gupta and Samir R. Das (Stony Brook University, USA)

A Lightweight Privacy-Preserving Truth Discovery Framework for Mobile Crowd Sensing Systems

Chenglin Miao and Lu Su (State University of New York at Buffalo, USA); Wenjun Jiang (University at Buffalo, SUNY, USA); Yaliang Li (Baidu Research Big Data Lab, USA); Miaomiao Tian (Anhui University, P.R. China)

Resource Management in Cloud Computing II

Online Auction for IaaS Clouds: towards Elastic User Demands and Weighted Heterogeneous VMs

Juan Li, Yanmin Zhu, Jiadi Yu, Chengnian Long, Guangtao Xue and Shiyou Qian (Shanghai Jiao Tong University, P.R. China)

Online Job Dispatching and Scheduling in Edge-Clouds

Haisheng Tan, Zhenhua Han and Xiang-Yang Li (University of Science and Technology of China, P.R. China); Francis C.M. Lau (The University of Hong Kong, Hong Kong)

Robust Web Service Recommendation via Quantile Matrix Factorization

Rui Zhu and Di Niu (University of Alberta, Canada); Zongpeng Li (University of Calgary, Canada)

Proactive VNF Provisioning with Multi-timescale Cloud Resources: Fusing Online Learning and Online Optimization

Xiaoxi Zhang and Chuan Wu (The University of Hong Kong, Hong Kong); Zongpeng Li (University of Calgary, Canada); Francis C.M. Lau (The University of Hong Kong, Hong Kong)

Security in Wireless Networks

Virtual Wiretap Channel for Secure Message Transmission and Secret Key Agreement

Setareh Sharifian (University of Calgary, Canada); Fuchun Lin (Nanyang Technological University, Singapore); Rei Safavi-Naini (University of Calgary, Canada)

Interactive Message Transmission over Adversarial Wiretap Channel II

Pengwei Wang (Freelancer, Canada); Reihaneh Safavi-Naini (University of Calgary, Canada)

Analysis of Secrecy Performance in Fading Multiple Access Wiretap Channel with SIC Receiver

Kaiwei Jiang (Beijing Jiaotong University & Taizhou Vocational & Technical College, P.R. China); Tao Jing, Zhen Li, Yan Huo and Fan Zhang (Beijing Jiaotong University, P.R. China)

Understanding Source Location Privacy Protocols in Sensor Networks via Perturbation of Time Series

Matthew Bradbury and Arshad Jhumka (University of Warwick, United Kingdom (Great Britain))

Networking Economics II

Economic Viability of a Virtual ISP

Liang Zheng (Princeton University, USA); Carlee Joe-Wong (Carnegie Mellon University, USA); Jiasi Chen (University of California, Riverside, USA); Christopher G. Brinton (Zoomi Inc., USA); Chee Wei Tan (City University of Hong Kong, Hong Kong); Mung Chiang (Princeton University, USA)

Emerging Internet Content and Service Providers' Relationships: Models and Analyses of Engineering, Business and Policy Impact

Ao Hong and Debasis Mitra (Columbia University, USA); Qiong Wang (University of Illinois, USA)

The Efficiency of Open Access in Platforms for Networked Cournot Markets

John Z. F. Pang, Hu Fu, Won I Lee and Adam C Wierman (California Institute of Technology, USA)

An Experimental Reality Check On The Scaling Laws of Swarming Systems

Diego Ximenes Mendes (UFRJ, Brazil); Edmundo de Souza e Silva, Daniel Menasché and Rosa M M Leão (Federal University of Rio de Janeiro, Brazil); Don Towsley (University of Massachusetts at Amherst, USA)

Wireless Local Area Networks

acPad: Enhancing Channel Utilization for 802.11ac Using Packet Padding

Chi-Han Lin and Yi-Ting Chen (National Tsing Hua University, Taiwan); Kate Ching-Ju Lin (National Chiao Tung University, Taiwan); Wen-Tsuen Chen (Academia Sinica, Taiwan)

Quiet ACK: ACK Transmit Power Control in IEEE 802.11 WLANs

Seongwon Kim (Seoul National University, Korea); Jaehong Yi (Seoul National University & MWNL, Korea); Youngwook Son, Seungmin Yoo and Sunghyun Choi (Seoul National University, Korea)

ACT-AP: ACTivator Access Point for Multicast over WLAN

Gyujin Lee, Yeonchul Shin, Jonghoe Koo, Junyoung Choi and Sunghyun Choi (Seoul National University, Korea)

On Packet Loss Rates in Modern 802.11 Networks

Ramanujan K Sheshadri and Dimitrios Koutsonikolas (University at Buffalo, SUNY, USA)

Reliable and Low-Power Communications

A Parity Check Analog Decoder for Molecular Communication based on Biological Circuits

Alessio Marcone (Politecnico di Milano, Italy); Massimiliano Pierobon (University of Nebraska-Lincoln, USA); Maurizio Magarini (Politecnico di Milano, Italy)

Finding MARLIN: Exploiting Multi-Modal Communications for Reliable and Low-latency Underwater Networking

Stefano Basagni (Northeastern University, USA); Valerio Di Valerio, Petrika Gjanci and Chiara Petrioli (University of Rome "La Sapienza", Italy)

An Implantable Low-Power Ultrasonic Platform for the Internet of Medical Things

G. Enrico Santagati and Tommaso Melodia (Northeastern University, USA)

mEEC: A Novel Error Estimation Code with Multi-Dimensional Feature

Zhenghao Zhang and Piyush Kumar (Florida State University, USA)

Software Defined Networks II

FlowConvertor: Enabling Portability of SDN Applications

Heng Pan, Gaogang Xie and Zhenyu Li (Institute of Computing Technology, Chinese Academy of Sciences, P.R. China); Peng He (Institute of Computing Technology Chinese Academy of Sciences, P.R. China); Laurent Mathy (University of Liège, Belgium)

One Step at a Time: Optimizing SDN Upgrades in ISP Networks

Konstantinos Poularakis (Yale University, USA); George Iosifidis (Trinity College Dublin, Ireland); Georgios Smaragdakis (MIT and TU Berlin); Leandros Tassiulas (Yale University, USA)

Bring Your Own Controller: Enabling Tenant-defined SDN Apps in IaaS Clouds

Haopei Wang (Texas A&M University, USA); Abhinav Srivastava (AT&T Labs--Research, USA); Lei Xu, Sungmin Hong and Guofei Gu (Texas A&M University, USA)

Network Function Virtualization Enablement Within SDN Data Plane

Hesham Mekky (University of Minnesota, USA); Fang Hao (Bell Labs, Nokia, USA); Sarit Mukherjee (Bell Labs USA, USA); Zhi-Li Zhang (University of Minnesota, USA); T. V Lakshman (Bell Labs, Nokia, USA)

Peer-to-Peer and Overlay Networks

Bandwidth Scheduling in Overlay Networks with Linear Capacity Constraints

Chase Q. Wu (New Jersey Institute of Technology & Oak Ridge National Laboratory, USA)

SVC-TChain: Incentivizing Good Behavior in Layered P2P Video Streaming

Parisa Rahimzadeh (University of Colorado at Boulder, USA); Carlee Joe-Wong (Carnegie Mellon University, USA); Kyuyong Shin (Korea Military Academy, Korea); Youngbin Im (University of Colorado at Boulder, USA); Jongdeog Lee (University of Illinois at Urbana-Champaign, USA); Sangtae Ha (University of Colorado Boulder, USA)

A New Stable Peer-to-Peer Protocol with Non-persistent Peers

Omer Bilgen and Aaron Wagner (Cornell University, USA)

MON: Mission-optimized Overlay Networks

Bruce Spang and Anirudh Sabnis (University of Massachusetts Amherst, USA); Ramesh K Sitaraman (University of Massachusetts, Amherst & Akamai Technologies, USA); Don Towsley (University of Massachusetts at Amherst, USA); Brian Decleene (BAE Systems & Technology Solutions, USA)

Internet of Things

A Resource-Aware and Time-Critical IoT Framework

Laszlo Toka, András Lajtha and Éva Hosszu (Budapest University of Technology and Economics, Hungary); Bence Formanek and Dániel Géhberger (Ericsson Research, Hungary); János Tapolcai (Budapest University of Technology and Economics, Hungary)

ADMIn: Adaptive Monitoring Dissemination for the Internet of Things

Demetris Trihinas, George Pallis and Marios Dikaiakos (University of Cyprus, Cyprus)

Proximity Based IoT Device Authentication

Jiansong Zhang (Microsoft Research Asia, P.R. China); Zeyu Wang (Hong Kong University of Science and Technology, Hong Kong); Zhice Yang (ShanghaiTech University, P.R. China); Qian Zhang (Hong Kong University of Science and Technology, Hong Kong)

PUFSec: Device Fingerprint-based Security Architecture for Internet of Things

So-Yeon Park (Ewha Womans University, Korea); Sunil Lim (Sungkyunkwan University, Korea); Dahee Jeong (Ewha Womans University, Korea); Jungjin Lee and Joon-Sung Yang (Sungkyunkwan University, Korea); HyungJune Lee (Ewha Womans University, Korea)

Mobile Offloading

Keep Your Nice Friends Close, but Your Rich Friends Closer - Computation Offloading Using NFC

Kathleen Sucipto (The Hong Kong University of Science and Technology, Hong Kong); Dimitris Chatzopoulos (Hong Kong University of Science and Technology, Hong Kong); Sokol Kosta (Aalborg University Copenhagen & Sapienza University of Rome, Denmark); Pan Hui (Hong Kong University of Science and Technology & Telekom Innovation Laboratories, Hong Kong)

A Game Theoretic Analysis of Selfish Mobile Computation Offloading

Slađana Jošilo and György Dán (KTH Royal Institute of Technology, Sweden)

Single Restart with Time Stamps for Computational Offloading in a Semi-Online Setting

Jaya Prakash Champati and Ben Liang (University of Toronto, Canada)

Joint Offloading and Resource Allocation for Computation and Communication in Mobile Cloud with Computing Access Point

Meng-Hsi Chen and Ben Liang (University of Toronto, Canada); Min Dong (University of Ontario Institute of Technology, Canada)

Fault Tolerance and Survivability

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CubeX: Leveraging Glocality of Cube-Based Networks for RAM-Based Key-Value Store

Yiming Zhang (NUDT & NiceX Lab, P.R. China); Dongsheng Li and Tian Tian (NUDT, P.R. China); Ping Zhong (CSU, P.R. China)

Towards Reliable and Lightweight Source Switching for Datacenter Networks

Feng Wang (Liberty University, USA); Lixin Gao and Xiaozhe Shao (University of Massachusetts at Amherst, USA); Hiroaki Harai and Kenji Fujikawa (National Institute of Information and Communications Technology, Japan)

Availability-aware Mapping of Service Function Chains

Jingyuan Fan, Chaowen Guan, Yangming Zhao and Chunming Qiao (State University of New York at Buffalo, USA)

Disaster Avoidance Control against Heavy Rainfall

Hiroshi Saito (NTT & NTT Network Technology Laboratories, Japan); Hirotada Honda and Ryoichi

Scheduling II

Non-Concave Network Utility Maximization: A Distributed Optimization Approach

Mahmoud Ashour (Penn State University, USA); Jingyao Wang (Peking University, P.R. China); Constantino Lagoa (Pennsylvania State University, USA); Necdet Aybat (Penn State University, USA); Hao Che (University of Texas at Arlington, USA)

Fractional Wireless Link Scheduling and Polynomial Approximate Capacity Regions of Wireless Networks

Peng-Jun Wan and Fahad Al-Dhelaan (Illinois Institute of Technology, USA); Huaqiang Yuan (Dongguan University of Technology, P.R. China); Sai Ji (Nanjing University of Information Science & Technology, P.R. China)

A New Backpressure Algorithm for Joint Rate Control and Routing with Vanishing Utility Optimality Gaps and Finite Queue Lengths

Hao Yu and Michael J. Neely (University of Southern California, USA)

Stable User-defined Priorities

Shay Vargaftik (Technion, Israel); Isaac Keslassy (Technion, VMware); Ariel Orda (Technion, Israel)

RFID Systems II

Tag-Compass: Determining the Spatial Direction of an Object with Small Dimensions

Jia Liu (Nanjing University, P.R. China); Min Chen (Google Inc., USA); Shigang Chen (University of Florida, USA); Qingfeng Pan and Li-jun Chen (Nanjing University, P.R. China)

Tag Size Profiling in Multiple Reader RFID Systems

Shigeng Zhang (Central South University, P.R. China); Xuan Liu (Hunan University, P.R. China); Jianxin Wang (Central South University, P.R. China); Jiannong Cao (Hong Kong Polytechnic Univ, Hong Kong)

Fusing RFID and Computer Vision for Fine-Grained Object Tracking

Chunhui Duan and Xing Rao (Tsinghua University, P.R. China); Lei Yang (The Hong Kong Polytechnic University, Hong Kong); Yunhao Liu (Tsinghua University & The Hong Kong University of Science and Technology, P.R. China)

Riding the airways: Ultra-wideband ambient backscatter via commercial broadcast systems

Chouchang Yang (Disney Research, USA); Jeremy Gummesson (University of Massachusetts Amherst, USA); Alanson Sample (Disney Research Pittsburgh, USA)

Wireless Network Measurement

ButterFly: Mobile Collaborative Rendering over GPU Workload Migration

Chao Wu (Tsinghua University, P.R. China); Yaoxue Zhang (Tsinghua University); Lan Zhang (University of Science and Technology of China, P.R. China); Bowen Yang (Tsinghua University, P.R. China); Xu Chen (Sun Yat-sen University); Wenwu Zhu (Tsinghua University, P.R. China); Lili Qiu (The University of Texas at Austin, USA)

Why It Takes So Long to Connect to a WiFi Access Point

Changhua Pei, Zhi Wang, Youjian Zhao and Zihan Wang (Tsinghua University, P.R. China); Yuan Meng (Tsinghua University); Dan Pei (Tsinghua University, P.R. China); Yuanquan Peng, Wenliang Tang and Xiaodong Qu (Tencent, P.R. China)

Monitoring Quality-of-Experience for Operational Cellular Networks Using Machine-to-Machine Traffic

Faraz Ahmed (Michigan State University, USA); Zihui Ge (AT&T Labs - Research, USA); Alex X. Liu

(Michigan State University, USA); Jia Wang and He Yan (AT&T Labs - Research, USA)

Is What You Measure What You Expect? Factors Affecting Smartphone-Based Mobile Network Measurement

Lei Xue (The Hong Kong Polytechnic University, Hong Kong); Xiaobo Ma (Xi'an Jiaotong University & The Hong Kong Polytechnic University, P.R. China); Xiapu Luo and Le Yu (The Hong Kong Polytechnic University, Hong Kong); Shuai Wang (The Hong Kong Polytechnic University, P.R. China); Ting Chen (University of Electronic Science and Technology of China (UESTC), P.R. China)

Online Social Networks II

Exploiting Social Influence for Context-Aware Event Recommendation in Event-based Social Networks

Zhibo Wang, Yongquan Zhang, Yijie Li and Qian Wang (Wuhan University, P.R. China); Feng Xia (Dalian University of Technology, P.R. China)

STRM: A Sister Tweet Reinforcement Process for Modeling Hashtag Popularity

Bidisha Samanta and Abir De (IIT Kharagpur, India); Niloy Ganguly (Indian Institute of Technology Kharagpur, India)

Challenging the Limits: Sampling Online Social Networks with Cost Constraints

Xin Xu (North Carolina State University, USA); Chul-Ho Lee (Florida Institute of Technology, USA); Do Young Eun (North Carolina State University, USA)

TagScreen: Synchronizing Social Televisions Through Hidden Sound Markers

Qiongzheng Lin (Tsinghua University, P.R. China); Lei Yang (The Hong Kong Polytechnic University, Hong Kong); Yunhao Liu (Tsinghua University & The Hong Kong University of Science and Technology, P.R. China)

High Performance Switching

Coflow Scheduling in Input-Queued Switches: Optimal Delay Scaling and Algorithms

Qingkai Liang and Eytan Modiano (MIT, USA)

Coflex: Navigating the Fairness-Efficiency Tradeoff for Coflow Scheduling

Wei Wang, Shiyao Ma and Bo Li (Hong Kong University of Science and Technology, Hong Kong); Baochun Li (University of Toronto, Canada)

Heavy Traffic Queue Length Behavior in Switches with Reconfiguration Delay

Chang-Heng Wang (University of California, San Diego, USA); Siva Theja Maguluri (Georgia Tech, USA); Tara Javidi (UCSD, USA)

A Simple Re-Sequencing Load-Balanced Switch Based on Analytical Packet Reordering Bounds

Sen Yang (Georgia Institute of Technology, USA); Bill Lin (University of California, San Diego, USA); Paul Tune (University of Adelaide, Australia); Jun Xu (Georgia Tech, USA)

Panel B

Security II

Sybil-Proof Incentive Mechanisms for Crowdsensing

Jian Lin, Ming Li and Dejun Yang (Colorado School of Mines, USA); Guoliang Xue (Arizona State University, USA); Jian Tang (Syracuse University, USA)

Mechanism Design Games for Thwarting Malicious Behavior in Crowdsourcing

Chunchi Liu and Shengling Wang (Beijing Normal University, P.R. China); Liran Ma (Texas Christian University, USA); Xiuzhen Cheng (George Washington Univ, USA); Rongfang Bie (Beijing Normal University, P.R. China); Jiguo Yu (Qufu Normal University, P.R. China)

MAGIK: An Efficient Key Extraction Mechanism Based on Dynamic Geomagnetic Field
Fudong Qiu, Zhengxian He, Linghe Kong and Fan Wu (Shanghai Jiao Tong University, P.R. China)

Privacy-Preserving Pattern Matching over Encrypted Genetic Data in Cloud Computing
Bing Wang (Virginia Tech, USA); Wei Song (Wuhan University, P.R. China); Wenjing Lou (Virginia Tech & National Science Foundation, USA); Thomas Hou (Virginia Tech, USA)

Congestion Control

TCP Rapid: From Theory to Practice

Qianwen Yin (UNC Chapel Hill, USA); Jasleen Kaur and F. Donelson Smith (University of North Carolina at Chapel Hill, USA)

Convergence to multi-resource fairness under end-to-end window control

Thomas Bonald (Telecom ParisTech, France); James Roberts (IRT SystemX, France); Christian Vitale (IMDEA Networks Institute & Universidad Carlos III Madrid, Spain)

Improving ECN Marking Scheme with Micro-burst Traffic in Data Center Networks

Danfeng Shan and Fengyuan Ren (Tsinghua University, P.R. China)

Multipath TCP for Datacenters: From Energy Efficiency Perspective

Jia Zhao and Jiangchuan Liu (Simon Fraser University, Canada); Haiyang Wang (University of Minnesota at Duluth, USA); Chi Xu (Simon Fraser University, Canada)

Indoor Localization

JADE: Zero-Knowledge Device Localization and Environment Mapping for Millimeter Wave Systems

Joan Palacios, Paolo Casari and Joerg Widmer (IMDEA Networks Institute, Spain)

NaviLight: Indoor Localization and Navigation Under Arbitrary Lights

Zenghua Zhao and Jiankun Wang (Tianjin University, P.R. China); Xingya Zhao (The Ohio State University, USA); Chunyi Peng (Purdue University, USA); Qian Guo (Tianjin University, P.R. China); Bin Wu (Tianjin University, P.R. China)

Taming the Inconsistency of Wi-Fi Fingerprints for Device-Free Passive Indoor Localization

Xi Chen and Chen Ma (McGill University, Canada); Michel Allegue (Aerial, Canada); Xue Liu (McGill University, Canada)

Knitter: Fast, Resilient Single-User Indoor Floor Plan Construction

Ruipeng Gao (Beijing Jiaotong University, P.R. China); Bing Zhou and Fan Ye (Stony Brook University, USA); Yizhou Wang (Peking University, P.R. China)

Wireless Networks II

A Framework for Evaluating Physical-Layer Network Coding Gains in Multi-hop wireless Networks

Raphael Naves (University of Toulouse, France); Hicham Khalife (Thales Communications & Security, France); Gentian Jakllari (University of Toulouse, France); Vania Conan (Thales Communications & Security, France); André-Luc Beylot (University of Toulouse, France)

Beam-forecast: Facilitating Mobile 60 GHz Networks via Model-driven Beam Steering

Anfu Zhou (Beijing University of Posts and Telecommunications, P.R. China); Xinyu Zhang (University of Wisconsin-Madison, USA); Huadong Ma (Beijing University of Posts and Telecommunications, P.R. China)

Edge-Based Beacons Scheduling in Duty-Cycled Multihop Wireless Networks

Quan Chen (Harbin Institute of Technology, P.R. China); Hong Gao (University of Harbin Institute Technology, P.R. China); Yingshu Li (Georgia State University, USA); Siyao Cheng and Jianzhong Li

(Harbin Institute of Technology, P.R. China)

Design and application of a many-to-one communication protocol

Sudipta Saha (Indian Institute of Technology Bhubaneswar, India); Mun Choon Chan (National University of Singapore, Singapore)

Data Centric Systems

Analysis of Tandem PIT and CS with Non-Zero Download Delay

Huichen Dai and Bin Liu (Tsinghua University, P.R. China); Huawei Yuan (Washington University in St. Louis); Patrick Crowley (Washington University in St. Louis, USA); Jianyuan Lu (Tsinghua University, P.R. China)

Cache Policies for Linear Utility Maximization

Giovanni Neglia (INRIA Sophia Antipolis Mediterranee, France); Damiano Carra (University of Verona, Italy); Pietro Michiardi (EURECOM, France)

Scalable Name-based Data Synchronization for Named Data Networking

Minsheng Zhang, Vince Lehman and Lan Wang (University of Memphis, USA)

Rumor Source Detection under Querying with Untruthful Answers

Jaeyoung Choi (KAIST); Sangwoo Moon, Jiin Woo, KyungHwan Son, Jinwoo Shin and Yung Yi (KAIST, Korea)

Cloud Computing III

Stealth Migration: Hiding Virtual Machines on the Network

Stefan Achleitner, Tom La Porta and Patrick McDaniel (Pennsylvania State University, USA); Srikanth V. Krishnamurthy (University of California, Riverside, USA); Alexander Poylisher and Constantin Serban (Applied Communication Sciences, USA)

QoE and Power Efficiency Tradeoff for Fog Computing Networks with Fog Node Cooperation

Yong Xiao and Marwan Krunz (University of Arizona, USA)

Timely Cloud Gaming

Roy Yates (Rutgers University, USA); Mehrnaz Tavan and Yi Hu (Rutgers, the State University of New Jersey, USA); Dipankar Raychaudhuri (Rutgers University, USA)

Towards Truthful Auction Mechanisms for Task Assignment in Mobile Device Clouds

Xiumin Wang (Hefei University of Technology, P.R. China); Xiaoming Chen (Zhejiang University, P.R. China); Weiwei Wu (Southeast University, P.R. China)

Internet Security II

A Secure and Verifiable Outsourcing Scheme for Matrix Inverse Computation

Chunqiang Hu (The Catholic University of America, USA); Abdulrahman Alhothaily and Arwa Alrawais (The George Washington University, USA); Xiuzhen Cheng (George Washington Univ, USA); Carl Sturtivant (University of Minnesota, USA); Hang Liu (The Catholic University of America, USA)

A Signaling Game Model for Moving Target Defense

Xiaotao Feng (University of California, Davis, USA); Zizhan Zheng (Tulane University, USA); Prasant Mohapatra (University of California, Davis, USA); Derya Cansever (Army CERDEC, USA); Ananthram Swami (Army Research Lab., USA)

Checks and Balances: A Tripartite Public Key Infrastructure for Secure Web-based Connections

Jing Chen and Shixiong Yao (Wuhan University, P.R. China); Quan Yuan (University of Texas-Permian Basin, USA); Ruiying Du (Wuhan University, P.R. China); Guoliang Xue (Arizona State University, USA)

Internet-Wide Study of DNS Cache Injections

Amit Klein (Fraunhofer SIT, Israel); Haya Shulman and Michael Waidner (Fraunhofer SIT, Germany)

Scheduling for Data Processing

BlitzG: Exploiting High-Bandwidth Networks for Fast Graph Processing

Yongli Cheng (Huazhong University of Science & Technology, P.R. China); Hong Jiang (University of Texas at Arlington, USA); Fang Wang (Wuhan National Laboratory for Optoelectronics, P.R. China); Yu Hua and Dan Feng (Huazhong University of Science and Technology, P.R. China)

Performance Optimization of Hadoop Workflows in Public Clouds through Adaptive Task Partitioning

Tong Shu (New Jersey Institute of Technology, USA); Chase Q. Wu (New Jersey Institute of Technology & Oak Ridge National Laboratory, USA)

Energy Efficient Real-time Task Scheduling on CPU-GPU Hybrid Clusters

Xinxin Mei and Xiaowen Chu (Hong Kong Baptist University, Hong Kong); Hai Liu (Hang Seng Management College, Hong Kong); Yiu-Wing Leung (Hong Kong Baptist University, Hong Kong); Zongpeng Li (University of Calgary, Canada)

Adaptive Scheduling of Parallel Jobs in Spark Streaming

Dazhao Cheng (University of North Carolina at Charlotte, USA); Yuan Chen (Hewlett Packard Labs, USA); Xiaobo Zhou (University of Colorado, Colorado Springs, USA); Daniel Gmach and Dejan Milojevic (Hewlett Packard Labs)

Wearable Devices and Networking

Detecting On-Body Devices Through Creeping Wave Propagation

Wei Wang (Huazhong University of Science and Technology, P.R. China); Yingjie Chen, Lin Yang and Qian Zhang (Hong Kong University of Science and Technology, Hong Kong); Jin Zhang (South University of Science and Technology of China, P.R. China)

FitCoach: Virtual Fitness Coach Empowered by Wearable Mobile Devices

Xiaonan Guo (Stevens Institute of Technology, USA); Jian Liu and Yingying Chen (Stevens Institute of Technology, USA)

Meta-Activity Recognition: A Wearable Approach for Logic Cognition-based Activity Sensing

Lei Xie, Xu Dong, Wei Wang and Dawei Huang (Nanjing University, P.R. China)

LightTouch: Securely Connecting Wearables to Ambient Displays with User Intent

Xiaohui Liang (University of Massachusetts Boston & University of Massachusetts Boston, USA); Tianlong Yun, Ronald Peterson and David Kotz (Dartmouth College, USA)

Coexistence and Interference Management

When and How Much to Neutralize Interference?

Zhao Li (Xidian University, P.R. China); Kang G. Shin (University of Michigan, USA); Lu Zhen (Xidian University, P.R. China)

Inter-Client Interference Cancellation for Full-Duplex Networks

Kai-Cheng Hsu (National Taiwan University, Taiwan); Kate Ching-Ju Lin (National Chiao Tung University, Taiwan); Hung-Yu Wei (National Taiwan University, Taiwan)

Towards Instantaneous Collision and Interference Detection using In-Band Full Duplex

Tom Vermeulen (KU Leuven, Belgium); Mihir Laghate and Ghaith Hattab (University of California, Los Angeles, USA); Danijela Cabric (University of California Los Angeles, USA); Sofie Pollin (KU Leuven, Belgium)

Coexistence of Dedicated Short Range Communications (DSRC) and Wi-Fi: Implications to Wi-Fi Performance

Gaurang Naik, Jinshan Liu and Jung-Min (Jerry) Park (Virginia Tech, USA)

Internet Monitoring

Randomized Admission Policy for Efficient Top-k and Frequency Estimation

Ran Ben Basat (Technion, Israel); Gil Einziger (Nokia Bell labs, Israel); Roy Friedman and Yaron Kassner (Technion, Israel)

Optimal Elephant Flow Detection

Ran Ben Basat (Technion, Israel); Gil Einziger (Nokia Bell Labs); Roy Friedman and Yaron Kassner (Technion, Israel)

Fast Low-Rank Matrix Approximation with Locality Sensitive Hashing for Quick Anomaly Detection

Gaogang Xie (Institute of Computing Technology, Chinese Academy of Sciences, P.R. China); Kun Xie and Jun Huang (State University of New York at Stony Brook, USA); Xin Wang (Stony Brook University, USA); Yuxiang Chen (State University of New York at Stony Brook, USA); Jigang Wen (Chinese Academy of Science & Institute of Computing Technology, P.R. China)

Accurate Recovery of Internet Traffic Data Under Dynamic Measurements

Kun Xie and Can Peng (State University of New York at Stony Brook, USA); Xin Wang (Stony Brook University, USA); Gaogang Xie (Institute of Computing Technology, Chinese Academy of Sciences, P.R. China); Jigang Wen (Chinese Academy of Science & Institute of Computing Technology, P.R. China)

Security in Mobile Applications

Large-scale Invisible Attack on AFC Systems with NFC-equipped Smartphones

Fan Dang (Tsinghua University, P.R. China); Pengfei Zhou (FFS Technology & Tsinghua University, P.R. China); Zhenhua Li (Tsinghua University, P.R. China); Ennan Zhai (Yale University, USA); Aziz Mohaisen (University of Central Florida, USA); Qingfu Wen (Tsinghua University, P.R. China); Mo Li (Nanyang Technological University, Singapore)

Your Face Your Heart: Secure Mobile Face Authentication with Photoplethysmograms

Yimin Chen, Jingchao Sun, Xiaocong Jin and Tao Li (Arizona State University, USA); Rui Zhang (University of Delaware, USA); Yanchao Zhang (Arizona State University, USA)

LeakSemantic: Identifying Abnormal Sensitive Network Transmissions in Mobile Applications

Hao Fu (University of California, Davis, USA); Zizhan Zheng (Tulane University, USA); Somdutta Bose (University Of California, Davis, USA); Matt Bishop and Prasant Mohapatra (University of California, Davis, USA)

Energy-efficient W-layer for Behavior-based Implicit Authentication on Mobile Devices

Yingyuan Yang and Jinyuan (Stella) Sun (University of Tennessee, USA)

Network Theory III

Online Knapsack Problem and Budgeted Truthful Bipartite Matching

Rahul Vaze (TIFR Mumbai, India)

Robust Routing in Interdependent Networks

Jianan Zhang (Massachusetts Institute of Technology, USA); Eytan Modiano (MIT, USA)

Constructing a Self-stabilizing CDS with Bounded Diameter in Wireless Networks under SINR

Jiguo Yu and Xueli Ning (Qufu Normal University, P.R. China); Yunchuan Sun and Shengling Wang (Beijing Normal University, P.R. China); Yawei Wang (The George Washington University, USA)

Conflict Graph Embedding for Wireless Network Optimization

Wenzhong Li and Jinggong Zhang (Nanjing University, P.R. China); Yanchao Zhao (Nanjing University of Aeronautics and Astronautics, P.R. China)

5G Networks

Dynamic Base Station Formation for Solving NLOS Problem in 5G Millimeter-Wave Communication

Shih-Chun Lin (North Carolina State University, USA); Ian F. Akyildiz (Georgia Institute of Technology, USA)

Dynamic Path Selection in 5G Multi-RAT Wireless Networks

Sem Borst (Nokia Bell Labs & Eindhoven University of Technology, USA); Aliye Ozge Kaya (Nokia Bell Labs, USA); Doru Calin (Nokia, USA); Harish Viswanathan (Nokia Bell Labs, USA)

Service Chain Embedding with Maximum Flow in Software Defined Network and Application to the Next-Generation Cellular Network Architecture

Jian-Jhiih Kuo (Academia Sinica, Taiwan); Shan-Hsiang Shen (National Taiwan University of Science and Technology, Taiwan); Hong-Yu Kang (National Tsing Hua University, Taiwan); De-Nian Yang (Academia Sinica, Taiwan); Ming-Jer Tsai (National Tsing Hua University, Taiwan); Wen-Tsuen Chen (Academia Sinica, Taiwan)

Mobile Traffic Forecasting for Maximizing 5G Network Slicing Resource Utilization

Vincenzo Sciancalepore (NEC Europe Ltd., Germany); Konstantinos Samdanis (Huawei, Germany); Xavier Costa-Perez (NEC Laboratories Europe, Germany); Dario Bega (IMDEA Networks, Spain); Marco Gramaglia and Albert Banchs (Universidad Carlos III de Madrid, Spain)

Mobile Applications III

Understanding and Managing Notifications

Swadhin Pradhan (University of Texas at Austin, USA); Lili Qiu (The University of Texas at Austin, USA); Abhinav Parate (Lumme Inc, USA); Kyu-Han Kim (Hewlett-Packard Laboratories, USA)

POWERFUL: Mobile App Fingerprinting via Power Analysis

Yimin Chen, Xiaocong Jin and Jingchao Sun (Arizona State University, USA); Rui Zhang (University of Delaware, USA); Yanchao Zhang (Arizona State University, USA)

iType: Using Eye Gaze to Enhance Typing Privacy

Zhenjiang Li (City University of Hong Kong, Hong Kong); Mo Li (Nanyang Technological University, Singapore); Prasant Mohapatra (University of California, Davis, USA); Shuaiyu Chen and Jinsong Han (Xi'an Jiaotong University, P.R. China)

On Human Mobility Predictability Via WLAN Logs

Paul Cao (UC-San Diego); Gang Li (the Ohio State University, USA); Adam C. Champion, Dong Xuan and Steve Romig (The Ohio State University, USA); Wei Zhao (University of Macau, P.R. China)

Program

Full Papers												
Tuesday, April 17												
7:00-8:00	B01: Breakfast	R01: Conference Registration & Info. Desk										
8:00-10:00	K01: Opening & Keynote											
10:00-10:30	B02: Coffee Break		S01: Cloud and Edge Computing 1	S02: Datacenter Networks	S03: Mobile Offloading	S04: Vehicular Networks	S05: Sensor Networks 1	S06: Cross-technology Communications				
10:30-11:00												
11:00-12:00			L02: N2Women Lunch									
12:00-14:00	L01: Conference Lunch											
14:00-15:30	S07: Software Defined Networking 1		S08: Caching	S09: Cloud and Edge Computing 2	S10: Datacenter and Software Defined Networks	S11: Medium Access Control 1	S12: Scheduling 1	S13: Sensor Networks 2	S14: Cross-technology Communications and Wireless Power Transfer			
15:30-16:00	B03: Coffee Break		D01: Demo Session 1	S15: Software Defined Networking 2	S16: Network Inference	S17: Cloud and Edge Computing 3	S18: Data Analytics	S19: Medium Access Control 2	S20: Scheduling 2	S21: Routing and Traffic Engineering	S22: Flow and Congestion Control	
16:00-16:30												
16:30-17:30												
18:00-19:00	R02: Reception											
19:00-20:00												
Wednesday, April 18												
7:00-8:00	B04: Breakfast	R03: Conference Registration & Info. Desk										
8:00-9:30	S23: Software Defined Networking 3		S24: Localization	S25: Video Surveillance and Sensors	S26: Secure Search	S27: RFID 1	S28: Scheduling 3	S29: Wireless Access Networks 1	S30: Multimedia Networking			
9:30-10:00	B05: Coffee Break		D02: Demo Session 2	P02: Panel A	S31: Privacy 1	S32: RFID 2	S33: Social Networks 1	S34: Wireless Access Networks 2				
10:00-10:30												
10:30-11:30	L03: Conference Lunch		L04: OC/SC Lunch									
11:30-13:30			S35: Big Data and Deep Learning	S36: Sensing, Recognition and Tracking 1	S37: Graph-based Approaches 1	S38: Privacy 2	S39: Internet of Things 1	S40: Social Networks 2	S41: Network Measurement 1	S42: Cognitive Radio Networks 1		
13:30-15:00												
15:00-15:30	B06: Coffee Break		P01: Poster Session 1	P03: PAWR	S43: Sensing, Recognition and Tracking 2	S44: Graph-based Approaches 2	S45: Wireless Security 1	S46: Internet of Things 2	S47: Next Generation Cellular Networks	S48: Network Measurement 2	S49: Cognitive Radio Networks 2	
15:30-16:00												
16:00-17:00												
17:30-18:00	T01: INFOCOM 2019 TPC Meeting											
18:00-18:30												
Thursday, April 19												
7:00-8:00	B07: Breakfast	R04: Conference Registration & Info. Desk										
8:00-9:30	S50: 5G Networks		S51: Crowdsensing 1	S52: Mobile Applications and Scheduling	S53: Wireless Security 2	S54: Fault Tolerance and Survivability 1	S55: Network Optimization 1	S56: Theoretical Foundations in Networking Problems 1	S57: Resource Markets in Wireless Networks			
9:30-10:00	B08: Coffee Break		P04: Poster Session 2	P05: Panel B	S58: Internet and Web Security 1	S59: Fault Tolerance and Survivability 2	S60: Network Optimization 2	S61: Theoretical Foundations in Networking Problems 2				
10:00-10:30												
10:30-11:30												
11:30-13:30	L05: Conference Lunch		S63: Crowdsensing 2	S64: Network Economics	S65: Internet and Web Security 2	S66: Internet Monitoring and Measurement 1	S67: Coding	S68: Theoretical Foundations in Networking Problems 3	S69: Heterogeneous Networks			
13:30-15:00	S62: Millimeter Wave Networks											
15:00-15:30	B09: Coffee Break											
15:30-16:00			S70: Ultra Dense Networks	S71: Crowdsourcing	S72: Auctions & Pricing	S73: Smart Grid	S74: Internet Monitoring and Measurement 2	S75: Peer-to-Peer Networks	S76: The Mobile Internet	S77: Router and Switch Design		
16:00-17:00												

17:00-18:00

Tuesday, April 17, 07:00 - 19:00

R01: Conference Registration & Info. Desk

Room: Palace Lobby

Tuesday, April 17, 07:00 - 08:00

B01: Breakfast

Room: Palace Lounge

Tuesday, April 17, 08:00 - 10:00

K01: Opening & Keynote

Room: Tapa 1-2

Tuesday, April 17, 10:00 - 11:00

B02: Coffee Break

Room: Palace Lounge

Tuesday, April 17, 10:30 - 12:00

S02: Datacenter Networks

Room: Honolulu 1

Chair: Baochun Li (University of Toronto, Canada)

10:30 Enabling Work-conserving Bandwidth Guarantees for Multi-tenant Datacenters via Dynamic Tenant-Queue Binding

Zhuotao Liu (Google Inc. & University of Illinois at Urbana-Champaign, USA); Kai Chen (Hong Kong University of Science and Technology, P.R. China); Haitao Wu (Google, USA); Shuihai Hu (The Hong Kong University of Science and Technology, P.R. China); Yih-Chun Hu (University of Illinois at Urbana-Champaign, USA); Yi Wang (Tsinghua University, P.R. China); Gong Zhang (Huawei Research, P.R. China)

10:52 Blind, Adaptive and Robust Flow Segmentation in Datacenters

Francesco De Pellegrini (Fondazione Bruno Kessler (FBK), Italy); Lorenzo Maggi (Huawei Technologies, France Research Center, France); Antonio Massaro (Fondazione Bruno Kessler, Italy); Damien Sauzez (Inria, France); Jeremie Leguay (Huawei Technologies, France Research Center, France); Eitan Altman (INRIA, France)

11:15 Proactive Incast Congestion Control in a Datacenter Serving Web Applications

Haoyu Wang and Haiying Shen (University of Virginia, USA)

11:37 Pricing for Revenue Maximization in Inter-DataCenter Networks

Zhenzhe Zheng (Shanghai Jiao Tong University, P.R. China); R. Srikant (University of Illinois at Urbana-Champaign, USA); Guihai Chen (Shanghai Jiao Tong University, P.R. China)

S03: Mobile Offloading

Room: Honolulu 2

Chair: Aaron D Striegel (University of Notre Dame, USA)

10:30 Offloading Dependent Tasks with Communication Delay and Deadline Constraint

Sowndarya Sundar and Ben Liang (University of Toronto, Canada)

10:52 Energy-Efficient Computation Offloading for Multicore-based Mobile Devices

Yeli Geng, Yi Yang and Guohong Cao (The Pennsylvania State University, USA)

11:15 Accelerating Mobile Applications at the Network Edge with Software-Programmable FPGAs

Shuang Jiang (Peking University, P.R. China); Dong He and Chenxi Yang (Fudan University, P.R. China); Chenren Xu and Guojie Luo (Peking University, P.R. China); Yang Chen (Fudan University, P.R. China); Yunlu Liu (Beihang University, P.R. China); Jiangwei Jiang (Alibaba Inc., P.R. China)

11:37 When Edge Meets Learning: Adaptive Control for Resource-Constrained Distributed Machine Learning

Shiqiang Wang (IBM T. J. Watson Research Center, USA); Tiffany Tuor (Imperial College London, United Kingdom (Great Britain)); Theodoros Salonidis (IBM Research, USA); Kin K. Leung (Imperial College, United Kingdom (Great Britain)); Christian Makaya (IBM Research, USA); Ting He (Penn State University, USA); Kevin S Chan (US Army Research Laboratory, USA)

S04: Vehicular Networks

Room: Honolulu 3

Chair: Falko Dressler (Paderborn University, Germany)

10:30 CoDrive: Improving Automobile Positioning via Collaborative Driving

Soteris Demetriou (University of Illinois at Urbana-Champaign, USA); Puneet Jain (Google, USA); Kyu-Han Kim (Hewlett-Packard Laboratories, USA)

10:52 Temporal Reachability in Vehicular Networks

Luca Bedogni (University of Bologna, Italy); Marco Fiore and Christian Glacet (National Research Council of Italy, Italy)

11:15 Cooperative Content Transmission for Vehicular Ad Hoc Networks using Robust Optimization

Daxin Tian and Jianshan Zhou (Beihang University, P.R. China); Min Chen (Huazhong University of Science and Technology, P.R. China); Zhengguo Sheng (University of Sussex, United Kingdom (Great Britain)); Qiang Ni (Lancaster University, United Kingdom (Great Britain)); Victor C.M. Leung (University of British Columbia, Canada)

11:37 mTS: Temporal- and Spatial-Collaborative Charging for Wireless Rechargeable Sensor Networks with Multiple Vehicles

Chi Lin and Zhiyuan Wang (Dalian University of Technology, P.R. China); Jing Deng (University of North Carolina at Greensboro, USA); Lei Wang, Jiankang Ren and Wu Guowei (Dalian University of Technology, P.R. China)

S05: Sensor Networks 1

Room: Iolani 1-2-3

Chair: Zhi Sun (State University of New York at Buffalo, USA)

10:30 Coverage in Battery-Free Wireless Sensor Networks

Tuo Shi and Jianzhong Li (Harbin Institute of Technology, P.R. China); Hong Gao (University of Harbin Institute Technology, P.R. China); Zhipeng Cai (Georgia State University, USA)

10:52 Energy-Collision Aware Data Aggregation Scheduling for Energy Harvesting Sensor Networks

Quan Chen (Guangdong University of Technology, P.R. China); Hong Gao (University of Harbin Institute Technology, P.R. China); Zhipeng Cai (Georgia State University, USA); Cheng Liang Jun (Guangdong University of Technology, P.R. China); Jianzhong Li (Harbin Institute of Technology, P.R. China)

11:15 Finding the Stars in the Fireworks: Deep Understanding of Motion Sensor Fingerprint

Huiqi Liu, Xiang-Yang Li, Lan Zhang, Yaochen Xie, Zhenan Wu and Qian Dai (University of Science and Technology of China, P.R. China); Ge Chen and Chunxiao Wan (Tencent OMG AdTech, P.R. China)

11:37 \$ \text{DAO}^2\$: Overcoming Overall Storage Overflow in Intermittently Connected Sensor Networks

Bin Tang (California State University Dominguez Hills, USA)

S06: Cross-technology Communications

Room: Iolani 5-6

Chair: Sungyun Choi (Seoul National University, Korea)

10:30 Enabling Cross-technology Communication between LTE Unlicensed and WiFi

Piotr Gawlowicz and Anatolij Zubow (Technische Universität Berlin, Germany); Adam Wolisz (TUB, Germany)

10:52 TwinBee: Reliable Physical-Layer Cross-Technology Communication with Symbol-Level Coding

Yongrui Chen (University of Chinese Academy of Sciences, P.R. China); Zhijun Li (Institute of Technology Harbin, P.R. China); Tian He (University of Minnesota, USA)

11:15 LongBee: Enabling Long-Range Cross-Technology Communication

Zhijun Li (Institute of Technology Harbin, P.R. China); Tian He (University of Minnesota, USA)

11:37 StripComm: Interference-Resilient Cross-Technology Communication in Coexisting Environments

Xiaolong Zheng, Yuan He and Xuizhen Guo (Tsinghua University, P.R. China)

S01: Cloud and Edge Computing 1

Room: Tapa 3

Chair: Qinghua Li (University of Arkansas, USA)

10:30 Improving Utilization and Parallelism of Hadoop Cluster by Elastic Containers

Yinggen Xu (Tongji University, P.R. China); Wei Chen, Shaoqi Wang and Xiaobo Zhou (University of Colorado, Colorado Springs, USA); Changjun Jiang (Tongji University, P.R. China)

10:52 An Analysis and Empirical Study of Container Networks

Kun Suo and Yong Zhao (The University of Texas at Arlington, USA); Wei Chen (University of Colorado, Colorado Springs, USA); Jia Rao (The University of Texas at Arlington, USA)

11:15 Load Balancing across Microservices

Yipei Niu (Huazhong University of Science & Technology, P.R. China); Fangming Liu (Huazhong University of Science and Technology, P.R. China); Zongpeng Li (University of Calgary, Canada)

11:37 Joint Service Caching and Task Offloading for Mobile Edge Computing in Dense Networks

Jie Xu and Lixing Chen (University of Miami, USA); Pan Zhou (Huazhong University of Science and Technology, P.R. China)

Tuesday, April 17, 12:00 - 14:00

L01: Conference Lunch

Room: Coral 4-5

L02: N2Women Lunch

Room: Lehua Suite

Tuesday, April 17, 14:00 - 15:30

S10: Datacenter and Software Defined Networks

Room: Honolulu 1

Chair: Xiaojun Lin (Purdue University, USA)

14:00 CCOPASSION: A Hybrid Cloudlet Placement Framework over Passive Optical Access Network

Sourav Mondal (The University of Melbourne, Australia); Goutam Das (IIT Kharagpur, India); Elaine Wong (The University of Melbourne, Australia)

14:22 QuickCast: Fast and Efficient Inter-Datacenter Transfers using Forwarding Tree Cohorts

Mohammad Noormohammadi and Cauligi Raghavendra (University of Southern California, USA); Srikanth Kandula (Microsoft Research, USA); Sriram Rao (Microsoft, USA)

14:45 Traffic Engineering with Precomputed Pathbooks

Mathieu Leconte (Huawei Technologies, France); Apostolos Destounis (Huawei Technologies France Research Center, France); Georgios S. Paschos (Huawei Technologies, France)

15:07 FERO: Fast and Efficient Resource Orchestrator for a Data Plane Built on Docker and DPDK

Bála Székely, Márton Szabó, Bála Németh and András Majdán (Budapest University of Technology and Economics, Hungary); Gergely Pongrácz (Ericsson Research, Hungary); László Tóka (Budapest University of Technology and Economics, Hungary)

S11: Medium Access Control 1

Room: Honolulu 2

Chair: Joerg Widmer (IMDEA Networks Institute, Spain)

14:00 Distributed Joint AP Grouping and User Association for MU-MIMO Networks

Wangkit Wong and S.-H. Gary Chan (The Hong Kong University of Science and Technology, P.R. China)

- 14:22 PAFD: Phased Array Full-Duplex**
 Ehsan Aryafar (Portland State University, USA); Alireza Keshavarz-Haddad (Shiraz University, Iran)
- 14:45 Enabling Indoor Mobile Millimeter-wave Networks Based on Smart Reflect-arrays**
 Xin Tan and Zhi Sun (State University of New York at Buffalo, USA); Dimitrios Koutsonikolas (University at Buffalo, SUNY, USA); Josep M Jornet (University at Buffalo, USA)
- 15:07 Scheduling and Resource Allocation in 802.11ax**
 Kaidong Wang and Konstantinos Psounis (University of Southern California, USA)

S12: Scheduling 1

Room: Honolulu 3
 Chair: Swades De (Indian Institute of Technology Delhi, India)

- 14:00 Optimal Content Replication and Request Matching in Large Caching Systems**
 Arpan Mukhopadhyay (EPFL, Switzerland); Nidhi Hegde (Nokia Bell Labs, France); Marc Lelarge (INRIA and ENS, France)
- 14:22 On Achieving Zero Delay with Power-of-d-Choices Load Balancing**
 Xin Liu and Lei Ying (Arizona State University, USA)
- 14:45 Predictive Pre-allocation for Low-latency Uplink Access in Industrial Wireless Networks**
 Mingyan Li, Xinpeng Guan, Cunqing Hua, Cailian Chen and Ling Lyu (Shanghai Jiao Tong University, P.R. China)
- 15:07 Boosting the Throughput of LED-Camera VLC via Composite Light Emission**
 Yanbing Yang (Nanyang Technological University, Singapore & Sichuan University, P.R. China); Jun Luo (Nanyang Technological University, Singapore)

S13: Sensor Networks 2

Room: Iolani 1-2-3
 Chair: Huadong Ma (Beijing University of Posts and Telecommunications, P.R. China)

- 14:00 Self-Adapting Quorum-Based Neighbor Discovery in Wireless Sensor Networks**
 Hao Cai (University of Massachusetts, Amherst, USA); Tilman Wolf (University of Massachusetts, USA)
- 14:22 Symmetric Connectivity Algorithms in Multiple Directional Antennas Wireless Sensor Networks**
 Tien Tran and Dung Huynh (University of Texas at Dallas, USA)
- 14:45 Monitoring LED Lights with Current Signatures**
 Johnny Verhoeff (TUDelft, The Netherlands); Akshay Uttama Nambi (Microsoft Research, India); Marco Zuniga (Delft University of Technology, The Netherlands); Bontor Humala (TUDelft, The Netherlands)
- 15:07 EyeLight:Light-and-shadow-based Occupancy Estimation and Room Activity Recognition**
 Viet Nguyen (WINLAB, Rutgers University, USA); Mohamed Ibrahim (Rutgers University, USA); Siddharth Rupavatharam and Minitha Jawahar (WINLAB, Rutgers University, USA); Marco Gruteser and Richard Howard (Rutgers University, USA)

S14: Cross-technology Communications and Wireless Power Transfer

Room: Iolani 5-6
 Chair: Jiangchuan Liu (Simon Fraser University, Canada)

- 14:00 ZigFi: Harnessing Channel State Information for Cross-Technology Communication**
 Xizhen Guo, Yuan He and Xiaolong Zheng (Tsinghua University, P.R. China); Liangcheng Yu (KTH Royal Institute of Technology, Sweden); Omprakash Gnawali (University of Houston, USA)
- 14:22 ECT: Exploiting Cross-Technology Concurrent Transmission for Reducing Packet Delivery Delay in IoT Networks**
 Wei Wang (University of Maryland, USA); Tiantian Xie (University of Maryland, Baltimore County, USA); Xin Liu (University of Maryland, USA); Ting Zhu (University of Maryland, Baltimore County, USA)
- 14:45 Robustly Safe Charging for Wireless Power Transfer**
 Haipeng Dai (Nanjing University & State Key Laboratory for Novel Software Technology, P.R. China); Yang Zhao (Nanjing University, P.R. China); Guihai Chen (Shanghai Jiao Tong University, P.R. China); Wanchun Dou and Chen Tian (Nanjing University, P.R. China); Xiaobing Wu (University of Canterbury, New Zealand); Tian He (University of Minnesota, USA)
- 15:07 Placement of Connected Wireless Chargers**
 Nan Yu and Haipeng Dai (Nanjing University & State Key Laboratory for Novel Software Technology, P.R. China); Alex X. Liu (Michigan State University, USA); Bingchuan Tian (Nanjing University, P.R. China)

S07: Software Defined Networking 1

Room: Tapa 1
 Chair: Sastry Kompella (Naval Research Laboratory, USA)

- 14:00 FlowCloak: Defeating Middlebox-Bypass Attacks in Software-Defined Networking**
 Kai Bu, Yutian Yang and Zixuan Guo (Zhejiang University, P.R. China); Yuanyuan Yang (Stony Brook University, USA); Xing Li (Zhejiang University, P.R. China); Shigeng Zhang (Central South University, P.R. China)
- 14:22 NeuroViNE: A Neural Preprocessor for Your Virtual Network Embedding Algorithm**
 Andreas Blenk (Technische Universität München, Germany); Patrick Kalmbach (Technical University of Munich, Germany); Johannes Zerwas (Technische Universität München, Germany); Michael Jarschel (Nokia Bell Labs, Germany); Stefan Schmid (University of Vienna, Austria); Wolfgang Kellerer (Technische Universität München, Germany)
- 14:45 Online Multicast Traffic Engineering for Software-Defined Networks**
 Sheng-Hao Chiang and Jian-Jhih Kuo (Academia Sinica, Taiwan); Shan-Hsiang Shen (National Taiwan University of Science and Technology, Taiwan); De-Nian Yang and Wen-Tsuen Chen (Academia Sinica, Taiwan)
- 15:07 CORA: Conflict Razor for Policies in SDN**
 Hao Li and Kaiyue Chen (Xi'an Jiaotong University, P.R. China); Tian Pan (Beijing University of Posts and Telecommunications, P.R. China); Yadong Zhou (Xian Jiaotong University, P.R. China); Kun Qian (Tsinghua University, P.R. China); Kai Zheng (Huawei Technologies, P.R. China); Bin Liu (Tsinghua University, P.R. China); Peng Zhang (Xi'an Jiaotong University, P.R. China); Yazhe Tang (Xi'an Jiaotong University, P.R. China); Chengchen Hu (Xi'an Jiaotong University, P.R. China)

S08: Caching

Room: Tapa 2
 Chair: Xiaobo Zhou (University of Colorado, Colorado Springs, USA)

14:00 Analyzing replacement policies in list-based caches with non-uniform access costs
Giuliano Casale (Imperial College London, United Kingdom (Great Britain))

14:22 DR-Cache: Distributed Resilient Caching with Latency Guarantees

Jian Li (University of Massachusetts Amherst, USA); Truong Khoa Phan (University College London, United Kingdom (Great Britain)); Wei Koong Chai (Bournemouth University, United Kingdom (Great Britain)); Daphne Tuncer, George Pavlou, David Griffin and Miguel Rio (University College London, United Kingdom (Great Britain))

14:45 Asymptotic Miss Ratio of LRU Caching with Consistent Hashing

Kaiyi Ji, Guocong Quan and Jian Tan (The Ohio State University, USA)

15:07 LRU Caching with Dependent Competing Requests

Guocong Quan, Kaiyi Ji and Jian Tan (The Ohio State University, USA)

S09: Cloud and Edge Computing 2

Room: Tapa 3

Chair: Sheng Zhang (Nanjing University, P.R. China)

14:00 Service Entity Placement for Social Virtual Reality Applications in Edge Computing

Lin Wang (TU Darmstadt, Germany); Lei Jiao (University of Oregon, USA); Ting He (Penn State University, USA); Jun Li (University of Oregon, USA); Max Mühlhäuser (TU-Darmstadt, Germany)

14:22 CoINT: Proactive Coordinator for Avoiding the Interruptability Holder Preemption Problem in VSMP Environment

Wang Zhang, Xiaokang Hu, Jian Li and Haibing Guan (Shanghai Jiao Tong University, P.R. China)

14:45 Adaptive VNF Scaling and Flow Routing with Proactive Demand Prediction

Xincai Fei (Huazhong University of Science & Technology, P.R. China); Fangming Liu (Huazhong University of Science and Technology, P.R. China); Hong Xu (City University of Hong Kong, Hong Kong); Hai Jin (Huazhong University of Science and Technology, P.R. China)

15:07 Online Job Scheduling in Distributed Machine Learning Clusters

Yixin Bao, Yanghua Peng and Chuan Wu (The University of Hong Kong, Hong Kong); Zongpeng Li (University of Calgary, Canada)

Tuesday, April 17, 15:30 - 16:30

B03: Coffee Break

Room: Palace Lounge

Tuesday, April 17, 15:30 - 17:30

D01: Demo Session 1

Room: Palace Lounge

Chair: Yao Zheng (University of Hawai'i at Mānoa, USA)

Tuesday, April 17, 16:00 - 17:30

S18: Data Analytics

Room: Honolulu 1

Chair: Wenye Wang (NC State University, USA)

16:00 Performance-Aware Fair Scheduling: Exploiting Demand Elasticity of Data Analytics Jobs

Chen Chen, Wei Wang and Bo Li (Hong Kong University of Science and Technology, Hong Kong)

16:22 COBRA: Toward Provably Efficient Semi-clairvoyant Scheduling in Data Analytics Systems

Xiaoda Zhang, Zhuzhong Qian, Sheng Zhang, Xiangbo Li, Xiaoliang Wang and Sanglu Lu (Nanjing University, P.R. China)

16:45 LAS: Logical-Block Affinity Scheduling in Big Data Analytics Systems

Lang Bao (Xidian University, P.R. China); Chase Q. Wu (New Jersey Institute of Technology & Oak Ridge National Laboratory, USA); Qi Haiyang and Weizhao Chen (Xidian University, P.R. China); Xin Zhang and Weinan Han (Xidian University, P.R. China); Wei Wei, En Tai and Hao Wang (Xidian University, P.R. China); JiaHao Zhai (Xidian, P.R. China); Xiang Chen (Xidian University, P.R. China)

17:07 A Hierarchical Synchronous Parallel Model for Wide-Area Graph Analytics

Shuhao Liu, Li Chen, Baochun Li and Aiden Carnegie (University of Toronto, Canada)

S19: Medium Access Control 2

Room: Honolulu 2

Chair: Krishna M. Sivalingam (Indian Institute of Technology Madras, India)

16:00 Low-Complexity, Low-Regret Link Rate Selection in Rapidly-Varying Wireless Channels

Harsh Gupta (University of Illinois at Urbana-Champaign, USA); Atilla Eryilmaz (The Ohio State University, USA); R. Srikant (University of Illinois at Urbana-Champaign, USA)

16:22 Lightweight Retransmission for Random Access in Satellite Networks

Jing Chen, Feilong Tang and Heteng Zhang (Shanghai Jiao Tong University, P.R. China); Laurence T. Yang (St. Francis Xavier University, Canada)

16:45 Full-duplex Metamaterial-enabled Magnetic Induction Networks in Extreme Environments

Hongzhi Guo (State University of New York at Buffalo, USA; University of Southern Maine, USA); Zhi Sun (State University of New York at Buffalo, USA)

17:07 Reduced-State, Optimal Medium Access Control for Wireless Data Collection Networks

Avinash Mohan (Indian Institute of Science, Bangalore, India); Aditya Gopalan and Anurag Kumar (Indian Institute of Science, India)

S20: Scheduling 2

Room: Honolulu 3

Chair: Wei Wang (Hong Kong University of Science and Technology, Hong Kong)

16:00 Hybrid Scheduling in Heterogeneous Half- and Full-Duplex Wireless Networks

Tingjun Chen (Columbia University, USA); Jelena Diakonikolas (Boston University & Massachusetts Institute of Technology, USA); Javad Ghaderi and Gil Zussman (Columbia University, USA)

- 16:22 Closed form expressions for the performance metrics of data services in cellular networks**
 Paolo Castagno (University of Turin & University of Turin, Italy); Vincenzo Mancuso (IMDEA Networks Institute, Spain); Matteo Sereno (University of Torino, Italy); Marco G Ajmone Marsan (Politecnico di Torino & IMDEA Networks, Italy)
- 16:45 Network Utility Maximization in Adversarial Environments**
 Qingkai Liang and Eytan Modiano (MIT, USA)
- 17:07 Timely-Throughput Optimal Scheduling with Prediction**
 Kun Chen and Longbo Huang (Tsinghua University, P.R. China)

S21: Routing and Traffic Engineering

- Room: Iolani 1-2-3
 Chair: Jian Tang (Syracuse University, USA)
- 16:00 Joint Placement and Routing of Network Function Chains in Data Centers**
 Lingqi Guo and John Z. F. Pang (California Institute of Technology, USA); Anwar Walid (Nokia Bell Labs, USA)
- 16:22 VeriTable: Fast Equivalence Verification of Multiple Large Forwarding Tables**
 Garegin Grigoryan (Rochester Institute of Technology, USA); Yaoqing Liu and Michael Lecinsky (Clarkson University, USA); Jun Li (University of Oregon, USA)
- 16:45 Online Deadline-aware Bulk Transfer over Inter-Datacenter WANs**
 Long Luo and Hongfang Yu (University of Electronic Science and Technology of China, P.R. China); Zilong Ye (California State University, Los Angeles, USA); Xiaojiang Du (Temple University, USA)
- 17:07 A cross-architectural quantitative evaluation of mobility approaches**
 Vasanta Chaganti (University of Massachusetts, USA); Jim Kurose (University of Massachusetts at Amherst, USA); Arun Venkataramani (UMass Amherst, USA)

S22: Flow and Congestion Control

- Room: Iolani 5-6
 Chair: Jian Li (University of Massachusetts Amherst, USA)
- 16:00 Combating Bufferbloat in Multi-Bottleneck Networks: Equilibrium, Stability, and Algorithms**
 Jiancheng Ye and Ka-Cheong Leung (The University of Hong Kong, Hong Kong); Victor O. K. Li (University of Hong Kong, P.R. China); Steven Low (California Institute of Technology, USA)
- 16:22 A Case for Web Service Bandwidth Reduction on Mobile Devices with Edge-hosted Personal Services**
 Yongshu Bai (SUNY Binghamton, USA); Pengzhan Hao (SUNY Binghamton, USA); Yifan Zhang (SUNY Binghamton, USA)
- 16:45 Towards Stability Analysis of Data Transport Mechanisms: a Fluid Model and an Application**
 Gayane Vardoyan (University of Massachusetts Amherst, USA); C. v. Hollot and Don Towsley (University of Massachusetts at Amherst, USA)
- 17:07 Curbing Timeouts for TCP-Incast in Data Centers via A Cross-Layer Faster Recovery Mechanism**
 Ahmed M. Abdelmoniem (The Hong Kong University of Science and Technology); Brahim Bensaou (The Hong Kong University of Science and Technology, Hong Kong)

S15: Software Defined Networking 2

- Room: Tapa 1
 Chair: Jaime Llorca (Nokia Bell Labs, USA)
- 16:00 SDN Controller Placement at the Edge: Optimizing Delay and Overheads**
 Qiaofeng Qin and Konstantinos Poularakis (Yale University, USA); George Iosifidis (Trinity College Dublin, Ireland); Leandros Tassiulas (Yale University, USA)
- 16:22 Dynamic, Latency-Optimal vNF Placement at the Network Edge**
 Richard Cziva, Christos Anagnostopoulos and Dimitrios P Pezaros (University of Glasgow, United Kingdom (Great Britain))
- 16:45 On Scalable Service Function Chaining with O(1) Flowtable Entries**
 Yi Ren (University of East Anglia, United Kingdom (Great Britain)); Tzu-Ming Huang and Kate Ching-Ju Lin (National Chiao Tung University, Taiwan); Yu-Chee Tseng (National Chiao-Tung University, Taiwan)
- 17:07 Toward the First SDN Programming Capacity Theorem on Realizing High-Level Programs on Low-Level Datapaths**
 Christopher Leet (Yale University, USA); Xin Wang (Tongji University, P.R. China); James Aspnes and Y. Richard Yang (Yale University, USA)

S16: Network Inference

- Room: Tapa 2
 Chair: Kui Wu (University of Victoria, Canada)
- 16:00 Prophet: Fast Accurate Model-based Throughput Prediction for Reactive Flow in DC Networks**
 Kai Gao (Tsinghua University, P.R. China); Jingxuan Zhang (Tongji University, P.R. China); Y. Richard Yang (Yale University, USA); Jun Bi (Tsinghua University, P.R. China)
- 16:22 Estimating Information Exchange Performance of Engineered Cell-to-cell Molecular Communications: a Computational Approach**
 Colton Harper and Massimiliano Pierobon (University of Nebraska-Lincoln, USA); Maurizio Magarini (Politecnico di Milano, Italy)
- 16:45 Robust Loss Inference in the Presence of Noisy Measurements**
 Yan Qiao (Anhui Agricultural University & School of Information and Computer, P.R. China)
- 17:07 INFLOW: Inverse Network Flow Watermarking for Detecting Hidden Servers**
 Alfonso Iacovazzi and Sanat Sarda (Singapore University of Technology and Design, Singapore); Yuval Elovici (Ben Gurion University, Israel)

S17: Cloud and Edge Computing 3

- Room: Tapa 3
 Chair: Yantian Hou (Boise State University, USA)
- 16:00 An Edge Network Orchestrator for Mobile Augmented Reality**
 Qiang Liu (The University of North Carolina at Charlotte, USA); Siqi Huang (University of North Carolina at Charlotte, USA); Johnson Opadere (The University of North Carolina at Charlotte, USA); Tao Han (University of North Carolina at Charlotte, USA)
- 16:22 Demystifying the Performance Interference of Co-located Virtual Network Functions**
 Chaobing Zeng, Fangming Liu, Shutong Chen, Weixiang Jiang and Miao Li (Huazhong University of Science and Technology, P.R. China)
- 16:45 Provably Efficient Algorithms for Placement of Service Function Chains with Ordering Constraints**
 Andrea Tomassilli (Université Côte d'Azur, Inria, I3S, France); Frédéric Giroire (CNRS, France); Nicolas Huin (Concordia University, Canada); Stéphane Perennes (INRIA, France)

17:07 Application Provisioning in Fog Computing-enabled Internet-of-Things: A Network Perspective
Ruozhou Yu, Guoliang Xue and Xiang Zhang (Arizona State University, USA)

Tuesday, April 17, 18:00 - 20:00

R02: Reception

Room: Great Lawn

Wednesday, April 18

Wednesday, April 18, 07:00 - 18:00

R03: Conference Registration & Info. Desk

Room: Palace Lobby

Wednesday, April 18, 07:00 - 08:00

B04: Breakfast

Room: Palace Lounge

Wednesday, April 18, 08:00 - 09:30

S26: Secure Search

Room: Honolulu 1

Chair: Ming Li (University of Arizona, USA)

08:00 Searching an Encrypted Cloud Meets Blockchain: A Decentralized, Reliable and Fair Realization

Shengshan Hu (Wuhan University, P.R. China); Chengjun Cai (City University of Hong Kong, Hong Kong); Qian Wang (Wuhan University, P.R. China); Cong Wang (City University of Hong Kong, Hong Kong); Luo Xiangyang (Zhengzhou Information Science and Technology Institute, P.R. China); Kui Ren (State University of New York at Buffalo, USA)

08:22 REARGUARD: Secure Keyword Search Using Trusted Hardware

Wenhai Sun, Ruide Zhang, Wenjing Lou and Thomas Hou (Virginia Tech, USA)

08:45 Differentially Private Access Patterns for Searchable Symmetric Encryption

Guoxing Chen (The Ohio State University, USA); Ten-Hwang Lai (Ohio State University, USA); Mike Reiter (University of North Carolina at Chapel Hill, USA); Yingqian Zhang (The Ohio State University, USA)

09:07 EPSMD: An Efficient Privacy-Preserving Sensor Data Monitoring and Online Diagnosis System

Xiangyu Wang, Jian-feng Ma, Yinbin Miao, Ruikang Yang and Yijia Chang (Xidian University, P.R. China)

S27: RFID 1

Room: Honolulu 2

Chair: Lei Xie (Nanjing University, P.R. China)

08:00 Trio: Utilizing Tag Interference for Refined Localization of Passive RFID

Han Ding and Jinsong Han (Xi'an Jiaotong University, P.R. China); Chen Qian (University of California at Santa Cruz, USA); Fu Xiao (Nanjing University of Posts and Telecommunications, P.R. China); Ge Wang (Xi'an Jiaotong University, P.R. China); Nan Yang and Wei Xi (Xi'an Jiaotong University, P.R. China); Jian Xiao (Chang'an University, P.R. China)

08:22 RF-Dial: an RFID-based 2D Human-Computer Interaction via Tag Array

Yanling Bu, Lei Xie, Yinyin Gong and Chuyu Wang (Nanjing University, P.R. China); Lei Yang (The Hong Kong Polytechnic University, Hong Kong); Jia Liu and Sanglu Lu (Nanjing University, P.R. China)

08:45 Anonymous Temporal-Spatial Joint Estimation at Category Level over Multiple Tag Sets

Yulin Zhang, Shigang Chen, You Zhou and Yuguang Fang (University of Florida, USA)

09:07 Robust Spinning Sensing with Dual-RFID-Tags in Noisy Settings

Chunhui Duan (Tsinghua University, P.R. China); Lei Yang (The Hong Kong Polytechnic University, Hong Kong); Huanyu Jia and Qiongzheng Lin (Tsinghua University, P.R. China); Yunhao Liu (Tsinghua University & The Hong Kong University of Science and Technology, P.R. China); Lei Xie (Nanjing University, P.R. China)

S28: Scheduling 3

Room: Honolulu 3

Chair: Gueyoung Jung (AT&T Labs-Research, USA)

08:00 Scheduling Coflows of Multi-stage Jobs to Minimize the Total Weighted Job Completion Time

Bingchun Tian and Chen Tian (Nanjing University, P.R. China); Haipeng Dai (Nanjing University & State Key Laboratory for Novel Software Technology, P.R. China); Bingquan Wang (Nanjing University, P.R. China)

08:22 Leveraging Endpoint Flexibility When Scheduling Coflows across Geo-distributed Datacenters

Wenxin Li (Dalian University of Technology, P.R. China); Xu Yuan (University of Louisiana at Lafayette, USA); Keqiu Li (Tianjin University, P.R. China); Heng Qi (Dalian University of Technology, P.R. China); Xiaobo Zhou (Tianjin University, P.R. China)

08:45 Hybrid Circuit/Packet Network Scheduling with Multiple Composite Paths

Shih-Hao Tseng (Cornell University, USA); Bo Bai (Huawei Technologies Co., Ltd., Hong Kong); John Chi Shing Lui (Chinese University of Hong Kong, Hong Kong)

09:07 Utopia: Near-optimal Coflow Scheduling with Isolation Guarantee

Luping Wang, Wei Wang and Bo Li (Hong Kong University of Science and Technology, Hong Kong)

S29: Wireless Access Networks 1

Room: Iolani 1-2-3

Chair: Kate Ching-Ju Lin (National Chiao Tung University, Taiwan)

08:00 A General Model for DoF-based Interference Cancellation in MIMO Networks with Rank-deficient Channels
Yongce Chen, Yan Huang, Yi Shi, Thomas Hou and Wenjing Lou (Virginia Tech, USA); Sastry Kompella (Naval Research Laboratory, USA)

08:22 Information Freshness over an Interference Channel: A Game Theoretic View
Gam Nguyen, Sastry Kompella and Clement Kam (Naval Research Laboratory, USA); Jeffrey Wieselthier (Wieselthier Research, USA); Anthony Ephremides (University of Maryland, USA)

08:45 Impact of Channel State Misreporting on Multi-user Massive MIMO Scheduling Performance
Zhanzhan Zhang (Shanghai Jiao Tong University, P.R. China); Yin Sun (Auburn University, USA); Ashutosh Sabharwal (Rice University, USA); Zhiyong Chen (Shanghai Jiao Tong University, P.R. China)

09:07 WiFED: WiFi Friendly Energy Delivery with Distributed Beamforming
Subhramoy Mohanti (Northeastern University, USA); Elif Bozkaya (Istanbul Technical University & National Defense University Naval Academy, Turkey); M. Yousef Naderi (Northeastern University, USA); Berk Canberk (Istanbul Technical University, Turkey); Kaushik Chowdhury (Northeastern University, USA)

S30: Multimedia Networking

Room: Iolani 5-6
Chair: Wei Gao (University of Pittsburgh, USA)

08:00 Quality of Experience-based Routing of Video Traffic for Overlay and ISP Networks

Giacomo Calvignoni (Université Côte d'Azur, CNRS, I3S & Université de Bologna, France); Ramon Aparicio-Pardo (Université Côte d'Azur & CNRS, I3S, France); Lucile Sassatelli (Université Côte d'Azur, CNRS, I3S, France); Jeremie Leguay (Huawei Technologies, France Research Center, France); Stefano Paris (Huawei Technologies Co. Ltd. & Université Paris Descartes, France); Paolo Medagliani (Huawei Technologies Co. Ltd., France)

08:22 Predicting the effect of home Wi-Fi quality on QoE

Diego Neves da Hora (Telecom ParisTech, France); Renata Teixeira (Inria, France); Koen Van Oost and Karel Van Doorselaer (Technicolor, Belgium)

08:45 BAS-360: Exploring Spatial and Temporal Adaptability in 360-degree Videos over HTTP/2

Mengbai Xiao (George Mason University, USA); Chao Zhou (SUNY Binghamton, USA); Viswanathan Swaminathan (Adobe Systems Inc, USA); Yao Liu (SUNY Binghamton, USA); Songqing Chen (George Mason University, USA)

09:07 ClusTile: Toward Minimizing Bandwidth in 360-degree Video Streaming

Chao Zhou (SUNY Binghamton, USA); Mengbai Xiao (George Mason University, USA); Yao Liu (SUNY Binghamton, USA)

S23: Software Defined Networking 3

Room: Tapa 1
Chair: David Wei (Fordham University, USA)

08:00 A Light-weight Approach to Obtaining NF State Information in SDN+NFV Networks

Bing Leng and Lusheng Huang (University of Science and Technology of China, P.R. China); Chunming Qiao (University at Buffalo, USA); Hongli Xu (University of Science and Technology of China, P.R. China)

08:22 Barista: An Event-centric NOS Composition Framework for Software-Defined Networks

Jaehyun Nam and Hyeonseong Jo (KAIST, Korea); Yeonkeun Kim (Korea Advanced Institute of Science and Technology (KAIST), Korea); Phillip A Porras and Vinod Yegneswaran (SRI International, USA); Seungwon Shin (KAIST, Korea)

08:45 Scalable QoE-aware Path Selection in SDN-based Mobile Networks

Roberto Iraja Tavares da Costa Filho, William R Lautenschläger and Nicolas Kagami (Federal University of Rio Grande do Sul, Brazil); Marcelo Caggiani Luizelli (Federal University of Pampa, Brazil); Valter Roesler (Federal University of Rio Grande do Sul (UFRGS), Brazil); Luciano Paschoal Gaspar (Federal University of Rio Grande do Sul, Brazil)

09:07 POMP: Protocol Oblivious SDN Programming with Automatic Multi-Table Pipelining

Chunhui He (University of Science and Technology of China, P.R. China); Xinyu Feng (Nanjing University, P.R. China)

S24: Localization

Room: Tapa 2
Chair: Lei Yang (The Hong Kong Polytechnic University, Hong Kong)

08:00 Large-scale Wireless Fingerprints Prediction for Cellular Network Positioning

Xinyu Wu and Xiaohua Tian (Shanghai Jiao Tong University, P.R. China); Xinpeng Wang (Shanghai Jiaotong University, P.R. China)

08:22 Steering Crowdsourced Signal Map Construction via Bayesian Compressive Sensing

Suining He and Kang Shin (University of Michigan, USA)

08:45 RETRO: retroreflector based visible light indoor localization for real-time tracking of IoT devices

Shihua Shao and Abdallah A Khreichah (New Jersey Institute of Technology, USA); Issa M Khalil (Qatar Computing Research Institute & Qatar Foundation, Qatar)

09:07 Secure Crowdsourced Indoor Positioning Systems

Tao Li and Yimin Chen (Arizona State University, USA); Rui Zhang (University of Delaware, USA); Yanchao Zhang and Terri Hedgpeth (Arizona State University, USA)

S25: Video Surveillance and Sensors

Room: Tapa 3
Chair: Jiasi Chen (University of California, Riverside, USA)

08:00 When UAVs ride a bus: Towards energy-efficient city-scale video surveillance

Angelo Trotta (University of Bologna, Italy); Fabio D'Andreagiovanni (CNRS, Sorbonne University - UTC, France); Marco Di Felice (University of Bologna, Italy); Enrico Natalizio (Université de Technologie de Compiègne, France); Kaushik Chowdhury (Northeastern University, USA)

08:22 ViTrack: Efficient Tracking on the Edge for Commodity Video Surveillance Systems

Linsong Cheng and Jiliang Wang (Tsinghua University, P.R. China)

08:45 Rainbow: Preventing Mobile-Camera-based Piracy in the Physical World

Lin Yang (Hong Kong University of Science and Technology, Hong Kong); Wei Wang (Huazhong University of Science and Technology, P.R. China); Zeyu Wang and Qian Zhang (Hong Kong University of Science and Technology, Hong Kong)

09:07 MV-Sports: A Motion and Vision Sensor Integration-Based Sports Analysis System

Cheng Zhang (The Ohio State University, USA); Fan Yang and Gang Li (the Ohio State University, USA); Qiang Zhai (Shanghai DeepCode Robotics, P.R. China); Yi Jiang (Shanghai DeepCode Robotics Co., Ltd., P.R. China); Dong Xuan (The Ohio State University, USA)

Wednesday, April 18, 09:30 - 10:30

B05: Coffee Break

Room: Palace Lounge

Wednesday, April 18, 09:30 - 11:30

D02: Demo Session 2

Room: Palace Lounge

Chair: R Venkatesha Prasad (Delft University of Technology, The Netherlands)

Wednesday, April 18, 10:00 - 11:30

S31: Privacy 1

Room: Honolulu 1

Chair: Wei Wang (Huazhong University of Science and Technology, P.R. China)

10:00 Towards Privacy-Preserving Speech Data Publishing

Jianwei Qian (Illinois Institute of Technology, USA); Feng Han (University of Science and Technology of China, P.R. China); Jiahui Hou (Illinois Institute of Technology, USA); Chunhong Zhang (Beijing University of Posts & Telecommunication, P.R. China); Yu Wang (University of North Carolina at Charlotte, USA); Xiang-Yang Li (University of Science and Technology of China, P.R. China)

10:22 PrivSet: Set-Valued Data Analyses with Local Differential Privacy

Shaowei Wang, Liusheng Huang, Yiwen Nie, Pengzhan Wang, Hongli Xu and Wei Yang (University of Science and Technology of China, P.R. China)

10:45 TruSense: Information Leakage from TrustZone

Ning Zhang (Virginia Tech, USA); Kun Sun (George Mason University, USA); Deborah Shands (National Science Foundation, USA); Wenjing Lou and Thomas Hou (Virginia Tech, USA)

11:07 Privacy-Preserving Social Media Data Outsourcing

Jinxue Zhang and Jingchao Sun (Arizona State University, USA); Rui Zhang (University of Delaware, USA); Yanchao Zhang (Arizona State University, USA); Xia Hu (Texas A&M University, USA)

S32: RFID 2

Room: Honolulu 2

Chair: Jinsong Han (Xi'an Jiaotong University, P.R. China)

10:00 Preventing Unauthorized Access on Passive Tags

Han Ding and Jinsong Han (Xi'an Jiaotong University, P.R. China); Yanyong Zhang (Rutgers University, USA); Fu Xiao (Nanjing University of Posts and Telecommunications, P.R. China); Wei Xi (Xi'an Jiaotong University, P.R. China); Ge Wang (Xi'an Jiaotong University, P.R. China); Zhiping Jiang (Xidian University, P.R. China)

10:22 Range Queries for Sensor-augmented RFID Systems

Xiulong Liu and Jianrong Cao (Hong Kong Polytechnical University, Hong Kong); Keqiu Li (Tianjin University, P.R. China); Jia Liu (Nanjing University, P.R. China); Xin Xie (Dalian University of Technology, P.R. China)

10:45 Fast and Reliable Tag Search in Large-Scale RFID Systems: A Probabilistic Tree-based Approach

Jihong Yu (Simon Fraser University, Canada); Wei Gong (University of Science and Technology of China, P.R. China); Jiangchuan Liu (Simon Fraser University, Canada); Lin Chen (The University of Paris-Sud, France)

11:07 RFID Counting over Time-Varying Channels

Ziling Zhou (Ampotech Pte. Ltd., Singapore); Binbin Chen (Advanced Digital Sciences Center, Singapore)

S33: Social Networks 1

Room: Honolulu 3

Chair: Wei Gao (University of Pittsburgh, USA)

10:00 Social Network De-anonymization with Overlapping Communities: Analysis, Algorithm and Experiments

Xinyu Wu, Zhongzhao Hu, Xinze Fu and Luoyi Fu (Shanghai Jiao Tong University, P.R. China); Xinbing Wang (Shanghai Jiaotong University, P.R. China); Songwu Lu (University of California at Los Angeles, USA)

10:22 Host Profit Maximization for Competitive Viral Marketing in Billion-Scale Networks

Yiqing Zhu (California State University, Los Angeles, USA); Deying Li (Renmin University of China, P.R. China)

10:45 Continuous time opinion dynamics of agents with multi-leveled opinions and binary actions

Vineeth S Varma (CRAN & CNRS, France); Yezekael Hayel (LIA, University of Avignon, France); Irinel-Constantin Morarescu (CRAN, Université de Lorraine, France)

11:07 Towards Profit Maximization for Online Social Network Providers

Jing Tang and Xueyan Tang (Nanyang Technological University, Singapore); Junsong Yuan (State University of New York at Buffalo, USA)

S34: Wireless Access Networks 2

Room: Iolani 1-2-3

Chair: Yi Qian (University of Nebraska - Lincoln, USA)

10:00 One-Hop Out-of-Band Control Planes for Low-Power Multi-Hop Wireless Networks

Chaojie Gu and Rui Tan (Nanyang Technological University, Singapore); Xin Lou (Advanced Digital Sciences Centre, Singapore); Dusit Niyato (Nanyang Technological University, Singapore)

10:22 Exact Implementation of Abstract MAC Layer via Carrier Sensing

Dongxiao Yu (Huazhong University of Science and Technology, P.R. China); Yong Zhang (University of Hong Kong, Hong Kong); Yuyao Huang (Huazhong University of Science and Technology, P.R. China); Hai Jin (Huazhong University of Science and Technology, P.R. China); Jigu Yu (Qufu Normal University, P.R. China); Qiang-Sheng Hua (Huazhong University of Science and Technology, P.R. China)

10:45 Optimal Joint Routing and Scheduling in Millimeter-Wave Cellular Networks

Dingwen Yuan (Technische Universität Darmstadt, Germany); Hsuan-Yin Lin (Simula@UiB, Norway); Joerg Widmer (IMDEA Networks Institute, Spain); Matthias Hollick (Technische Universität Darmstadt & Secure Mobile Networking Lab, Germany)

11:07 Making the Right Connections: Multi-AP Association and Flow Control in 60GHz Band

Fan Zhou, M. Yousof Naderi, Kunal Sankhe and Kaushik Chowdhury (Northeastern University, USA)

P02: Panel A

Room: Tapa 1

Chair: Douglas N. Zuckerman (Vencore Labs, USA)

Wednesday, April 18, 11:30 - 13:30

L03: Conference Lunch

Room: Coral 4-5

L04: OC/SC Lunch

Room: Lehua Suite

Wednesday, April 18, 13:30 - 15:00

S38: Privacy 2

Room: Honolulu 1

Chair: Wenjing Lou (Virginia Tech, USA)

13:30 The Death and Rebirth of Privacy-Preserving Wifi Fingerprint Localization with Paillier Encryption

Zheng Yang and Kimmo Järvinen (University of Helsinki, Finland)

13:52 aLeak: Privacy Leakage through Context-Free Wearable Side-Channel

Yang Liu and Zhenjiang Li (City University of Hong Kong, Hong Kong)

14:15 SECProv: Trustworthy and Efficient Provenance Management in the Cloud

Shams Zawoad, Ragib Hasan and Kamrul Islam (University of Alabama at Birmingham, USA)

14:37 Communication-Efficient and Privacy-Preserving Data Aggregation without Trusted Authority

Xuhui Gong, Qiang-Sheng Hua, Lixiang Qian, Dongxiao Yu and Hai Jin (Huazhong University of Science and Technology, P.R. China)

S39: Internet of Things 1

Room: Honolulu 2

Chairs: Jian Tang (Syracuse University, USA), Guoliang Xue (Arizona State University, USA)

13:30 MobiRate: Mobility-Aware Rate Adaptation Using PHY Information for Backscatter Networks

Wei Gong (University of Science and Technology of China, P.R. China); Si Chen and Jiangchuan Liu (Simon Fraser University, Canada); Zhi Wang (Tsinghua University, P.R. China)

13:52 Exploiting Residual Channel for Implicit Wi-Fi Backscatter Networks

Taekyung Kim and Wonjun Lee (Korea University, Korea)

14:15 Wi-Fi Teeter-Totter: Overclocking OFDM for Internet of Things

Wei Wang and Shiyue He (Huazhong University of Science and Technology, P.R. China); Lin Yang and Qian Zhang (Hong Kong University of Science and Technology, Hong Kong); Tao Jiang (Huazhong University of Science and Technology, P.R. China)

14:37 Online Energy Management in IoT Applications

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

S40: Social Networks 2

Room: Honolulu 3

Chair: Xiaowen Gong (Auburn University, USA)

13:30 Who to Connect to? Joint Recommendations in Cross-layer Social Networks

Jiaqi Liu, Qi Lian and Luoyi Fu (Shanghai Jiao Tong University, P.R. China); Xinbing Wang (Shanghai Jiaotong University, P.R. China)

13:52 Deep User Modeling for Content-based Event Recommendation in Event-based Social Networks

Zhibo Wang and Yongquan Zhang (Wuhan University, P.R. China); Honglong Chen (China University of Petroleum, P.R. China); Zhetao Li (Xiangtan University, P.R. China); Feng Xia (Dalian University of Technology, P.R. China)

14:15 DeepLink: A Deep Learning Approach for User Identity Linkage

Fan Zhou and Lei Liu (University of Electronic Science and Technology of China, P.R. China); Kunpeng Zhang (University of Maryland, USA); Goce Trajcevski (Iowa State University, USA); Jin Wu and Ting Zhong (University of Electronic Science and Technology of China, P.R. China)

14:37 Predicting Learner Interactions in Social Learning Networks

Tsung-Yen Yang (Princeton University, USA); Christopher G. Brinton (Zoomi Inc., USA); Carlee Joe-Wong (Carnegie Mellon University, USA)

S41: Network Measurement 1

Room: Iolani 1-2-3

Chair: Chen Tian (Nanjing University, P.R. China)

13:30 Real-time Video Quality of Experience Monitoring for HTTPS and QUIC

M. Hammad Mazhar and M. Zubair Shafiq (University of Iowa, USA)

13:52 Network Measurement in Multihop Wireless Networks with Lossy and Correlated Links

Chenhong Cao (Zhejiang University, P.R. China); Wei Gong (University of Science and Technology of China, P.R. China); Wei Dong (Zhejiang University, P.R. China); Jihong Yu (Simon Fraser University, Canada); Chun Chen (Zhejiang University, P.R. China); Jiangchuan Liu (Simon Fraser University, Canada)

14:15 Adaptive Crawling with Multiple Bots: A Matroid Intersection Approach

Xiang Li and Johnathan Smith (University of Florida, USA); Thang N. Dinh (Virginia Commonwealth University, USA); My T. Thai (University of Florida, USA)

14:37 Estimation of DNS Source and Cache Dynamics under Interval-Censored Age Sampling

Di Xiao (Texas A&M, USA); Xiaoyong Li, Daren Cline and Dmitri Loguinov (Texas A&M University, USA)

S42: Cognitive Radio Networks 1

Room: Iolani 5-6

Chair: Wei Li (Texas Southern University, USA)

13:30 Low-complexity Learning for Dynamic Spectrum Access in Multi-User Multi-Channel Networks
Sunjung Kang and Changhee Joo (UNIST, Korea)

13:52 Off-sensing and Route Manipulation Attack: A Cross-Layer Attack in Cognitive Radio based Wireless Mesh Networks
Moinul Hossain and Linda Jiang Xie (University of North Carolina at Charlotte, USA)

14:15 Fast Rendezvous for Spectrum-Agile IoT Devices with Limited Channel Hopping Capability
Sigit Pambudi (North Carolina State University, USA); Wenye Wang (NC State University, USA); Cliff Wang (North Carolina State University, USA)

14:37 The impact of bundling licensed and unlicensed wireless service
Xu Wang and Randall A Berry (Northwestern University, USA)

S35: Big Data and Deep Learning

Room: Tapa 1
Chair: Xinbing Wang (Shanghai Jiaotong University, P.R. China)

13:30 Finding Persistent Items in Distributed Datasets

Haipeng Dai (Nanjing University & State Key Laboratory for Novel Software Technology, P.R. China); Meng Li (Nanjing University, P.R. China); Alex X. Liu (Michigan State University, USA)

13:52 Bloom Filter with a False Positive Free Zone

Sándor Kiss, Éva Hosszu and János Tapolcai (Budapest University of Technology and Economics, Hungary); Lajos Rónyai (Budapest University of Technology and Economics (BME), Hungary); Ori Rottenstreich (ORBS Research, Israel)

14:15 DeepDecision: A Mobile Deep Learning Framework for Edge Video Analytics

Xukan Ran and Haoliang Chen (University of California, Riverside, USA); Xiaodan Zhu and Zhenming Liu (College of William and Mary, USA); Jiasi Chen (University of California, Riverside, USA)

14:37 A Computing Platform for Video Crowdprocessing Using Deep Learning

Zongqing Lu (Peking University, P.R. China); Kevin S Chan (US Army Research Laboratory, USA); Tom La Porta (Pennsylvania State University, USA)

S36: Sensing, Recognition and Tracking 1

Room: Tapa 2
Chair: Xiaohua Tian (Shanghai Jiao Tong University, P.R. China)

13:30 Smart-U: Smart Utensils Know What You Eat

Qianyi Huang (Hong Kong University of Science and Technology, Hong Kong); Zhice Yang (ShanghaiTech University, P.R. China); Qian Zhang (Hong Kong University of Science and Technology, Hong Kong)

13:52 WordRecorder: Accurate Acoustic-based Handwriting Recognition Using Deep Learning

Haishi Du (University of Science and Technology of China, P.R. China); Ping Li (PLA University of Science and Technology, P.R. China); Hao Zhou and Wei Gong (University of Science and Technology of China, P.R. China); Gan Luo (PLA University of Science and Technology, P.R. China); Panlong Yang (University of Science and Technology of China, P.R. China)

14:15 PPG-based Finger-level Gesture Recognition Leveraging Wearables

Tianming Zhao (Binghamton University, USA); Jian Liu (WINLAB, Rutgers University, USA); Yan Wang (SUNY at Binghamton, USA); Hongbo Liu (Indiana University-Purdue University Indianapolis, USA); Yingying Chen (Rutgers University, USA)

14:37 LipPass: Lip Reading-based User Authentication on Smartphones Leveraging Acoustic Signals

Li Lu and Jiadi Yu (Shanghai Jiao Tong University, P.R. China); Yingying Chen (Rutgers University, USA); Hongbo Liu (Indiana University-Purdue University Indianapolis, USA); Yanmin Zhu, Yunfei Liu and Minglu Li (Shanghai Jiao Tong University, P.R. China)

S37: Graph-based Approaches 1

Room: Tapa 3
Chair: Di Niu (University of Alberta, Canada)

13:30 AppDNA: App Behavior Profiling via Graph-based Deep Learning

Shuangshuang Xue, Lan Zhang, Anran Li, Xiang-Yang Li, Chaoyi Ruan and Wenchao Huang (University of Science and Technology of China, P.R. China)

13:52 Understanding Ethereum via Graph Analysis

Ting Chen (University of Electronic Science and Technology of China (UESTC), P.R. China); Yuxiao Zhu (School of Management, Guangdong University of Technology, P.R. China); Zihao Li (University of Electronic Science and Technology of China (UESTC), P.R. China); Jiachi Chen, Xiaoqi Li and Xiapu Luo (The Hong Kong Polytechnic University, Hong Kong); Xiaodong Lin (Wilfrid Laurier University, Canada); Xiaosong Zhang (University of Electronic Science and Technology of China, P.R. China)

14:15 A Novel Graph-based Mechanism for Identifying Traffic Vulnerabilities in Smart Home IoT

Yizhen Jia and Yinhao Xiao (The George Washington University, USA); Jiguo Yu (Qufu Normal University, P.R. China); Xiuzhen Cheng (George Washington Univ, USA); Zhenkai Liang (National University of Singapore, Singapore); Zhiguo Wan (Shandong University, P.R. China)

14:37 Graph based Tensor Recovery For Accurate Internet Anomaly Detection

Kun Xie (State University of New York at Stony Brook, USA); Xiaocan Li (Stony Brook University, New York, USA); Xin Wang (Stony Brook University, USA); Gaogang Xie (Institute of Computing Technology, Chinese Academy of Sciences, P.R. China); Jigang Wen (Chinese Academy of Science & Institute of Computing Technology, P.R. China); Dafang Zhang (Hunan University, P.R. China)

Wednesday, April 18, 15:00 - 16:00

B06: Coffee Break

Room: Palace Lounge

Wednesday, April 18, 15:00 - 17:00

P01: Poster Session 1

Room: Palace Lounge
Chair: Yao Zheng (University of Hawai'i at Mānoa, USA)

Wednesday, April 18, 15:30 - 17:00

S45: Wireless Security 1

Room: Honolulu 1

Chair: Qiben Yan (University of Nebraska-Lincoln, USA)

15:30 Puncturable Attribute-Based Encryption for Secure Data Delivery in Internet-of-Things
Tran Viet Xuan Phuong, Rui Ning, Hongyi Wu and ChunSheng Xin (Old Dominion University, USA)

15:52 SecTap: Secure Back of Device Input System for Mobile Devices
Zhen Ling, Luo Junzhou, Yaowen Liu and Ming Yang (Southeast University, P.R. China); Kui Wu (University of Victoria, Canada); Xinwen Fu (University of Central Florida, USA)

16:15 SFIRE: Secret-Free In-band Trust Establishment for COTS Wireless Devices
Nirnimesh Ghose, Loukas Lazos and Ming Li (University of Arizona, USA)

16:37 Walls Have Ears: Traffic-based Side-channel Attack in Video Streaming
Jiaxi Gu (Northwestern Polytechnical University, P.R. China); Jiliang Wang (Tsinghua University, P.R. China); Zhiwen Yu (Northwestern Polytechnical University, P.R. China); Kele Shen (Tsinghua University, P.R. China)

S46: Internet of Things 2

Room: Honolulu 2

Chair: Carla Fabiana Chiasseroni (Politecnico di Torino, Italy)

15:30 Talking When No One is Listening: Piggybacking City-scale IoT Control Signals Over LTE
Kunal Sankhe, Ufuk Muncuk, M. Yousof Naderi and Kaushik Chowdhury (Northeastern University, USA)

15:52 IoT Communication Sharing: Scenarios, Algorithms and Implementation
Chuang Hu (The Hong Kong Polytechnic University, Hong Kong); Wei Bao (The University of Sydney, Australia); Dan Wang (The Hong Kong Polytechnic University, Hong Kong)

16:15 RED: RFID-based Eccentricity Detection for High-speed Rotating Machinery
Yilun Zheng and Yuan He (Tsinghua University, P.R. China); Meng Jin (Northwest University, P.R. China); Xiaolong Zheng (Tsinghua University, P.R. China); Yunhao Liu (Tsinghua University & The Hong Kong University of Science and Technology, P.R. China)

16:37 Acousticcardiogram: Monitoring Heartbeats using Acoustic Signals on Smart Devices
Kun Qian and Chenshu Wu (Tsinghua University, P.R. China); Fu Xiao (Nanjing University of Posts and Telecommunications, P.R. China); Yue Zheng, Yi Zhang and Zheng Yang (Tsinghua University, P.R. China)

S47: Next Generation Cellular Networks

Room: Honolulu 3

Chair: Tao Han (University of North Carolina at Charlotte, USA)

15:30 On User Mobility in Dynamic Cloud Radio Access Networks
Diala Naboulsi (Concordia University, Canada); Assia Mermouri and Razvan Stanica (INSA Lyon, France); Herve Rivano (Inria & Université de Lyon, INRIA, INSA Lyon, CTI, France); Marco Fiore (National Research Council of Italy, Italy)

15:52 Adaptive Demodulation for Wireless Systems in the Presence of Frequency-Offset Estimation Errors
Hamid Rahbari (Rochester Institute of Technology, USA); Peyman Siyari and Marwan Krunz (University of Arizona, USA); Jung-Min (Jerry) Park (Virginia Tech, USA)

16:15 On the Effect of Shadowing Correlation on Wireless Network Performance
Junse Lee (University of Texas Austin, USA); Francois Baccelli (UT Austin & The University of Texas at Austin, USA)

16:37 An Online Approach to D2D Trajectory Utility Maximization Problem
Amrit Singh Bedi (IIT Kanpur, India); Ketan Rajawat (Indian Institute of Technology Kanpur, India); Marceau Coupechoux (Telecom ParisTech, France)

S48: Network Measurement 2

Room: Iolani 1-2-3

Chair: Gong Zhang (Huawei Research, P.R. China)

15:30 The Cloud that Runs the Mobile Internet: A Measurement Study of Mobile Cloud Services
Foivos Michelinakis (University Carlos III of Madrid, Spain); Hossein Doroud (Universidad Carlos III de Madrid, Spain); Abbas Razaghpanah (Stony Brook University, USA); Andra Luu (Telefónica Research, Spain); Narseo Vallina-Rodriguez (ICSI-Berkeley, USA); Phillipa Gill (University of Massachusetts -- Amherst, USA); Joerg Widmer (IMDEA Networks Institute, Spain)

15:52 Squeezing the Gap: An Empirical Study on DHCP Performance in a Large-scale Wireless Network
Haibo Wang (TsingHua University, P.R. China); Jilong Wang, Weizhen Dang, JingAn Xue and Fenghua Li (Tsinghua University, P.R. China)

16:15 Flutes vs. Cellos: Analyzing Mobility-Traffic Correlations in Large WLAN Traces
Babak Alipour (University of Florida, USA); Leonardo Tonetto (TUM, Germany); Aaron Yi Ding (Technical University of Munich, Germany); Jörg Ott (Technische Universität München, Germany); Roozbeh Ketabi and Ahmed Helmy (University of Florida, USA)

16:37 Email as a Master Key: Analyzing Account Recovery in the Wild
Yue Li (College of William & Mary, USA); Haining Wang (University of Delaware, USA); Kun Sun (George Mason University, USA)

S49: Cognitive Radio Networks 2

Room: Iolani 5-6

Chair: Linda Jiang Xie (University of North Carolina at Charlotte, USA)

15:30 RECONN: Receiver-Driven Operating Channel Width Adaptation in IEEE 802.11ac WLANs
Seongho Byeon, Hwiiae Kwon, Youngwook Son, Changmok Yang and Sunghyun Choi (Seoul National University, Korea)

15:52 Stable Combinatorial Spectrum Matching
Yanqiao Chen (State Key Lab of Software Engineering, Wuhan University, P.R. China); Long Lin, Guiyan Cao and Zhenzhong Chen (Wuhan University, P.R. China); Baochun Li (University of Toronto, Canada)

16:15 AirVIEW: Unsupervised transmitter detection for next generation spectrum sensing
Mariya Zheleva, Petko Bogdanov and Timothy Larock (UAlbany SUNY, USA); Paul Schmitt (Princeton University, USA)

16:37 Spectrum Patrolling with Crowdsourced Spectrum Sensors
Ayon Chakraborty (Stony Brook University, USA); Arani Bhattacharya (Stony Brook University, USA & SUNY Korea, Korea); Samir R. Das (Stony Brook University, USA); Snigdha Kamal (Delhi Technological University, India); Himanshu Gupta and Petar M. Djurić (Stony Brook University, USA)

P03: PAWR

Room: Tapa 1

S43: Sensing, Recognition and Tracking 2

Room: Tapa 2

Chair: Yan Wang (SUNY at Binghamton, USA)

15:30 Multi-Touch in the Air: Device-Free Finger Tracking and Gesture Recognition via COTS RFID

Chuyu Wang (Nanjing University, P.R. China); Jian Liu (WINLAB, Rutgers University, USA); Yingying Chen (Rutgers University, USA); Hongbo Liu (Indiana University-Purdue University Indianapolis, USA); Lei Xie, Wei Wang, Bingbing He and Sanglu Lu (Nanjing University, P.R. China)

15:52 Accurate and Efficient Wireless Device Fingerprinting Using Channel State Information

Jingyu Hua, Hongyi Sun and Zhenyu Shen (Nanjing University, P.R. China); Zhiyun Qian (University of California, Riverside, USA); Sheng Zhong (Nanjing University, P.R. China)

16:15 Vernier: Accurate and Fast Acoustic Motion Tracking Using Mobile Devices

Yunting Zhang, Jiliang Wang, Weiyi Wang and Zhao Wang (Tsinghua University, P.R. China); Yunhao Liu (Tsinghua University & The Hong Kong University of Science and Technology, P.R. China)

16:37 Aegis: An Interference-Negligible RF Sensing Shield

Yao Yao (University of Maryland Baltimore County, USA); Yan Li (UMBC and JHU, USA); Xin Liu (University of Maryland, USA); Zicheng Chi (University of Maryland, Baltimore County, USA); Wei Wang (University of Maryland, USA); Tiantian Xie and Ting Zhu (University of Maryland, Baltimore County, USA)

S44: Graph-based Approaches 2

Room: Tapa 3

Chair: Di Niu (University of Alberta, Canada)

15:30 Spectral Graph Forge: Graph Generation Targeting Modularity

Luca Baltesi (University of Trento, Italy); Carter T Butts and Athina Markopoulou (University of California, Irvine, USA)

15:52 Quantifying Graph Anonymity, Utility, and De-anonymity

Shouling Ji (Zhejiang University, P.R. China & Georgia Institute of Technology, USA); Tianyu Du (Zhejiang University, P.R. China); Zhen Hong (Zhejiang Sci-Tech University, P.R. China); Ting Wang (Lehigh University, USA); Raheem Beyah (Georgia Institute of Technology, USA)

16:15 Correcting the Output of Approximate Graph Matching Algorithms

Joseph Lubars and R. Srikant (University of Illinois at Urbana-Champaign, USA)

16:37 Fast Beeping Protocols for Deterministic MIS and ($\Delta+1$)-Coloring in Sparse Graphs

Joffroy Beauquier, Janna Burman and Fabien Dufoulon (LRI, CNRS UMR 8623, Université Paris-Sud, Université Paris-Saclay, Orsay, France.); Shay Kutten (Technion, Israel)

Wednesday, April 18, 17:30 - 18:30

T01: INFOCOM 2019 TPC Meeting

Room: Tapa 1

Thursday, April 19

Thursday, April 19, 07:00 - 18:00

R04: Conference Registration & Info. Desk

Room: Palace Lobby

Thursday, April 19, 07:00 - 08:00

B07: Breakfast

Room: Palace Lounge

Thursday, April 19, 08:00 - 09:30

S53: Wireless Security 2

Room: Honolulu 1

Chair: Hongyi Wu (Old Dominion University, USA)

08:00 A Framework for MIMO-based Packet Header Obfuscation

Yue Cao and Ahmed Fahy Atya (University of California, Riverside, USA); Shailendra Singh (University Of California, Riverside, USA); Zhiyun Qian and Srikanth V. Krishnamurthy (University of California, Riverside, USA); Tom La Porta (Pennsylvania State University, USA); Prashant Krishnamurthy (University of Pittsburgh, USA); Lisa Marvel (Army Research Laboratory, USA)

08:22 Heracles: Scalable, Fine-Grained Access Control for Internet-of-Things in Enterprise Environments

Qian Zhou, Mohammed Elbadry, Fan Ye and Yuanyuan Yang (Stony Brook University, USA)

08:45 Secret-Focus: A Practical Physical Layer Secret Communication System by Perturbing Focused Phases in Distributed Beamforming

Xiaoran Fan and Zhijie Zhang (Rutgers University, USA); Wade Trappe (WINLAB, Rutgers University, USA); Yanyong Zhang and Richard Howard (Rutgers University, USA); Zhu Han (University of Houston, USA)

09:07 Dynamic Defense Strategy against Stealth Malware Propagation in Cyber-Physical Systems

Kaiming Xiao, Cheng Zhu, Junjie Xie, Yun Zhou, Xianqiang Zhu and Weiming Zhang (National University of Defense Technology, P.R. China)

S54: Fault Tolerance and Survivability 1

Room: Honolulu 2

Chair: Yingying Chen (Rutgers University, USA)

08:00 Polynomial-Time What-If Analysis for Prefix-Manipulating MPLS Networks

Stefan Schmid (University of Vienna, Austria); Jiri Srba (Aalborg University, Denmark)

- 08:22 Toward Optimal Storage Scaling via Network Coding: From Theory to Practice**
 Xiaoyang Zhang and Yuchong Hu (Huazhong University of Science and Technology, P.R. China); [Patrick Pak-Ching Lee](#) (The Chinese University of Hong Kong, Hong Kong); Pan Zhou (Huazhong University of Science and Technology, P.R. China)
- 08:45 Optimizing Network Reliability via Best-First Search over Decision Diagrams**
 Masaaki Nishino (NTT Communication Science Laboratories, Japan); Takeru Inoue (NTT Network Innovation Labs., Japan); Norihito Yasuda (NTT Communication Science Laboratories, Japan); Shin-ichi Minato (Hokkaido University, Japan); Masaaki Nagata (NTT Communication Science Laboratories, Japan)
- 09:07 Network Timing, Weathering the 2016 Leap Second**
 Darryl Veitch and Yi Cao (University of Technology Sydney, Australia)

S55: Network Optimization 1

Room: Honolulu 3
 Chair: Xu Yuan (University of Louisiana at Lafayette, USA)

- 08:00 Competitive Online Convex Optimization with Switching Costs and Ramp Constraints**
[Ming Shi](#), Xiaojun Lin and Sonia Fahmy (Purdue University, USA); Dong-Hoon Shin (AT&T Labs, USA)
- 08:22 Optimizing Age of Information in Wireless Networks with Throughput Constraints**
 Igor Kadota and Abhishek Sinha (Massachusetts Institute of Technology, USA); Eytan Modiano (MIT, USA)
- 08:45 Learning Aided Optimization for Energy Harvesting Devices with Outdated State Information**
 Hao Yu and Michael J. Neely (University of Southern California, USA)
- 09:07 High-Order Momentum: Improving Latency and Convergence for Wireless Network Optimization**
 Jia Liu (Iowa State University, USA)

S56: Theoretical Foundations in Networking Problems 1

Room: Iolani 1-2-3
 Chair: Xiaohua Xu (Kennesaw State University, USA)

- 08:00 Experience-driven Networking: A Deep Reinforcement Learning based Approach**
 Zhiyuan Xu, Jian Tang and Jingsong Meng (Syracuse University, USA); Weiyi Zhang (AT&T Research, USA); Yanzhi Wang (Syracuse University, USA); Chi Harold Liu (Beijing Institute of Technology, P.R. China); Dejun Yang (Colorado School of Mines, USA)
- 08:22 Optimal Control of Distributed Computing Networks with Mixed-Cast Traffic Flows**
 Jianan Zhang and Abhishek Sinha (Massachusetts Institute of Technology, USA); Jaime Llorca (Nokia Bell Labs, USA); Antonia Tulino (Bell Labs, USA & Università Federico II, Italy); Eytan Modiano (MIT, USA)
- 08:45 You Can Drop but You Can't Hide: K-persistent Spread Estimation in High-speed Networks**
 He Huang and Yu-e Sun (Soochow University, P.R. China); [Shigang Chen](#) (University of Florida, USA); Shao-Jie Tang (University of Texas at Dallas, USA); Kai Han (University of Science and Technology of China, P.R. China); Jing Yuan (University of Texas at Dallas, USA); Wenjian Yang (Soochow University, P.R. China)
- 09:07 Opportunistic Multichannel Access with Imperfect Observation: A Fixed Point Analysis on Indexability and Index-based Policy**
 Keqiao Wang (WHUT, P.R. China); [Lin Chen](#) (The University of Paris-Sud, France); [Jihong Yu](#) (Simon Fraser University, Canada); [Moe Win](#) (Massachusetts Institute of Technology, USA)

S57: Resource Markets in Wireless Networks

Room: Iolani 5-6
 Chair: Carlee Joe-Wong (Carnegie Mellon University, USA)

- 08:00 Maximizing Profit of Cloud Service Brokerage with Economic Demand Response**
[Ting Deng](#), Jianguo Yao and Haibing Guan (Shanghai Jiao Tong University, P.R. China)
- 08:22 Virtual Redundancy for Active-Standby Cloud Applications**
 Gueyoung Jung (AT&T Labs-Research, USA); [Parisa Rahimzadeh](#) (University of Colorado at Boulder, USA); Zhang Liu and Sangtae Ha (University of Colorado Boulder, USA); Kaustubh Joshi and Matti Hiltunen (AT&T Labs - Research, USA)
- 08:45 Contracts as Investment Barriers in Unlicensed Spectrum**
[Yining Zhu](#) and Randall A Berry (Northwestern University, USA)
- 09:07 Market Your Venue with Mobile Applications: Collaboration of Online and Offline Businesses**
 Haoran Yu (The Chinese University of Hong Kong, Hong Kong); George Iosifidis (Trinity College Dublin, Ireland); Biying Shou (City University of Hong Kong, Hong Kong); [Jianwei Huang](#) (The Chinese University of Hong Kong, Hong Kong)

S50: 5G Networks

Room: Tapa 1
 Chair: Serge Fdida (UPMC Sorbonne Universités, France)

- 08:00 Joint VNF Placement and CPU Allocation in 5G**
 Satyam Agarwal (IIT Guwahati, India); Francesco Malandrino and [Carla Fabiana Chiasserini](#) (Politecnico di Torino, Italy); Swades De (Indian Institute of Technology Delhi, India)
- 08:22 Enabling Quality-Driven Scalable Video Transmission over Multi-User NOMA System**
[Xiaoda Jiang](#) and Hancheng Lu (University of Science and Technology of China, P.R. China); Chang Wen Chen (State University of New York at Buffalo, USA)
- 08:45 FML: Fast Machine Learning for 5G mmWave Vehicular Communications**
 Arash Asadi (TU Darmstadt, Germany); Sabrina Müller (Technische Universität Darmstadt, Germany); [Gek Hong \(Allyson\) Sim](#) and Anja Klein (TU Darmstadt, Germany); Matthias Hollick (Technische Universität Darmstadt & Secure Mobile Networking Lab, Germany)
- 09:07 Joint Scheduling of URLLC and eMBB Traffic in 5G Wireless Networks**
 Arjun Anand (The University of Texas, Austin, USA); Gustavo de Veciana and Sanjay Shakkottai (The University of Texas at Austin, USA)

S51: Crowdsensing 1

Room: Tapa 2
 Chair: Panlong Yang (University of Science and Technology of China, P.R. China)

- 08:00 From Uncertain Photos to Certain Coverage: a Novel Photo Selection Approach to Mobile Crowdsensing**
 Tongqing Zhou (National University of Defense Technology, P.R. China); Bin Xiao (The Hong Kong Polytechnic University, Hong Kong); Zhiping Cai and Ming Xu (National University of Defense Technology, P.R. China); Xuan Liu (Hunan University, P.R. China)

08:22 Non-Interactive Privacy-Preserving Truth Discovery in Crowd Sensing Applications Xiaoting Tang and Cong Wang (City University of Hong Kong, Hong Kong); Xingliang Yuan (Monash University, Australia); Qian Wang (Wuhan University, P.R. China)
08:45 Spatiotemporal Scheduling for Crowd Augmented Urban Sensing Qixi Zhu, Md Yusuf Sarwar Uddin and Nalini Venkatasubramanian (University of California, Irvine, USA); Cheng-Hsin Hsu (National Tsing Hua University, Taiwan)
09:07 An Online Learning Approach to Network Application Optimization with Guarantee Kechao Cai, Xutong Liu and Yu-Zhen Janice Chen (The Chinese University of Hong Kong, Hong Kong); John Chi Shing Lui (Chinese University of Hong Kong, Hong Kong)

S52: Mobile Applications and Scheduling

Room: Tapa 3
Chair: Lan Zhang (University of Science and Technology of China, P.R. China)

08:00 I Can Hear More: Pushing the Limit of Ultrasound Sensing on Off-the-Shelf Mobile Devices Yuchi Chen (Simon Fraser University, Canada); Wei Gong (University of Science and Technology of China, P.R. China); Jiangchuan Liu (Simon Fraser University, Canada); Yong Cui (Tsinghua University, P.R. China)
08:22 Motion-Fi: Recognizing and Counting Repetitive Motions with Passive Wireless Backscattering Ning Xiao and Panlong Yang (University of Science and Technology of China, P.R. China); Yubo Yan (PLA University of Science and Technology, P.R. China); Hao Zhou and Xiang-Yang Li (University of Science and Technology of China, P.R. China)
08:45 Efficient Jobs Dispatching in Emerging Clouds Shimon Bitton, Yuval Emek and Shay Kutten (Technion, Israel)

09:07 Online Partial Throughput Maximization for Multidimensional Coflow Sungjin Im (University of California, Merced, USA); Maryam Shadloo (UC Merced, USA); Zizhan Zheng (Tulane University, USA)

Thursday, April 19, 09:30 - 10:30

B08: Coffee Break

Room: Palace Lounge

Thursday, April 19, 09:30 - 11:30

P04: Poster Session 2

Room: Palace Lounge
Chair: R Venkatesha Prasad (Delft University of Technology, The Netherlands)

Thursday, April 19, 10:00 - 11:30

S58: Internet and Web Security 1

Room: Honolulu 1
Chair: Sherman S. M. Chow (The Chinese University of Hong Kong, Hong Kong)

10:00 Mining Long-Term Stealthy User Behaviors on High Speed Links Pinghu Wang, Peng Jia and Jing Tao (Xi'an Jiaotong University, P.R. China); Xiaohong Guan (Xi'an Jiaotong University & Tsinghua University, P.R. China)
10:22 CertChain: Public and Efficient Certificate Audit Based on Blockchain for TLS Connections Jing Chen and Shixiong Yao (Wuhan University, P.R. China); Quan Yuan (University of Texas-Permian Basin, USA); Kun He (Wuhan University, P.R. China); Shouling Ji (Zhejiang University, P.R. China & Georgia Institute of Technology, USA); Ruiying Du (Wuhan University, P.R. China)
10:45 ONIS: Inferring TCP/IP-based Trust Relationships Completely Off-Path Xu Zhang, Jeffrey Knockel and Jeddiah Crandall (University of New Mexico, USA)
11:07 Game Theoretic Characterization of Collusive Behavior among Attackers Abhishek Roy and Prasant Mohapatra (University of California, Davis, USA); Charles A Kamhoua (US Army Research Laboratory & Network Science Division, USA)

S59: Fault Tolerance and Survivability 2

Room: Honolulu 2
Chair: Stefan Schmid (University of Vienna, Austria)

10:00 InPrivate Digging: Enabling Tree-based Distributed Data Mining with Differential Privacy Lingchen Zhao, Lihao Ni and Shengshan Hu (Wuhan University, P.R. China); Yanjiao Chen (State Key Lab of Software Engineering, Wuhan University, P.R. China); Pan Zhou (Huazhong University of Science and Technology, P.R. China); Fu Xiao (Nanjing University of Posts and Telecommunications, P.R. China); Libing Wu (Wuhan University, P.R. China)
10:22 Designing Optimal Middlebox Recovery Schemes with Performance Guarantees Yossi Kanizo (Tel-Hai College, Israel); Ori Rottenstreich (ORBS Research, Israel); Itai Segall (Bell Labs Israel, Israel); Jose Yallouz (Technion - Israel Institute of Technology, Israel)
10:45 A Tractable Stochastic Model of Correlated Link Failures Caused by Disasters János Tapolcai and Balázs Vass (Budapest University of Technology and Economics, Hungary); Zalan Hesszberger (Budapest University of Technology and Ec., Hungary); József Biró (Budapest University of Technology and Economics, Hungary); David Hay (The Hebrew University of Jerusalem, Israel); Fernando A. Kuipers (Delft University of Technology, The Netherlands); Lajos Rónayi (Budapest University of Technology and Economics (BME), Hungary)
11:07 ADELE: Anomaly Detection from Event Log Empiricism Subhendu Khatuya (IIT KHARAGPUR, India); Niloy Ganguly (Indian Institute of Technology Kharagpur, India); Jayanta Basak (NetApp India Pvt. Ltd., India); Madhumita Bharde (Expert Technologist, India); Bivas Mitra (Indian Institute of Technology Kharagpur, India)

S60: Network Optimization 2

Room: Honolulu 3
Chair: Jia Liu (Iowa State University, USA)

10:00 A Tale of Two Metrics in Network Delay Optimization Qingyu Liu (Virginia Tech, USA & The Chinese University of Hong Kong, Hong Kong); Lei Deng (Dongguan University of Technology, P.R. China); Haibo Zeng (Virginia Tech, USA); Minghua Chen (The Chinese University of Hong Kong, P.R. China)

10:22 Shortest Path and Maximum Flow Problems Under Service Function Chaining Constraints

Gamal Sallam (Temple University, USA); Gagan R Gupta (AT&T Labs, USA); Bin Li (University of Rhode Island, USA); Bo Ji (Temple University, USA)

10:45 On the Optimal Monitor Placement for Inferring Additive Metrics of Interested Paths

Rongwei Yang (University of Science and Technology of China & City University of Hong Kong, P.R. China); Cuiying Feng (University of Victoria, Canada); Luning Wang (City University of Hong Kong, Hong Kong); Weiwei Wu (Southeast University, P.R. China); Kui Wu (University of Victoria, Canada); Jianping Wang (City University of Hong Kong, Hong Kong); Yinlong Xu (University of Science and Technology of China, P.R. China)

11:07 Optimizing NFV Chain Deployment Through Minimizing the Cost of Virtual Switching

Yaniv Sa'ar (Nokia Bell Labs, Israel); Danny Raz (Nokia and Technion, Israel); Marcelo Caggiani Luizelli (Federal University of Pampa, Brazil)

S61: Theoretical Foundations in Networking Problems 2

Room: Iolani 1-2-3

Chair: Yoora Kim (University of Ulsan, Korea)

10:00 Online Knapsack Problem under Expected Capacity Constraint

Rahul Vaze (TIFR Mumbai, India)

10:22 Towards Repeatable Wireless Network Simulation Using Performance Aware Markov Model

Zhiwei Zhao (University of Electronic Science and Technology of China, P.R. China); Wei Dong (Zhejiang University, P.R. China); Geyong Min (University of Exeter, United Kingdom (Great Britain)); Gonglong Chen (Zhejiang University, P.R. China); Tao Gu (RMIT University, Australia); Jiajun Bu (Zhejiang University, P.R. China)

10:45 A Resource Allocation Framework for Network Slicing

Mathieu Leconte and Georgios S. Paschos (Huawei Technologies, France); Panayotis Mertikopoulos (French National Center for Scientific Research (CNRS) & Laboratoire d'Informatique de Grenoble, France); Ulas Can Kozat (Huawei R&D, USA)

11:07 Percolation-based Network Adaptability Under Correlated Failures

Jin-Hee Cho and Terrence J. Moore (Army Research Laboratory, USA)

P05: Panel B

Room: Tapa 1

Chair: Tilman Wolf (University of Massachusetts, USA)

Thursday, April 19, 11:30 - 13:30**L05: Conference Lunch**

Room: Coral 4-5

Thursday, April 19, 13:30 - 15:00**S65: Internet and Web Security 2**

Room: Honolulu 1

Chair: Mingyue Ji (University of Utah, USA)

13:30 Building Generic Scalable Middlebox Services over Encrypted Protocols

Cong Liu and Yong Cui (Tsinghua University, P.R. China); Kun Tan (Microsoft Research Asia, P.R. China); Quan Fan (Tsinghua University, P.R. China); Kui Ren (State University of New York at Buffalo, USA); Jianping Wu (Tsinghua University, P.R. China)

13:52 Pay for a Sliding Bloom Filter and Get Counting, Distinct Elements, and Entropy for Free

Eran Assaf (Hebrew University, Israel); Ran Ben Basat (Technion, Israel); Gil Einziger (Nokia Bell Labs, Israel); Roy Friedman (Technion, Israel)

14:15 SEAF: A Secure, Efficient and Accountable Access Control Framework for Information Centric Networking

Kaiping Xue, Xiang Zhang and Qidong Xia (University of Science and Technology of China, P.R. China); David Wei (Fordham University, USA); Hao Yue (San Francisco State University, USA); Feng Wu (University of Science and Technology of China, P.R. China)

14:37 InstantCryptoGram: Secure Image Retrieval Service

Minghui Li, Mingxue Zhang and Qian Wang (Wuhan University, P.R. China); Sherman S. M. Chow (The Chinese University of Hong Kong, Hong Kong); Minxin Du (Wuhan University, P.R. China); Yanjiao Chen (State Key Lab of Software Engineering, Wuhan University, P.R. China); Chenliang Li (State Key Lab of Software Engineering, Computer School, Wuhan University, P.R. China)

S66: Internet Monitoring and Measurement 1

Room: Honolulu 2

Chair: Damien Sauzeau (Inria, France)

13:30 Deep Diving into Africa's Inter-Country Latencies

Agustin Formoso (LACNIC, Uruguay); Josiah Chavula (AFRINIC Ltd, South Africa); Amreesh Phokeer (University of Cape Town, South Africa & AFRINIC, Mauritius); Arjuna Sathiaseelan (University of Cambridge, United Kingdom (Great Britain)); Gareth Tyson (Queen Mary, University of London, United Kingdom (Great Britain))

13:52 Can We Learn What People Are Doing from Raw DNS Queries?

Jianfeng Li, Xiaobo Ma and Li Guodong (Xi'an Jiaotong University, P.R. China); Xiapu Luo (The Hong Kong Polytechnic University, Hong Kong); Junjie Zhang (Wright State University, USA); Wei Li (Xi'an Jiaotong University, P.R. China); Xiaohong Guan (Xi'an Jiaotong University & Tsinghua University, P.R. China)

14:15 Inferring Carrier-Grade NAT Deployment in the Wild

Ioana Livadariu (Simula Research Laboratory, Norway); Karyn Benson (CAIDA/UCSD, USA); Ahmed Mustafa Elmokashfi (Simula Research Laboratory, Norway); Amogh Dhamdhere (CAIDA, University of California, San Diego, USA); Alberto Dainotti (CAIDA, UC San Diego, USA)

14:37 An Efficient Framework for Detecting Evolving Anomalous Subgraphs in Dynamic Networks

Minglai Shao and Li Jianxin (Beihang University, P.R. China); Feng Chen (University of Albany, USA); Xunxun Chen (CNERT/CC, P.R. China)

S67: Coding

Room: Honolulu 3

Chair: Lin Cai (University of Victoria, Canada)

13:30 High Throughput Low Delay Wireless Multicast via Multi-Channel Moving Window Codes

Fei Wu (The Ohio State University, USA); Yin Sun (Auburn University, USA); Lu Chen (The Ohio State University, USA); Jiaqi Xu (the Ohio State University, USA); Kannan Srinivasan and Ness B. Shroff (The Ohio State University, USA)

13:52 Chase++: Fountain-Enabled Fast Flooding in Asynchronous Duty Cycle Networks
Zhichao Cao and Jiliang Wang (Tsinghua University, P.R. China); Daibo Liu (University of Electronic Science and Technology of China, P.R. China); Xin Miao, Qiang Ma and Xufei Mao (Tsinghua University, P.R. China)

14:15 Linear Block Coding for Efficient Beam Discovery in Millimeter Wave Communication Networks
Yahia Shabara, Can Emre Koksal and Eylem Ekici (The Ohio State University, USA)

14:37 CAPS: Coding-based Adaptive Packet Spraying to Reduce Flow Completion Time in Data Center
Jinbin Hu, Jiawei Huang, Wenjun Lv, Yutao Zhou and Jianxin Wang (Central South University, P.R. China); Tian He (University of Minnesota, USA)

S68: Theoretical Foundations in Networking Problems 3

Room: Iolani 1-2-3
Chair: Dejun Yang (Colorado School of Mines, USA)

13:30 Virtual Network Reconfiguration with Load Balancing and Migration Cost Considerations
Lingnan Gao and George N. Rouskas (North Carolina State University, USA)

13:52 Joint Selection And Scheduling of Communication Requests in Multi-Channel Wireless Networks under SINR Model
Peng-Jun Wan (Illinois Institute of Technology, USA); Huaqiang Yuan (Dongguan University of Technology, P.R. China); Jiliang Wang (Tsinghua University, P.R. China); Ju Ren and Yaoxue Zhang (Central South University, P.R. China)

14:15 Analysis of Hybrid Geographic/Delay-Tolerant Routing Protocols for Wireless Mobile Networks
Riccardo Cavallari (DEI - University of Bologna, Italy); Stavros Tournakis (Research Center - Athens University of Economics and Business, Greece); Roberto Verdone (University of Bologna, Italy)

14:37 Information Theoretical Analysis of Synaptic Communication for Nanonetworks
Hamideh Ramezani (University of Cambridge, United Kingdom (Great Britain) & Koc University, Turkey); Tooba Khan (Koc University, Turkey); Ozgur B. Akan (University of Cambridge, United Kingdom (Great Britain))

S69: Heterogeneous Networks

Room: Iolani 5-6
Chair: Zhangyu Guan (Northeastern University, USA)

13:30 Collaborative Uploading in Heterogeneous Networks: Optimal and Adaptive Strategies
Wasir R. KhudaBukhsh, Bastian Alt, Sounak Kar, Amr Rizk and Heinz Koeppl (Technische Universität Darmstadt, Germany)

13:52 Online Learning based Uplink Scheduling in HetNets with Limited Backhaul Capacity
Zhenhua Han (The University of Science and Technology of China, P.R. China); Haisheng Tan (University of Science and Technology of China, P.R. China); Rui Wang (Southern University of Science and Technology, P.R. China); Shaojie Tang (University of Texas at Dallas, USA); Francis C.M. Lau (The University of Hong Kong, Hong Kong)

14:15 PR3: Power Efficient and Low Latency Baseband Processing for LTE Femtocells
Nishant Budhdev and Mun Choon Chan (National University of Singapore, Singapore); Tulika Mitra (NUS Singapore, Singapore)

14:37 FluidRAN: Optimal vRAN/MEC Orchestration
Andres Garcia-Saavedra (NEC Labs Europe, Germany); Xavier Costa-Perez (NEC Laboratories Europe, Germany); Douglas Leith and George Iosifidis (Trinity College Dublin, Ireland)

S62: Millimeter Wave Networks

Room: Tapa 1
Chair: Dimitrios Koutsoukos (University at Buffalo, SUNY, USA)

13:30 Following the Shadow: Agile 3-D Beam-Steering for 60 GHz Wireless Networks
Anfu Zhou, Leilei Wu, Shaoqing Xu and Huadong Ma (Beijing University of Posts and Telecommunications, P.R. China); Teng Wei (University of Wisconsin - Madison, USA); Xinyu Zhang (University of California San Diego & University of Wisconsin-Madison, USA)

13:52 Indoor Localization Using Commercial Off-The-Shelf 60 GHz Access Points
Guillermo Bielsa (IMDEA Networks Institute & Universidad Carlos III de Madrid, Spain); Joan Palacios and Adrian Loch (IMDEA Networks Institute, Spain); Daniel Steinmetzer (Technische Universität Darmstadt, Germany); Paolo Casari and Joerg Widmer (IMDEA Networks Institute, Spain)

14:15 Efficient Beam Alignment in Millimeter Wave Systems Using Contextual Bandits
Morteza Hashemi, Ness B. Shroff and Can Emre Koksal (The Ohio State University, USA); Ashutosh Sabharwal (Rice University, USA)

14:37 Communication-Driven Localization and Mapping for Millimeter Wave Networks
Joan Palacios (IMDEA Networks Institute, Spain); Guillermo Bielsa (IMDEA Networks Institute & Universidad Carlos III de Madrid, Spain); Paolo Casari and Joerg Widmer (IMDEA Networks Institute, Spain)

S63: Crowdsensing 2

Room: Tapa 2
Chair: Rui Zhang (University of Delaware, USA)

13:30 Towards Personalized Task Matching in Mobile Crowdsensing via Fine-Grained User Profiling
Shuo Yang, Kunyan Han and Zhenzhe Zheng (Shanghai Jiao Tong University, P.R. China); Shaojie Tang (University of Texas at Dallas, USA); Fan Wu (Shanghai Jiao Tong University, P.R. China)

13:52 Dynamic Task Assignment in Crowdsensing with Location Awareness and Location Diversity
Xiong Wang (Shanghai Jiao Tong University, P.R. China); Riheng Jia (Shanghai Jiaotong University, P.R. China); Xiaohua Tian and Xiaoying Gan (Shanghai Jiao Tong University, P.R. China)

14:15 A Constrained Maximum Likelihood Estimator for Unguided Social Sensing
Huanjie Shao (University of Illinois at Urbana-Champaign, USA); Shuochao Yao (University of Illinois Urbana-Champaign, USA); Yiran Zhao (University of Illinois at Urbana-Champaign, USA); Chao Zhang (University of Illinois at Urbana-Champaign, USA); Jinda Han (University of Illinois at Urbana Champaign, USA); Lance Kaplan (US Army Research Laboratory, USA); Lu Su (State University of New York at Buffalo, USA); Tarek Abdelzaher (University of Illinois, Urbana Champaign, USA)

14:37 Sybil-Proof Online Incentive Mechanisms for Crowdsensing
Jian Lin, Ming Li and Dejun Yang (Colorado School of Mines, USA); Guoliang Xue (Arizona State University, USA)

S64: Network Economics

Room: Tapa 3
Chair: Francesco De Pellegrini (Fondazione Bruno Kessler (FBK), Italy)

13:30 Small-Scale Markets for Bilateral Resource Trading in the Sharing Economy Bainan Xia and Srinivas G Shakkottai (Texas A&M University, USA); Vijay Subramanian (University of Michigan, USA)
13:52 Occupation-Oblivious Pricing of Cloud Jobs via Online Learning Xiaoxi Zhang and Chuan Wu (The University of Hong Kong, Hong Kong); Zhiyi Huang (University of Hong Kong, USA); Zongpeng Li (University of Calgary, Canada)
14:15 An Investigation into Android In-App Ad Practice: Implications for App Developers Boyan He (Zhejiang University, P.R. China); Haitao Xu (Northwestern University, USA); Ling Jin and Guanyu Guo (Zhejiang University, P.R. China); Yan Chen (Northwestern University, USA); Guangyao Weng (Zhejiang University, P.R. China)
14:37 Optimizing Data Plans: Usage Dynamics in Mobile Data Networks Liang Zheng (Princeton University, USA); Carlee Joe-Wong (Carnegie Mellon University, USA); Matthew Andrews (Nokia Bell Labs, USA); Mung Chiang (Purdue University, USA)

Thursday, April 19, 15:00 - 16:00

B09: Coffee Break

Room: Palace Lounge

Thursday, April 19, 15:30 - 17:00

S73: Smart Grid

Room: Honolulu 1
Chair: Yanchao Zhang (Arizona State University, USA)

15:30 Robust Multi-stage Power Grid Operations with Energy Storage Yihuan Zou, Xiaojun Lin and Dionysios Aliprantis (Purdue University, USA); Minghua Chen (The Chinese University of Hong Kong, P.R. China)
15:52 EV Charging Network Design with Transportation and Power Grid Constraints Yongmin Zhang, Jiayi Chen, Lin Cai and Jianping Pan (University of Victoria, Canada)
16:15 How Can Cyber-Physical Interdependence Affect the Mitigation of Cascading Power Failure? Mingkui Wei (Sam Houston State University, USA); Zhuo Lu (University of South Florida, USA); Yufei Tang (Florida Atlantic University, USA); Xiang Lu (Institute of Information Engineering, CAS, P.R. China)
16:37 Restricting Involuntary Extension of Failures in Smart Grids using Social Network Metrics Jose Cordova Garcia (ESPOL, Ecuador & Stony Brook University, USA); Dongliang Xie (State University of New York at Stony Brook, USA); Xin Wang (Stony Brook University, USA)

S74: Internet Monitoring and Measurement 2

Room: Honolulu 2
Chair: Linda Jiang Xie (University of North Carolina at Charlotte, USA)

15:30 Privacy Risk Assessment on Email Tracking Haitao Xu (Northwestern University, USA); Shuai Hao (University of California San Diego & University of Delaware, USA); Alparslan Sari and Haining Wang (University of Delaware, USA)
15:52 Randomized View Reconciliation in Permissionless Distributed Systems Ruoru Hou, Irwan Jahja, Loi Luu, Prateek Saxena and Haifeng Yu (National University of Singapore, Singapore)
16:15 Towards Fine-grained Fingerprinting of Firmware in Online Embedded Devices Qiang Li (Beijing Jiaotong University, P.R. China); Xuan Feng (University of Chinese Academy of Sciences, P.R. China); Haining Wang (University of Delaware, USA); Zhi Li (Institute of Information Engineering, Chinese Academy of Sciences, P.R. China); Limin Sun (Institute of Information Engineering, China Academy of Science, Beijing, P.R. China)
16:37 Stochastic Models and Wide-Area Network Measurements for Blockchain Design and Analysis Nikolaos Papadis (Yale University, USA); Sem Borst (Nokia Bell Labs & Eindhoven University of Technology, USA); Anwar Walid (Nokia Bell Labs, USA); Mohamed Grissa (Oregon State University, USA); Leandros Tassiulas (Yale University, USA)

S75: Peer-to-Peer Networks

Room: Honolulu 3
Chair: Massimiliano Pierobon (University of Nebraska-Lincoln, USA)

15:30 Proactive Video Push for Optimizing Bandwidth Consumption in Hybrid CDN-P2P VoD Systems Yuanxing Zhang (School of EECS, Peking University, P.R. China); Chengliang Gao, Yangze Guo and Kaigui Bian (Peking University, P.R. China); Xin Jin (Johns Hopkins University, USA); Zhi Yang and Lingyang Song (Peking University, P.R. China); Jiangang Cheng and Hu Tu (IQIYI Science & Technology Co., Ltd., P.R. China); XiaoMing Li (Peking University, P.R. China)
15:52 Paid Peering, Settlement-Free Peering, or Both? Xin Wang (National University of Singapore, P.R. China); Yinlong Xu (University of Science and Technology of China, P.R. China); Richard T. B. Ma (National University of Singapore, Singapore)
16:15 Mode-Suppression: A Simple and Provably Stable Chunk-Sharing Algorithm for P2P Networks Vamseedhar R Reddyvari Raja and Srinivas G Shakkottai (Texas A&M University, USA); Parimal Parag (Indian Institute of Science, India)
16:37 On the Distributed Computation of Load Centrality and Its Application to DV Routing Leonardo Maccari, Lorenzo Ghiro, Alessio Guerrrieri, Alberto Montresor and Renato Lo Cigno (University of Trento, Italy)

S76: The Mobile Internet

Room: Iolani 1-2-3
Chair: Binbin Chen (Advanced Digital Sciences Center, Singapore)

15:30 A Simple Model of MTC in Smart Factories Paolo Castagno (University of Turin & University of Turin, Italy); Vincenzo Mancuso (IMDEA Networks Institute, Spain); Matteo Sereno (University of Torino, Italy); Marco G Ajmone Marsan (Politecnico di Torino & IMDEA Networks, Italy)
15:52 Fundamental Limits of Wireless Distributed Computing Networks Mingyue Ji and Rong-Rong Chen (University of Utah, USA)

16:15 To Accept or Not to Accept: The Question of Supplemental Discount Offers in Mobile Data Plans
Madhumitha Harishankar, Nagarjun Srinivasan, Carlee Joe-Wong and Patrick Tague (Carnegie Mellon University, USA)

16:37 It's All in the Name: Why Some URLs are More Vulnerable to Typosquatting
Rashid Tahir (University of Illinois at Urbana Champaign, USA); Ali Raza (Boston University, USA); Faizan Ahmad (FAST National University Lahore, Pakistan); Jehangir Kazi (Lahore University of Management Sciences, Pakistan); Fareed Zaffar (LUMS, Pakistan); Chris Kanich (University of Illinois at Chicago, USA); Matthew Caesar (University of Illinois at Urbana-Champaign, USA)

S77: Router and Switch Design

Room: Iolani 5-6
Chair: Berk Canberk (Istanbul Technical University, Turkey)

15:30 Highly Compact Virtual Active Counters for Per-flow Traffic Measurement
You Zhou (University of Florida, USA); Yian Zhou (Google Inc., USA); Shigang Chen and Youlin Zhang (University of Florida, USA)

15:52 Fast OpenFlow Table Lookup with Fast Update
Tong Yang (Peking University, P.R. China); Alex X. Liu (Michigan State University, USA); Yulong Shen (Xidian University, P.R. China); Qiaobin Fu (Boston University, USA); Dagang Li and XiaoMing Li (Peking University, P.R. China)

16:15 CutSplit: A Decision-Tree Combining Cutting and Splitting for Scalable Packet Classification
Wenjun Li and Xianfeng Li (Peking University, P.R. China); Hui Li (Peking University Shenzhen Graduate School, P.R. China); Gaogang Xie (Institute of Computing Technology, Chinese Academy of Sciences, P.R. China)

16:37 ByteCuts: Fast Packet Classification by Interior Bit Extraction
James Daly and Eric Torn (Michigan State University, USA)

S70: Ultra Dense Networks

Room: Tapa 1
Chair: Yin Sun (Auburn University, USA)

15:30 On Spatial and Temporal Variations in Ultra Dense Wireless Networks
Pranav Madadi (University of Texas at Austin, USA); Francois Baccelli (UT Austin & The University of Texas at Austin, USA); Gustavo de Veciana (The University of Texas at Austin, USA)

15:52 Optimal Activation Rates in Ultra-Dense Wireless Networks with Intermittent Traffic Sources
Fabio Cecchi, Sem Borst and Johan van Leeuwaarden (Eindhoven University of Technology, The Netherlands); Philip Whiting (Macquarie University, Australia)

16:15 Joint Optimization of User Association and Dynamic TDD for Ultra-Dense Networks
Nikolaos Sapountzis (University of Florida, USA); Thrasivoulos Spyropoulos (EURECOM, France); Navid Nikaein (Eurecom, France); Umer Salim (TCL, France)

16:37 Robust User Association for Ultra Dense Networks
Nikolaos Liakopoulos (Huawei Technologies & UPMC, France); Georgios S. Paschos (Huawei Technologies, France); Thrasivoulos Spyropoulos (EURECOM, France)

S71: Crowdsourcing

Room: Tapa 2
Chair: S.-H. Gary Chan (The Hong Kong University of Science and Technology, P.R. China)

15:30 Optimal Demand-Aware Ride-Sharing Routing
QiuLin Lin (The Chinese University of Hong Kong, Hong Kong); Lei Deng (Dongguan University of Technology, P.R. China); Jingzhou Sun (Tsinghua University, P.R. China); Minghua Chen (The Chinese University of Hong Kong, P.R. China)

15:52 MOVI: A Model-Free Approach to Dynamic Fleet Management
Takuma Oda (DeNA Co., Ltd., USA); Carlee Joe-Wong (Carnegie Mellon University, USA)

16:15 Distributed Trip Selection Game for Public Bike System with Crowdsourcing
Jianhui Zhang, Pengqian Lu, Zhi Li and Jiayu Gan (Hangzhou Dianzi University, P.R. China)

16:37 MobiCrowd: Mobile Crowdsourcing on Location-based Social Networks
Yulong Tian (Nanjing University, P.R. China); Wei Wei and Qun Li (College of William and Mary, USA); Fengyuan Xu and Sheng Zhong (Nanjing University, P.R. China)

S72: Auctions & Pricing

Room: Tapa 3
Chair: Shigang Chen (University of Florida, USA)

15:30 CrowdBuy: Privacy-friendly Image Dataset Purchasing via Crowdsourcing
Lan Zhang, Yannan Li, Xiang Xiao and Xiang-Yang Li (University of Science and Technology of China, P.R. China); Junjun Wang (University Of Science And Technology Of China, P.R. China); Anxin Zhou and Qiang Li (University of Science and Technology of China, P.R. China)

15:52 Optimal cache leasing from a mobile network operator to a content provider
Jonatan Królikowski (L2S - University Paris-Saclay, France); Anastasios Giovanidis (Sorbonne Université & CNRS-LIP6, France); Marco Di Renzo (Paris-Saclay University / CNRS, France)

16:15 Dominant Strategy Allocation of Divisible Network Resources with Limited Information Exchange
Hao Ge and Randall A Berry (Northwestern University, USA)

16:37 Learning Cloud Dynamics to Optimize Spot Instance Bidding Strategies
Mikhail Khodak, Liang Zheng and Andrew Lan (Princeton University, USA); Carlee Joe-Wong (Carnegie Mellon University, USA); Mung Chiang (Purdue University, USA)

Program

Tuesday, April 30

Tuesday, April 30 7:30 - 9:00

Breakfast

Room: Galerie + Loft A/B/C/D/E/F

Tuesday, April 30 9:00 - 11:00

Opening and Keynote

Room: Scene A/B/C

Tuesday, April 30 11:00 - 11:30

Coffee Break

Room: Scene Foyer

Tuesday, April 30 11:30 - 13:00

1-A: Wireless Access Networks

Room: Scene D/E/F

Chair: Huaiyu Dai (NC State University, USA)

Wireless Multicasting for Content Distribution: Stability and Delay Gain Analysis

Bahman Abolhassani (The Ohio State University, USA); John Tadrous (Gonzaga University, USA); Atilla Eryilmaz (The Ohio State University, USA)

Joint Service Placement and Request Routing in Multi-cell Mobile Edge Computing Networks

Konstantinos Poularakis (Yale University, USA); Jaime Llorca (Nokia Bell Labs, USA); Antonia Tulino (Bell Labs, USA & Università Federico II, Italy); Ian Taylor (Cardiff University, United Kingdom (Great Britain)); Leandros Tassiulas (Yale University, USA)

CRF: Coexistent Routing and Flooding using WiFi Packets in Heterogeneous IoT Networks

Wei Wang and Xin Liu (University of Maryland, USA); Yao Yao (University of Maryland Baltimore County, USA); Yan Pan (Northwestern Polytechnical University, P.R. China); Zicheng Chi and Ting Zhu (University of Maryland, Baltimore County, USA)

Access Strategies for Network Caching

Itamar Cohen (Ben-Gurion University of the Negev, Israel); Gil Einziger (Ben-Gurion University Of The Negev, Israel); Roy Friedman (Technion, Israel); Gabriel Scalosub (Ben-Gurion University of the Negev, Israel)

1-B: Routing and Traffic Engineering

Room: Forum A/B

Chair: Sergey Gorinsky (IMDEA Networks Institute, Spain)

On the Distribution of AoI for the GI/GI/1/1 and GI/GI/1/2* Systems: Exact Expressions and Bounds

Jaya Prakash Varma Champati (KTH Royal Institute of Technology, Sweden); Hussein Al-Zubaidy (Royal Institute of Technology (KTH), Sweden); James Gross (KTH Royal Institute of Technology, Sweden)

A Constant Approximation for Maximum Throughput Multicommodity Routing

Mengxue Liu and Andrea Richa (Arizona State University, USA); Stefan Schmid (University of Vienna, Austria); Matthias Rost (TU Berlin, Germany)

A Utility-driven Multi-Queue Admission Control Solution for Network Slicing

Bin Han (Technische Universität Kaiserslautern, Germany); Vincenzo Sciancalepore (NEC Laboratories Europe GmbH, Germany); Di Feng (Université de Lausanne, Switzerland); Xavier Costa-Perez (NEC Laboratories Europe, Germany); Hans D. Schotten (University of Kaiserslautern, Germany)

Discrete-Time Modeling of NFV Accelerators that Exploit Batched Processing

Stanislav Lange (Pohang University of Science and Technology, Korea); Leonardo Linguaglossa (Telecom ParisTech, France); Stefan Geissler (University of Wuerzburg, Germany); Dario Rossi (Telecom ParisTech, France); Thomas Zinner (TU Berlin, Germany)

1-C: Device-to-Device and 5G Networks

Room: Forum C

Chair: Zhi-Li Zhang (University of Minnesota, USA)

Charging Oriented Sensor Placement and Flexible Scheduling in Rechargeable WSN

Tao Wu (Army Engineering University, P.R. China); Panlong Yang (University of Science and Technology of China, P.R. China); Haipeng Dai (Nanjing University & State Key Laboratory for Novel Software Technology, P.R. China); Wanru Xu (Army Engineering University of PLA, P.R. China); Mingxue Xu (University of Science and Technology of China, P.R. China)

D2D Offloading for Statistical QoS Provisionings Over 5G Multimedia Mobile Wireless Networks

Xi Zhang (Texas A&M University, USA); Qixuan Zhu (Texas A&M University, USA)

Enhancing Cellular Performance via Vehicular-based Opportunistic Relaying and Load Balancing

Saadallah Kassir and Gustavo de Veciana (The University of Texas at Austin, USA); Nannan Wang, Xi Wang and Paparao Palacharla (Fujitsu Laboratories of America, USA)

Interference Recycling: Exploiting Interfering Signals to Enhance Data Transmission

Zhao Li and Jie Chen (Xidian University, P.R. China); Kang G. Shin (University of Michigan, USA); Jia Liu (National Institute of Informatics, Japan)

1-D: Theoretical Foundations in Networking Problems 1

Room: Forum E/F

Chair: Kui Wu (University of Victoria, Canada)

Only Those Requested Count: Proactive Scheduling Policies for Minimizing Effective Age-of-Information

Bo Yin, Shuai Zhang, Yu Cheng and Lin X. Cai (Illinois Institute of Technology, USA); Zhiyuan Jiang (Shanghai University, P.R. China); Sheng Zhou and Zhisheng Niu (Tsinghua University, P.R. China)

A General Model for Minimizing Age of Information at Network Edge

Chengzhang Li, Shaoran Li and Thomas Hou (Virginia Tech, USA)

Optimal Trunk-Reservation by Policy Learning

Antonio Massaro (Fondazione Bruno Kessler, Italy); Francesco De Pellegrini (University of Avignon, France & Fondazione Bruno Kessler (FBK), Italy); Lorenzo Maggi (Nokia Bell Labs, France)

Online Channel-state Clustering And Multiuser Capacity Learning For Wireless Scheduling

Isfar Tariq (The University of Texas at Austin, USA); Rajat Sen (University of Texas At Austin, USA); Gustavo de Veciana and Sanjay Shakkottai (The University of Texas at Austin, USA)

1-E: Big Data Processing

Room: Forum G/H/I/J

Distributed Self-Adjusting Tree Networks

Bruna Soares Peres, Otavio Augusto de Oliveira Souza and Olga Goussevskaia (UFMG, Brazil); Chen Avin (Ben-Gurion University of the Negev, Israel); Stefan Schmid (University of Vienna, Austria)

HideMe: Privacy-Preserving Photo Sharing on Social Networks

Fenghua Li (State Key Laboratory of Information Security, Institute of Information Engineering, CAS, P.R. China); Zhe Sun (Institute of Information Engineering, Chinese Academy of Sciences & School of Cyber Security, University of Chinese Academy of Sciences, P.R. China); Ang Li (University of Arkansas, USA); Ben Niu (Institute of Information Engineering, Chinese Academy of Sciences, P.R. China); Hui Li (Xidian University, P.R. China); Guohong Cao (The Pennsylvania State University, USA)

Towards Measuring Quality of Service in Untrusted Multi-Vendor Service Function Chains: Balancing Security and Resource Consumption

Prasanna Karthik Vairam (Indian Institute of Technology Madras, India); Gargi Mitra, Vignesh Manoharan and Chester Rebeiro (IIT Madras, India); Byrav Ramamurthy (University of Nebraska-Lincoln, USA); Kamakoti V (Indian Institute of Technology Madras, India)

MG-WFBP: Efficient Data Communication for Distributed Synchronous SGD Algorithms

Shaohuai Shi and Xiaowen Chu (Hong Kong Baptist University, Hong Kong); Bo Li (Hong Kong University of Science and Technology, Hong Kong)

Tuesday, April 30 13:00 - 14:30

Conference Lunch

Room: Galerie + Loft A/B/C/D/E/F

N2Women Lunch

Room: Loft G/H

Tuesday, April 30 14:30 - 16:00

Panel A: Smart Networks: What is Next?

Room: Scene B

Chair: Arturo Azcorra (University Carlos III of Madrid & IMDEA Networks, Spain)

2-A: Wireless Mesh and Ad Hoc Networks 1

Room: Scene D/E/F

Chair: Yin Sun (Auburn University, USA)

Synthesizing Wider WiFi Bandwidth for Respiration Rate Monitoring in Dynamic Environments

Shuyu Shi (Nanyang Technological University & Nanjing University, P.R. China); Yaxiong Xie (Nanyang Technological University, Singapore); Alex X. Liu (Michigan State University, USA); Jun Zhao and Mo Li (Nanyang Technological University, Singapore)

Real-time Identification of Rogue WiFi Connections Using Environment-Independent Physical Features

Pengfei Liu and Panlong Yang (University of Science and Technology of China, P.R. China); Wen-Zhan Song (University of Georgia, USA); Yubo Yan and Xiang-Yang Li (University of Science and Technology of China, P.R. China)

\(\mathcal{F}\)ID: Function Modeling-based Data-Independent and Channel-Robust Physical-Layer Identification

Tianhang Zheng (University at Buffalo, USA); Zhi Sun and Kui Ren (State University of New York at Buffalo, USA)

A Unified Sampling and Scheduling Approach for Status Update in Multiaccess Wireless Networks

Zhiyuan Jiang (Shanghai University, P.R. China); Sheng Zhou and Zhisheng Niu (Tsinghua University, P.R. China); Yu Cheng (Illinois Institute of Technology, USA)

2-B: Scheduling and Buffer Management 1

Room: Forum A/B

Chair: Giovanni Neglia (Inria, France)

Kelly Cache Networks

Milad Mahdian, Armin Moharrer, Stratis Ioannidis and Edmund Yeh (Northeastern University, USA)

Cache Network Management Using BIG Cache Abstraction

Pariya Babaie, Eman Ramadan and Zhi-Li Zhang (University of Minnesota, USA)

Learning to Cache With no Regrets

Georgios S. Paschos (Huawei Technologies, France); Apostolos Destounis (Huawei Technologies France Research Center, France); Luigi Vigneri (Huawei Technologies & Université Grenoble Alpes, France); George Iosifidis (Trinity College Dublin, Ireland)

Camul: Online Caching on Multiple Caches with Relaying and Bypassing

Haisheng Tan (University of Science and Technology of China, P.R. China); Shaofeng H.-C. Jiang (Weizmann Institute of Science, Israel); Zhenhua Han, Liuyan Liu and Kai Han (University of Science and Technology of China, P.R. China); Qinglin Zhao (Macau University of Science and Technology, P.R. China)

2-C: Next-Generation Cellular Networks

Room: Forum C

Chair: Dimitrios Koutsonikolas (University at Buffalo, SUNY, USA)

Enabling Cross-Technology Coexistence for Extremely Weak Wireless Devices

Ruirong Chen and Wei Gao (University of Pittsburgh, USA)

Channel Independent Wi-Fi Backscatter Networks

Taekyung Kim and Wonjun Lee (Korea University, Korea)

Individual Data Plan in Virtual Network Operation: A Proactive Matching Approach

Zihan Wang, Yuan Zhuang, Zhi Wang and Xin Wu (Tsinghua University, P.R. China)

DeepCog: Cognitive Network Management in Sliced 5G Networks with Deep Learning

Dario Bega (IMDEA Networks, Spain); Marco Gramaglia (Universidad Carlos III de Madrid, Spain); Marco Fiore (National Research Council of Italy, Italy); Albert Banchs (Universidad Carlos III de Madrid, Spain); Xavier Costa-Perez (NEC Laboratories Europe, Germany)

2-D: Theoretical Foundations in Networking Problems 2

Room: Forum E/F

Chair: Ting He (Penn State University, USA)

Fair Rate Allocation over A Generalized Symmetric Polymatroid with Box Constraints

Peng-Jun Wan (Illinois Institute of Technology, USA); Zhu Wang (State University of New York at Oneonta, USA); Huaqiang Yuan (Dongguan University of Technology, P.R. China); Jinling Zhang (Renmin University of China, P.R. China); Xufei Mao (Dongguan University of Tech, P.R. China)

Load Balancing for Interdependent IoT Microservices

Ruozhou Yu, Vishnu Teja Kilari and Guoliang Xue (Arizona State University, USA); Dejun Yang (Colorado School of Mines, USA)

Octans: Optimal Placement of Service Function Chains in Many-Core Systems

Zhilong Zheng, Jun Bi, Heng Yu, Haiping Wang and Chen Sun (Tsinghua University, P.R. China); Hongxin Hu (Clemson University, USA); Jianping Wu (Tsinghua University, P.R. China)

Bound-based Network Tomography with Additive Metrics

Cuiying Feng (University of Victoria, Canada); Luning Wang (City University of Hong Kong, Hong Kong); Kui Wu (University of Victoria, Canada); Jianping Wang (City University of Hong Kong, Hong Kong)

2-E: Cloud Computing 1

Room: Forum G/H/I/J

Chair: Xiaowen Chu (Hong Kong Baptist University, Hong Kong)

Memory flipping: a threat to NUMA virtual machines in the Cloud

Djob Mvondo (IRIT, France); Boris Teabe (IRIT-INPT, France); Alain Tchana (University of Toulouse & INPT-ENSEEIHT, France); Daniel Hagimont (INPT, France); Noel DePalma (UGA, France)

Memory/Disk Operation aware Lightweight VM Live Migration across Data-centers with Low Performance Impact

Bin Shi (Beihang University, P.R. China); Haiying Shen (University of Virginia, USA)

Live Migration Ate My VM: Recovering a Virtual Machine After Failure of Post-Copy Live Migration

Dinuni Fernando, Jonathan Terner, Kartik Gopalan and Ping Yang (Binghamton University, USA)

A Holistic Model for Performance Prediction and Optimization on NUMA-based Virtualized Systems

Jian Li, Jianmin Qian and Haibing Guan (Shanghai Jiao Tong University, P.R. China)

Tuesday, April 30 16:00 - 16:30

Coffee Break

Room: Scene Foyer

Tuesday, April 30 16:00 - 18:00

Demo Session 1

Room: Scene Foyer

Chairs: Nathalie Mitton (Inria Lille - Nord Europe, France), Venkatesha Prasad (Delft University of Technology, The Netherlands), Chuan Wu (The University of Hong Kong, Hong Kong)

Tuesday, April 30 16:30 - 18:00

3-A: Wireless Mesh and Ad Hoc Networks 2

Room: Scene D/E/F

Chair: Stratis Ioannidis (Northeastern University, USA)

EE-IoT: An Energy-Efficient IoT Communication Scheme for WLANs

Hossein Pirayesh, Pedram Kheirkhah Sangdeh and Huacheng Zeng (University of Louisville, USA)

ORACLE: Optimized Radio cLAssification through Convolutional neural nEtworks

Kunal Sankhe, Mauro Belgiovine, Fan Zhou, Shamnaz Mohammed Riyaz, Stratis Ioannidis and Kaushik Chowdhury
(Northeastern University, USA)

iLPS: Local Positioning System with Simultaneous Localization and Wireless Communication

Mingyu Yang, Karan Suri, Li-Xuan Chuo, Hao Zheng, Lu Liu and Hun Seok Kim (University of Michigan, USA)

GCN-GAN: A Non-linear Temporal Link Prediction Model for Weighted Dynamic Networks

Kai Lei (Peking University, P.R. China); Meng Qin (School of Electronics and Computer Engineering, Peking University, P.R. China); Bo Bai (Huawei Technologies Co., Ltd., Hong Kong); Gong Zhang (Huawei Research, P.R. China); Min Yang (Shenzhen Institutes of Advanced Technology (SIAT), Chinese Academy of Sciences, P.R. China)

3-B: Scheduling and Buffer Management 2

Room: Forum A/B

Chair: Kirill Kogan (IMDEA Networks Institute, Spain)

Optimal Network Control in Partially-Controllable Networks

Qingkai Liang and Eytan Modiano (MIT, USA)

Hierarchical Multi-resource Fair Queueing for Network Function Virtualization

Chaoqun You (University of Electronic Science and Technology of China, P.R. China)

Measurements as First-class Artifacts

Paolo Laffranchini (Instituto Superior Técnico, Portugal & Université Catholique de Louvain, Belgium); Luís Rodrigues (INESC-ID, Portugal); Marco Canini (KAUST, Saudi Arabia); Balachander Krishnamurthy (AT&T Labs - Research, USA)

Computing Blocking Probabilities in Elastic Optical Networks with Spectrum Defragmentation

Sandeep Kumar Singh (TU Braunschweig, Germany); Admela Jukan (Technische Universität Carolo-Wilhelmina zu Braunschweig, Germany)

3-C: LTE Networks

Room: Forum C

Chair: Carla Fabiana Chiasserini (Politecnico di Torino, Italy)

RTOP: Optimal User Grouping and SFN Clustering for Multiple eMBMS Video Sessions

Ahmed Khalid, Ahmed H. Zahran and Cormac J. Sreenan (University College Cork, Ireland)

The Slice Is Served: Enforcing Radio Access Network Slicing in Virtualized 5G Systems

Salvatore D'Oro and Francesco Restuccia (Northeastern University, USA); Alessandro Talamonti (Politecnico di Milano, Italy); Tommaso Melodia (Northeastern University, USA)

Weighted Sum-Rate Maximization in Multi-Carrier NOMA with Cellular Power Constraint

Lou Salaun (Nokia Bell Labs, France); Marceau Coupechoux (Telecom ParisTech, France); Chung Shue Chen (Bell Labs, Nokia, France)

Optimal Resource Allocation for Secure Multi-User Wireless Powered Backscatter Communication with Artificial Noise

Pu Wang (Xidian University, P.R. China & George Mason University, USA); Ning Wang, Monireh Dabaghchian and Kai Zeng (George Mason University, USA); Zheng Yan (Xidian University & Aalto University, P.R. China)

3-D: Theoretical Foundations in Networking Problems 3

Room: Forum E/F

Chair: Wei Gao (University of Pittsburgh, USA)

CASA: Congestion and Stretch Aware Static Fast Rerouting

Klaus-Tycho Foerster (University of Vienna, Austria); Yvonne-Anne Pignolet (Dfinity, Switzerland); Stefan Schmid (University of Vienna, Austria); Gilles Tredan (LAAS-CNRS, France)

Efficient Online Resource Allocation in Heterogeneous Clusters with Machine Variability

Huanle Xu (Dongguan University of Technology, P.R. China); Yang Liu and Wing Cheong Lau (The Chinese University of Hong Kong, Hong Kong); Jun Guo (Dongguan University of Technology, P.R. China); Alex X. Liu (Michigan State University, USA)

INT-path: Towards Optimal Path Planning for In-band Network-Wide Telemetry

Tian Pan and Enge Song (Beijing University of Posts and Telecommunications, P.R. China); Zizheng Bian (BUPT, P.R. China); Xingchen Lin (Beijing University of Posts and Telecommunications, P.R. China); Xiaoyu Peng (BUPT, P.R. China); Jiao Zhang and Tao Huang (Beijing University of Posts and Telecommunications, P.R. China); Bin Liu (Tsinghua University, P.R. China); Yunjie Liu (Beijing University of Posts and Telecommunications, P.R. China)

Adaptive Path Tracing with Programmable Bloom Filters in Software-Defined Networks

Sisi Xiong (University of Tennessee, Knoxville, USA); Qing Cao (University of Tennessee, USA); Weisheng Si (Western Sydney University, Australia)

3-E: Cloud Computing 2

Room: Forum G/H/I/J

Chair: Gabriel Scalosub (Ben-Gurion University of the Negev, Israel)

Deep Learning-based Job Placement in Distributed Machine Learning Clusters

Yixin Bao, Yanghua Peng and Chuan Wu (The University of Hong Kong, Hong Kong)

Service Placement with Provable Guarantees in Heterogeneous Edge Computing Systems

Stephen Pasteris (University College London, United Kingdom (Great Britain)); Shiqiang Wang (IBM T. J. Watson Research Center, USA); Mark Herbster (University College London, United Kingdom (Great Britain)); Ting He (Penn State University, USA)

Joint Placement and Allocation of Virtual Network Functions with Budget and Capacity Constraints

Gamal Sallam and Bo Ji (Temple University, USA)

Round-Robin Synchronization: Mitigating Communication Bottlenecks in Parameter Servers

Chen Chen, Wei Wang and Bo Li (Hong Kong University of Science and Technology, Hong Kong)

3-F: Internet and Web Security

Room: Scene A

Chair: Patrick Pak-Ching Lee (The Chinese University of Hong Kong, Hong Kong)

CFHider: Control Flow Obfuscation with Intel SGX

Yongzhi Wang (Xidian University, P.R. China & Park University, USA); Yulong Shen, Cuicui Su, Ke Cheng, Yibo Yang and ANter Faree (Xidian University, P.R. China); Yao Liu (University of South Florida, USA)

Detecting Vulnerable Android Inter-App Communication in Dynamically Loaded Code

Mohannad Alhanahnah, Qiben Yan and Hamid Bagheri (University of Nebraska-Lincoln, USA); Hao Zhou (The Hong Kong Polytechnic University, USA); Yutaka Tsutano (University of Nebraska-Lincoln, USA); Witawas Srisa-an (University of Nebraska, USA); Xiapu Luo (The Hong Kong Polytechnic University, Hong Kong)

Differentially-Private Deep Learning from an Optimization Perspective

Liyao Xiang (Shanghai Jiao Tong University, P.R. China); Jingbo Yang and Baochun Li (University of Toronto, Canada)

Making Big Money from Small Sensors: Trading Time-Series Data under Pufferfish Privacy

Chaoyue Niu and Zhenzhe Zheng (Shanghai Jiao Tong University, P.R. China); Shaojie Tang (University of Texas at Dallas, USA); Xiaofeng Gao and Fan Wu (Shanghai Jiao Tong University, P.R. China)

3-G: Vehicular Networks

Room: Scene B

Chair: Michael Zink (University of Massachusetts Amherst, USA)

Simultaneous Bi-directional Communications and Data Forwarding using a Single ZigBee Data Stream

Zicheng Chi (University of Maryland, Baltimore County, USA); Yan Li (UMBC and JHU, USA); Zhichuan Huang (Sun Yat-sen University, P.R. China); Hongyu Sun and Ting Zhu (University of Maryland, Baltimore County, USA)

X-CHANT: A Diverse DSA based Architecture for Next-generation Challenged Networks

Vijay K. Shah, Simone Silvestri and Brian Luciano (University of Kentucky, USA); Sajal K. Das (Missouri University of Science and Technology, USA)

Dynamic Mobility-Aware Interference Avoidance for Aerial Base Stations in Cognitive Radio Networks

Ali Rahmati (North Carolina State University, USA); Xiaofan He (Wuhan University, P.R. China); Ismail Güvenç (North Carolina State University, USA); Huaiyu Dai (NC State University, USA)

Efficient systematic testing of network protocols with temporal uncertain events

Minh Duc Vu, Lisong Xu, Sebastian Elbaum and Wei Sun (University of Nebraska-Lincoln, USA); Kevin Qiao (University of Maryland, USA)

3-H: Network Economics and Pricing

Room: Scene C

Chair: Eirini Eleni Tsipropoulou (University of New Mexico, USA)

Hide and Seek: A Defense Against Off-sensing Attack in Cognitive Radio Networks

Moinul Hossain and Linda Jiang Xie (University of North Carolina at Charlotte, USA)

Hurts to Be Too Early: Benefits and Drawbacks of Communication in Multi-Agent Learning

Parinaz Naghizadeh (Purdue University, USA); Maria Gorlatova (Duke University, USA); Andrew Lan (University of Massachusetts Amherst, USA); Mung Chiang (Purdue University, USA)

Consortiums of ISP-Content Providers Formed by Nash Bargaining for Internet Content Delivery

Debasis Mitra (Columbia University, USA); Abhinav Sridhar (Columbia University and Qualcomm, USA)

Throughput and Pricing of Ridesharing Systems

Costas Courcoubetis (SUTD, Singapore); Antonis Dimakis (Athens University of Economics and Business, Greece)

Tuesday, April 30 19:00 - 21:30

Reception

Room: Galerie + Loft A/B/C/D/E/F

Wednesday, May 1

Wednesday, May 1 7:30 - 9:00

Breakfast

Room: Galerie + Loft A/B/C/D/E/F

Wednesday, May 1 9:00 - 10:30

4-A: Mobile and Wireless Network Measurements 1

Room: Scene D/E/F

Chair: Mariya Zheleva (UAlbany SUNY, USA)

Client Pre-Screening for MU-MIMO in Commodity 802.11ac Networks via Online Learning

Shi Su (Rice University, USA); Wai-Tian Tan, Xiaoqing Zhu and Rob Liston (Cisco Systems, USA)

Parameter Self-Configuration and Self-Adaptation in Industrial Wireless Sensor-Actuator Networks

Junyang Shi and Mo Sha (State University of New York at Binghamton, USA)

Slicing Cell Resources: The Case of HTC and MTC Coexistence

Vincenzo Mancuso (IMDEA Networks Institute, Spain); Paolo Castagno (University of Turin, Italy); Matteo Sereno (University of Torino, Italy); Marco G Ajmone Marsan (Politecnico di Torino & IMDEA Networks, Italy)

NASCENT: Tackling Caller-ID Spoofing in 4G Networks via Efficient Network-Assisted Validation

Amit Sheoran, Sonia Fahmy, Chunyi Peng and Navin Modi (Purdue University, USA)

4-B: Content-Centric Networking

Room: Forum A/B

Chair: Lan Wang (University of Memphis, USA)

TTL-based Cloud Caches

Damiano Carra (University of Verona, Italy); Giovanni Neglia (Inria, France); Pietro Michiardi (EURECOM, France)

Counterintuitive Characteristics of Optimal Distributed LRU Caching Over Unreliable Channels

Guocong Quan (The Ohio State University, USA); Jian Tan (Alibaba Group & The Ohio State University, USA); Atilla Eryilmaz (The Ohio State University, USA)

Countering Cryptojacking and Parasitic Miners on the Web

Rashid Tahir (University of Prince Mugrin, KSA, Saudi Arabia); Sultan Durrani (Lahore University of Management Sciences, Pakistan); Faizan Ahmad (FAST National University Lahore, Pakistan); Hammas Saeed (Lahore University of Management Sciences, Pakistan); Fareed Zaffar (LUMS, Pakistan); Muhammad Saqib Ilyas (National University of Computer and Emerging Sciences, Pakistan)

The Consistent Cuckoo Filter

Lailong Luo and Deke Guo (National University of Defense Technology, P.R. China); Ori Rottenstreich (Technion, Israel); Richard T. B. Ma (National University of Singapore, Singapore); Xueshan Luo (National University of Defense Technology, P.R. China); Bangbang Ren (National University of Defence Technology, P.R. China)

4-C: Sensor Networks 1

Room: Forum C

Chair: Zhangyu Guan (University at Buffalo, USA)

Multi-hop Backscatter Tag-to-Tag Network

Amjad Majid, Michel Jansen and Guillermo Ortas Delgado (Delft University of Technology, The Netherlands); Kasim Sinan Yildirim (Ege University, Turkey & Delft University of Technology, The Netherlands); Przemyslaw Pawelczak (Delft University of Technology, The Netherlands)

Adaptive Multipath Routing based on Hybrid Data and Control Plane Operation

Marcelo Pizzutti and Alberto E. Schaeffer-Filho (Federal University of Rio Grande do Sul (UFRGS), Brazil)

Link Rate Selection using Constrained Thompson Sampling

Harsh Gupta (University of Illinois at Urbana-Champaign, USA); Atilla Eryilmaz (The Ohio State University, USA); R. Srikant (University of Illinois at Urbana-Champaign, USA)

Task Replication for Vehicular Cloud: Contextual Combinatorial Bandit with Delayed Feedback

Lixing Chen and Jie Xu (University of Miami, USA)

4-D: Crowdsensing

Room: Forum E/F

Chair: Linke Guo (Binghamton University, USA)

Crowd-Flow Graph Construction and Identification with Spatio-Temporal Signal Feature Fusion

Suining He (The Hong Kong University of Science and Technology, Hong Kong); Kang Shin (University of Michigan, USA)

An Integrated Top-down and Bottom-up Task Allocation Approach in Social Sensing based Edge Computing Systems

Daniel Zhang and Dong Wang (University of Notre Dame, USA)

KeyListener: Inferring Keystrokes on QWERTY Keyboard of Touch Screen through Acoustic Signals

Li Lu and Jiadi Yu (Shanghai Jiao Tong University, P.R. China); Yingying Chen (Rutgers University, USA); Yanmin Zhu, Xiangyu Xu, Guangtao Xue and Minglu Li (Shanghai Jiao Tong University, P.R. China)

Fog-based Data Offloading in Urban IoT Scenarios

Pranvera Kortoci (Aalto University, Finland); Liang Zheng (Princeton University, USA); Carlee Joe-Wong (Carnegie Mellon University, USA); Mario Di Francesco (Aalto University, Finland); Mung Chiang (Purdue University, USA)

4-E: Software Defined Networking 1

Room: Forum G/H/I/J

Chair: Giovanni Pau (Sorbonne Université & UCLA, France)

Dynamic Multicast Traffic Engineering with Efficient Rerouting for Software-Defined Networks

Jian-Jhii Kuo (National Chung Cheng University, Taiwan); Sheng-Hao Chiang (Academia Sinica, Taiwan); Shan-Hsiang Shen (National Taiwan University of Science and Technology, Taiwan); De-Nian Yang (Academia Sinica, Taiwan); Wen-Tsuen Chen (National Tsing Hua University, Taiwan)

Aloe: An Elastic Auto-Scaled and Self-stabilized Orchestration Framework for IoT Applications

Subhrendu Chattopadhyay (Indian Institute of Technology Guwahati, India); Soumyajit Chatterjee (IIT Kharagpur, India); Sukumar Nandi (Indian Institute of Technology Guwahati, India); Sandip Chakraborty (Indian Institute of Technology Kharagpur, India)

How Powerful Switches Should be Deployed: A Precise Estimation Based on Queuing Theory

Gengbiao Shen (Tsinghua University, P.R. China); Qing Li (Southern University of Science and Technology, P.R. China); Shuo Ai (Tsinghua University, P.R. China); Yong Jiang (Graduate School at Shenzhen, Tsinghua University, P.R. China); Mingwei Xu and Xuya Jia (Tsinghua University, P.R. China)

Efficient Indexing Mechanism for Unstructured Data Sharing Systems in Edge Computing

Junjie Xie (National University of Defense Technology, P.R. China); Chen Qian (University of California at Santa Cruz, USA);

Deke Guo (National University of Defense Technology, P.R. China); Minmei Wang and Shouqian Shi (University of California, Santa Cruz, USA); Honghui Chen (National University of Defense Technology, P.R. China)

4-F: Security in Wireless Networks

Room: Scene A

Chair: Zheng Yan (Xidian University & Aalto University, P.R. China)

Corking by Forking: Vulnerability Analysis of Blockchain

Shengling Wang and Chenyu Wang (Beijing Normal University, P.R. China); Qin Hu (IUPUI, USA)

Trustworthiness Inference Framework in the Social Internet of Things: A Context-Aware Approach

Hui Xia (Qingdao University, P.R. China); Fu Xiao (Nanjing University of Posts and Telecommunications, P.R. China); San-shun Zhang (Qingdao University, P.R. China); Chunqiang Hu (Chongqing University, P.R. China); Xiuzhen Cheng (George Washington Univ, USA)

Collaborative Validation of Public-Key Certificates for IoT by Distributed Caching

Minmei Wang (University of California, Santa Cruz, USA); Chen Qian (University of California at Santa Cruz, USA); Xin Li (University of California Santa Cruz, USA); Shouqian Shi (University of California, Santa Cruz, USA)

CoDoC: A Novel Attack for Wireless Rechargeable Sensor Networks through Denial of Charge

Chi Lin and Zhi Shang (Dalian University of Technology, P.R. China); Wan Du (University of California, Merced, USA); Jiankang Ren, Lei Wang and Guowei WU (Dalian University of Technology, P.R. China)

4-G: RFID 1

Room: Scene B

Chair: Kaushik Chowdhury (Northeastern University, USA)

Spin-Antenna: 3D Motion Tracking for Tag Array Labeled Objects via Spinning Antenna

Chuyu Wang, Lei Xie, Keyan Zhang, Wei Wang, Yanling Bu and Sanglu Lu (Nanjing University, P.R. China)

TagSheet: Sleeping Posture Recognition with an Unobtrusive Passive Tag Matrix

Jia Liu and Xingyu Chen (Nanjing University, P.R. China); Shigang Chen (University of Florida, USA); Xiulong Liu (The Hong Kong Polytechnic University, Hong Kong); Yanyan Wang and Li-jun Chen (Nanjing University, P.R. China)

TwinLeak: RFID-based Liquid Leakage Detection in Industrial Environments

Junchen Guo, Ting Wang, Yuan He, Meng Jin and Chengkun Jiang (Tsinghua University, P.R. China); Yunhao Liu (Tsinghua University & The Hong Kong University of Science and Technology, P.R. China)

Towards Physical-Layer Vibration Sensing with RFIDs

Ping Li (The Army Engineering University of PLA, P.R. China); Zhenlin An (The Hong Kong Polytechnic University, Hong Kong); Lei Yang (The Hong Kong Polytechnic University, P.R. China); Panlong Yang (University of Science and Technology of China, P.R. China)

4-H: Resource Markets in Wireless Networks

Room: Scene C

Chair: Dejun Yang (Colorado School of Mines, USA)

Price Competition with LTE-U and WiFi

Xu Wang and Randall A Berry (Northwestern University, USA)

Intelligent Edge-Assisted Crowdcast with Deep Reinforcement Learning for Personalized QoE

Fangxin Wang (Simon Fraser University, Canada); Cong Zhang (University of Science and Technology of China, P.R. China); Feng Wang (University of Mississippi, USA); Jiangchuan Liu and Yifei Zhu (Simon Fraser University, Canada); Haitian Pang

and Lifeng Sun (Tsinghua University, P.R. China)

Mechanism Design for Network Utility Maximization with Private Constraint Information

Meng Zhang (The Chinese University of Hong Kong, P.R. China); Jianwei Huang (The Chinese University of Hong Kong, Hong Kong)

Recommending Paths: Follow or Not Follow?

Yunpeng Li (Singapore University of Technology and Design, Singapore); Costas Courcoubetis (SUTD, Singapore); Lingjie Duan (Singapore University of Technology and Design (SUTD), Singapore)

Wednesday, May 1 10:30 - 11:00

Coffee Break

Room: Scene Foyer

Wednesday, May 1 10:30 - 12:30

Demo Session 2

Room: Scene Foyer

Chairs: Nathalie Mitton (Inria Lille - Nord Europe, France), Venkatesha Prasad (Delft University of Technology, The Netherlands), Chuan Wu (The University of Hong Kong, Hong Kong)

Wednesday, May 1 11:00 - 12:30

Industry Keynote

Room: Scene B

5-A: Mobile and Wireless Network Measurements 2

Room: Scene D/E/F

Chair: Marco Fiore (National Research Council of Italy, Italy)

CellTradeMap: Delineating Trade Areas for Urban Commercial Districts with Cellular Networks

Yi Zhao (Tsinghua University, P.R. China); Zimu Zhou (ETH Zurich, Switzerland); Xu Wang and Tongtong Liu (Tsinghua University, P.R. China); Yunhao Liu (Tsinghua University & The Hong Kong University of Science and Technology, P.R. China); Zheng Yang (Tsinghua University, P.R. China)

Statistical Enrichment Models for Activity Inference from Imprecise Location Data

Ran He (Bell Labs, USA); Jin Cao and Lisa Zhang (Nokia Bell Labs, USA); Denny Lee (Nokia, Canada)

On the Distribution of Traffic Volumes in the Internet and its Implications

Mohammed Alasmar and George Parisis (University of Sussex, United Kingdom (Great Britain)); Richard G Clegg (Queen Mary University of London, United Kingdom (Great Britain)); Nickolay Zakhleniuk (University of Essex, United Kingdom (Great Britain))

Market Manipulation of Bitcoin: Evidence from Mining the Mt. Gox Transaction Network

Weili Chen, Jun Wu, Zibin Zheng, Chuan Chen and Yuren Zhou (School of Data and Computer Science, Sun Yat-sen University, P.R. China)

5-B: Multimedia Networking

Room: Forum A/B

Chair: Shiwen Mao (Auburn University, USA)

EVS0: Environment-aware Video Streaming Optimization of Power Consumption

Kyoungjun Park and Myungchul Kim (KAIST, Korea)

Receiver-driven Video Multicast over NOMA Systems in Heterogeneous Environments

Xiaoda Jiang and Hancheng Lu (University of Science and Technology of China, P.R. China); Chang Wen Chen (State University of New York at Buffalo, USA); Feng Wu (University of Science and Technology of China, P.R. China)

Towards Low Latency Multi-viewpoint 360° Interactive Video: A Multimodal Deep Reinforcement Learning Approach

Haitian Pang (Tsinghua University, P.R. China); Cong Zhang (University of Science and Technology of China, P.R. China); Fangxin Wang and Jiangchuan Liu (Simon Fraser University, Canada); Lifeng Sun (Tsinghua University, P.R. China)

CBA: Contextual Quality Adaptation for Adaptive Bitrate Video Streaming

Bastian Alt (Technische Universität Darmstadt, Germany); Trevor Ballard (University of Central Florida, USA); Ralf Steinmetz, Heinz Koepll and Amr Rizk (Technische Universität Darmstadt, Germany)

5-C: Sensor Networks 2

Room: Forum C

Chair: Mo Sha (State University of New York at Binghamton, USA)

DeepTMA: Predicting Effective Contention Models for Network Calculus using Graph Neural Networks

Fabien Geyer (Technical University of Munich, Germany); Steffen Bondorf (NTNU Trondheim, Norway)

Distributed Energy-Adaptive Aggregation Scheduling with Coverage Guarantee For Battery-Free Wireless Sensor Networks

Kunyi Chen (Harbin Institute of Technology, P.R. China); Hong Gao (University of Harbin Institute Technology, P.R. China); Zhipeng Cai (Georgia State University, USA); Quan Chen (Guangdong University of Technology, P.R. China); Jianzhong Li (Harbin Institute of Technology, P.R. China)

Fast Distributed Backbone Construction Despite Strong Adversarial Jamming

Yifei Zou (The University of Hong Kong, Hong Kong); Dongxiao Yu (Shandong University, P.R. China); Libing Wu (Wuhan University, P.R. China); Jiguo Yu (Qufu Normal University, P.R. China); Yu Wu (Dongguan University of Technology, Hong Kong); Qiang-Sheng Hua (Huazhong University of Science and Technology, P.R. China); Francis C.M. Lau (The University of Hong Kong, Hong Kong)

Space-Optimal Packet Routing on Trees

Will Rosenbaum (Max Planck Institute for Informatics, Germany); Boaz Patt-Shamir (Tel Aviv University, Israel)

5-D: Incentives and Reputation in Crowdsourcing

Room: Forum E/F

Chair: Guoliang Xue (Arizona State University, USA)

If You Do Not Care About It, Sell It: Trading Location Privacy in Mobile Crowd Sensing

Wenqiang Jin, Mingyan Xiao and Ming Li (University of Texas at Arlington, USA); Linke Guo (Binghamton University, USA)

Optimal User Choice Engineering in Mobile Crowdsensing with Bounded Rational Users

Merkourios Karaliopoulos and Iordanis Koutsopoulos (Athens University of Economics and Business, Greece); Leonidas Spiliopoulos (Max Planck Institute for Human Development, Germany)

Dynamic Task Pricing in Multi-Requester Mobile Crowd Sensing with Markov Correlated Equilibrium

Haiming Jin (Shanghai Jiao Tong University, P.R. China); Hongpeng Guo (The University of Illinois at Urbana-Champaign, USA); Lu Su (State University of New York at Buffalo, USA); Klara Nahrstedt (University of Illinois, USA); Xinbing Wang (Shanghai Jiaotong University, P.R. China)

A Flexible Distributed Optimization Framework for Service of Concurrent Tasks in Processing Networks

Zai Shi and Atilla Eryilmaz (The Ohio State University, USA)

5-E: Software Defined Networking 2

Room: Forum G/H/I/J

Chair: Sastry Kompella (Naval Research Laboratory, USA)

Update Algebra: Toward Continuous, Non-Blocking Composition of Network Updates in SDN

Geng Li and Y. Richard Yang (Yale University, USA); Franck Le (IBM T. J. Watson, USA); Yeon-sup Lim (IBM T. J. Watson Research Center, USA); Junqi Wang (Rutgers University at Newark, USA)

Experiences Implementing Live VM Migration over the WAN with Multi-Path TCP

Franck Le (IBM T. J. Watson, USA); Erich Nahum (IBM T. J. Watson Research Center, USA)

Learning the Optimal Synchronization Rates in Distributed SDN Control Architectures

Konstantinos Poularakis and Qiaofeng Qin (Yale University, USA); Liang Ma (IBM TJ Watson Research Center, USA); Sastry Kompella (Naval Research Laboratory, USA); Kin K. Leung (Imperial College, United Kingdom (Great Britain)); Leandros Tassiulas (Yale University, USA)

Lightweight Flow Distribution for Collaborative Traffic Measurement in Software Defined Networks

Hongli Xu (University of Science and Technology of China, P.R. China); Shigang Chen (University of Florida, USA); Qianpiao Ma and Liusheng Huang (University of Science and Technology of China, P.R. China)

Wednesday, May 1 12:30 - 14:00

Conference Lunch

Room: Galerie + Loft A/B/C/D/E/F

Wednesday, May 1 14:00 - 15:30

Panel B: : Experimentation Meets Platforms: A Survey of Macro Trends in Mobile Communication Research and Its Impact on Future Testbed Development

Room: Scene B

Chairs: Serge Fdida (Sorbonne University, France), Abhimanyu Gosain (Northeastern University, USA)

6-A: Short Range Wireless Technologies 1

Room: Scene D/E/F

Chair: Jun Luo (Nanyang Technological University, Singapore)

Smartlink: Exploiting Channel Clustering Effects for Reliable Millimeter Wave Communications

Irmak Aykin, Berk Akgun and Marwan Krunz (University of Arizona, USA)

Autonomous Environment Mapping Using Commodity Millimeter-wave Network Device

Anfu Zhou and Shaoyuan Yang (Beijing University of Posts and Telecommunications, P.R. China); Yi Yang (Beijing University of Posts and Telecommunications, P.R. China); Yuhang Fan and Huadong Ma (Beijing University of Posts and Telecommunications, P.R. China)

Secure On-skin Biometric Signal Transmission using Galvanic Coupling

William Tomlinson, Jr. and Stella Banou (Northeastern University, USA); Christopher Yu (The Charles Stark Draper Laboratory, USA); Michele Nogueira (Federal University of Parana (UFPR), Brazil); Kaushik Chowdhury (Northeastern University, USA)

On the Stochastic Link Modeling of Static Wireless Sensor Networks in Ocean Environments

Alireza Shahanaghi (Virginia Polytechnic Institute and State University, USA); Yaling Yang and Michael Buehrer (Virginia Tech, USA)

6-B: Overlay and Peer-to-Peer Networks

Room: Forum A/B

Chair: Renato Lo Cigno (University of Trento, Italy)

Collaborative Client-Side DNS Cache Poisoning Attack

Fatemah Alharbi (University of California, Riverside, USA & Taibah University, Saudi Arabia); Jie Chang (LinkSure Network, P.R. China); Yuchen Zhou (Northeastern University, USA); Feng Qian (University of Minnesota, Twin Cities, USA); Zhiyun Qian and Nael Abu-Ghazaleh (University of California, Riverside, USA)

Towards Verifiable Performance Measurement over In-the-Cloud Middleboxes

XiaoLi Zhang (Tsinghua University, P.R. China); Huayi Duan and Cong Wang (City University of Hong Kong, Hong Kong); Qi Li and Jianping Wu (Tsinghua University, P.R. China)

FS-Net: A Flow Sequence Network For Encrypted Traffic Classification

Chang Liu (Institute of Information Engineering, Chinese Academy of Sciences, P.R. China); He Longtao (CNCERT/CC, P.R. China); Gang Xiong (Institute of Information Engineering, Chinese Academy of Sciences, P.R. China); Zigang Cao (Institute of Information Engineering, Chinese Academy of Sciences & School of Cyber Security, University of Chinese Academy of Sciences, P.R. China); Zhen Li (Institute of Information Engineering, Chinese Academy of Sciences, P.R. China)

Novel and Practical SDN-based Traceback Technique for Malicious Traffic over Anonymous Networks

Zhen Ling, Luo Junzhou, Danni Xu and Ming Yang (Southeast University, P.R. China); Xinwen Fu (University of Central Florida, USA)

6-C: Sensor Networks 3

Room: Forum C

Chair: Hun Seok Kim (University of Michigan, USA)

Pair-Navi: Peer-to-Peer Indoor Navigation with Mobile Visual SLAM

Erqun Dong and Jingao Xu (Tsinghua University, P.R. China); Chenshu Wu (University of Maryland, USA); Yunhao Liu (Tsinghua University & The Hong Kong University of Science and Technology, P.R. China); Zheng Yang (Tsinghua University, P.R. China)

PANDA: Placement of Unmanned Aerial Vehicles Achieving 3D Directional Coverage

Weijun Wang (Nanjing University, P.R. China); Haipeng Dai (Nanjing University & State Key Laboratory for Novel Software Technology, P.R. China); Chao Dong (Nanjing University of Aeronautics and Astronautics, P.R. China); Xiao Cheng and Xiaoyu Wang (Nanjing University, P.R. China); Guihai Chen (Shanghai Jiao Tong University, P.R. China); Wanchun Dou (Nanjing University, P.R. China)

ImgSensingNet: UAV Vision Guided Aerial-Ground Air Quality Sensing System

Yuzhe Yang, Zhiwen Hu, Kaigui Bian and Lingyang Song (Peking University, P.R. China)

Batch Reading Densely Arranged QR Codes

Binyao Jiang, Yisheng Ji and Xiaohua Tian (Shanghai Jiao Tong University, P.R. China); Xinbing Wang (Shanghai Jiaotong University, P.R. China)

6-D: Smartphones

Room: Forum E/F

Chair: Przemyslaw Pawelczak (Delft University of Technology, The Netherlands)

D3-Guard: Acoustic-based Drowsy Driving Detection Using Smartphones

Yadong Xie, Fan Li, Yue Wu and Song Yang (Beijing Institute of Technology, P.R. China); Yu Wang (University of North Carolina at Charlotte, USA)

Brush like a Dentist: Accurate Monitoring of Toothbrushing via Wrist-Worn Gesture Sensing

Chengwen Luo, Xingyu Feng, Junliang Chen, Jianqiang Li and Weitao Xu (Shenzhen University, P.R. China); Wei Li (The University of Sydney, Australia); Li Zhang (Alibaba Group, P.R. China); Zahir Tari (RMIT University, Australia); Albert Zomaya (The University of Sydney, Australia)

SADeepSense: Self-Attention Deep Learning Framework for Heterogeneous On-Device Sensors in Internet of Things Applications

Shuochao Yao (University of Illinois Urbana-Champaign, USA); Yiran Zhao (University of Illinois at Urbana-Champaign, USA); Huajie Shao (University of Illinois at Urbana-Champaign, USA); Dongxin Liu (University of Illinois Urbana-Champaign, USA); Shengzhong Liu and Yifan Hao (University of Illinois at Urbana-Champaign, USA); Ailing Piao (University of Washington at Seattle, USA); Shaohan Hu (IBM Research, USA); Lu Su (State University of New York at Buffalo, USA); Tarek Abdelzaher (University of Illinois, Urbana Champaign, USA)

DRL360: 360-degree Video Streaming with Deep Reinforcement Learning

Yuanxing Zhang (School of EECS, Peking University, P.R. China); Pengyu Zhao and Kaigui Bian (Peking University, P.R. China); Yunxin Liu (Microsoft Research Asia, P.R. China); Lingyang Song and XiaoMing Li (Peking University, P.R. China)

6-E: Cloud Storage Systems

Room: Forum G/H/I/J

Chair: Wei Wang (Hong Kong University of Science and Technology, Hong Kong)

Addressing Skewness in Iterative ML Jobs with Parameter Partition

Shaoqi Wang, Wei Chen and Xiaobo Zhou (University of Colorado, Colorado Springs, USA); Sang-Yoon Chang (University of Colorado Colorado Springs, USA); Mike Ji (University of Edinburgh, United Kingdom (Great Britain))

Hetero-Edge: Orchestration of Real-time Vision Applications on Heterogeneous Edge Clouds

Wuyang Zhang, Sugang Li and Luyang Liu (Rutgers University, USA); Zhenhua Jia (WINLAB, Rutgers University, USA); Yanyong Zhang and Dipankar Raychaudhuri (Rutgers University, USA)

Service Placement and Request Scheduling for Data-intensive Applications in Edge Clouds

Vajiheh Farhadi, Fidan Mehmeti and Tom La Porta (Pennsylvania State University, USA); Ting He (Penn State University, USA); Hana Khamfroush (University of Kentucky, USA); Shiqiang Wang (IBM T. J. Watson Research Center, USA); Kevin S Chan (US Army Research Laboratory, USA)

Distributed Machine Learning with a Serverless Architecture

Hao Wang (University of Toronto, Canada); Di Niu (University of Alberta, Canada); Baochun Li (University of Toronto, Canada)

Wednesday, May 1 15:30 - 16:00

Coffee Break

Room: Scene Foyer

Wednesday, May 1 15:30 - 17:30

Poster Session 1

Room: Scene Foyer

Chairs: Nathalie Mitton (Inria Lille - Nord Europe, France), Venkatesha Prasad (Delft University of Technology, The Netherlands), Chuan Wu (The University of Hong Kong, Hong Kong)

Wednesday, May 1 16:00 - 17:30

7-A: Short Range Wireless Technologies 2

Room: Scene D/E/F

Chair: Zhi Sun (State University of New York at Buffalo, USA)

SynLight: Synthetic Light Emission for Fast Transmission in COTS Device-enabled VLC

Yanbing Yang (Sichuan University, P.R. China); Jun Luo (Nanyang Technological University, Singapore); Chen Chen (Chongqing University, P.R. China); Wen-De Zhong (Nanyang Technological University, Singapore); Liangyin Chen (Sichuan University & University of Minnesota, P.R. China)

ALS-P: Light Weight Visible Light Positioning via Ambient Light Sensor

Zeyu Wang (Hong Kong University of Science and Technology, Hong Kong); Zhice Yang (ShanghaiTech University, P.R. China); Qianyi Huang, Lin Yang and Qian Zhang (Hong Kong University of Science and Technology, Hong Kong)

UnseenCode: Invisible On-screen Barcode with Image-based Extraction

Hao Cui, Huanyu Bian, Weiming Zhang and Nenghai Yu (University of Science and Technology of China, P.R. China)

Tweeting with Sunlight: Encoding Data on Mobile Objects

Rens Bloom (Delft University of Technology & AMS Institute, The Netherlands); Marco Zuniga (Delft University of Technology, The Netherlands); Qing Wang (KU Leuven, Belgium); Domenico Giustiniano (IMDEA Networks Institute, Spain)

7-B: Overlay and Peer-to-Peer Networks

Room: Forum A/B

Chair: Xiaobo Zhou (University of Colorado, Colorado Springs, USA)

CG4SR: Near Optimal Traffic Engineering for Segment Routing with Column Generation

Mathieu Jadin and François Aubry (Université Catholique de Louvain, Belgium); Pierre Schaus (UCLouvain, Belgium); Olivier Bonaventure (Université catholique de Louvain, Belgium)

Joint Content Distribution and Traffic Engineering of Adaptive Videos in Telco-CDNs

Khaled Diab and Mohamed Hefeeda (Simon Fraser University, Canada)

Demand-Aware Network Design with Minimal Congestion and Route Lengths

Chen Avin (Ben-Gurion University of the Negev, Israel); Kaushik Mondal (Ben Gurion University of the Negev, Israel); Stefan Schmid (University of Vienna, Austria)

Disentangled Network Alignment with Matching Explainability

Fan Zhou and Zijing Wen (University of Electronic Science and Technology of China, P.R. China); Goce Trajcevski (Iowa State University, USA); Kunpeng Zhang (University of Maryland, USA); Ting Zhong and Fang Liu (University of Electronic Science and Technology of China, P.R. China)

7-C: Heterogeneous Cellular Networks

Room: Forum C

Chair: Bo Ji (Temple University, USA)

Maximum Lifetime Analytics in IoT Networks

Victor Valls (Yale University, USA); George Iosifidis (Trinity College Dublin, Ireland); Theodoros Salonidis (IBM Research, USA)

Interference-aware User Grouping Strategy in NOMA Systems with QoS Constraints

Fengqian Guo, Hancheng Lu, Daren Zhu and Hao Wu (University of Science and Technology of China, P.R. China)

Federated Learning over Wireless Networks: Optimization Model Design and Analysis

Nguyen H. Tran and Wei Bao (The University of Sydney, Australia); Minh N. H. Nguyen and Choong Seon Hong (Kyung Hee University, Korea); Albert Zomaya (The University of Sydney, Australia)

A Collaborative Learning Based Approach for Parameter Configuration of Cellular Networks

Jie Chuai and Zhitang Chen (Huawei Technologies, Hong Kong); Guochen Liu (Huawei Technologies, P.R. China); Xueying Guo and Xiaoxiao Wang (University of California, Davis, USA); Xin Liu (UC Davis, USA); Chongming Zhu and Feiyi Shen (Huawei Technologies, P.R. China)

7-D: Mobile Offloading

Room: Forum E/F

Chair: György Dán (KTH Royal Institute of Technology, Sweden)

Figment: Fine-grained Permission Management for Mobile Apps

Ioannis Gasparis (NowSecure, USA); Zhiyun Qian, Chengyu Song and Srikanth V. Krishnamurthy (University of California, Riverside, USA); Rajiv Gupta (UC, Riverside, USA); Paul Yu (Army Research Laboratory, USA)

Joint Offloading Decision and Resource Allocation with Uncertain Task Computing Requirement

Nima Eshraghi and Ben Liang (University of Toronto, Canada)

Dynamic Adaptive DNN Surgery for Inference Acceleration on the Edge

Chuang Hu (The Hong Kong Polytechnic University, Hong Kong); Wei Bao (The University of Sydney, Australia); Dan Wang and Fengming Liu (The Hong Kong Polytechnic University, Hong Kong)

Pairwise Markov Chain: A Task Scheduling Strategy for Privacy-Preserving SIFT on Edge

Hengrun Zhang and Kai Zeng (George Mason University, USA)

7-E: Resource Provisioning in Cloud Computing

Room: Forum G/H/I/J

Chair: Baochun Li (University of Toronto, Canada)

Online Job Scheduling with Resource Packing on a Cluster of Heterogeneous Servers

Yang Liu (The Chinese University of Hong Kong, Hong Kong); Huanle Xu (Dongguan University of Technology, P.R. China); Wing Cheong Lau (The Chinese University of Hong Kong, Hong Kong)

On the Power of Preprocessing in Decentralized Network Optimization

Klaus-Tycho Foerster (University of Vienna, Austria); Juho Hirvonen (Aalto University, Germany); Stefan Schmid (University of Vienna, Austria); Jukka Suomela (Aalto University, Finland)

Winning at the Starting Line: Joint Network Selection and Service Placement for Mobile Edge Computing

Bin Gao (Huazhong University of Science and Technology, P.R. China); Zhi Zhou (Sun Yat-sen University, P.R. China); Fangming Liu (Huazhong University of Science and Technology, P.R. China); Fei Xu (East China Normal University, P.R. China)

Adaptive User-managed Service Placement for Mobile Edge Computing: An Online Learning Approach

Tao Ouyang, Rui Li, Xu Chen, Zhi Zhou and Xin Tang (Sun Yat-sen University, P.R. China)

7-F: Privacy

Room: Scene A

Chair: Qiben Yan (University of Nebraska-Lincoln, USA)

PeDSS: Privacy Enhanced and Database-Driven Dynamic spectrum Sharing

He Li (Virginia Polytechnic Institute and State University, USA); Yaling Yang, Yanzhi Dou and Jung-Min (Jerry) Park (Virginia Tech, USA); Kui Ren (Zhejiang University, P.R. China)

Bootstrapping Accountability and Privacy to IPv6 Internet without Starting from Scratch

Lin He, Gang Ren and Ying Liu (Tsinghua University, P.R. China)

TrustSAS: A Trustworthy Spectrum Access System for the 3.5 GHz CBRS Band

Mohamed Grissa (Oregon State University, USA); Attila Altay Yavuz (University of South Florida, USA); Bechir Hamdaoui (Oregon State University, USA)

Incentivizing Relay Participation for Securing IoT Communication

Xiaonan Zhang, Pei Huang and Linke Guo (Binghamton University, USA); Mo Sha (State University of New York at Binghamton, USA)

7-G: RFID 2

Room: Scene B

Chair: Chuyu Wang (Nanjing University, P.R. China)

RF-Mehndi: A Fingertip Profiled RF Identifier

Cui Zhao (Xi'an Jiaotong University, P.R. China); Zhenjiang Li (City University of Hong Kong, Hong Kong); Ting Liu (Xi'an Jiaotong University, PRC, P.R. China); Han Ding (Xi'an Jiaotong University, P.R. China); Jinsong Han (Zhejiang University & Institute of Cyber Security Research, P.R. China); Wei Xi and Ruowei Gui (Xi'an Jiaotong University, P.R. China)

On Improving Write Throughput in Commodity RFID Systems

Jia Liu and Xingyu Chen (Nanjing University, P.R. China); Xiulong Liu (The Hong Kong Polytechnic University, Hong Kong); Xiaocong Zhang (Nanjing University, P.R. China); Xia Wang (Nanjing University & Zaozhuang University, P.R. China); Li-jun Chen (Nanjing University, P.R. China)

Embracing Tag Collisions: Acquiring Bloom Filters across RFIDs in Physical Layer

Zhenlin An and Qiongzhen Lin (The Hong Kong Polytechnic University, Hong Kong); Lei Yang (The Hong Kong Polytechnic University, P.R. China); Wei Lou (The Hong Kong Polytechnic University, Hong Kong)

PassiveRETRO: Enabling Completely Passive Visible Light Localization for IoT Applications

Sihua Shao and Abdallah A Khreichah (New Jersey Institute of Technology, USA); Juan Paez (The University of Texas at Austin, USA)

7-H: Resource Markets in Wireless Networks

Room: Scene C

Chair: Arun Venkataramani (UMass Amherst, USA)

Cross-Network Prioritized Sharing: An Added Value MVNO's Perspective

Yining Zhu, Haoran Yu, Randall A Berry and Chang Liu (Northwestern University, USA)

How to Earn Money in Live Streaming Platforms? — A Study of Donation-Based Markets

Ming Tang and Jianwei Huang (The Chinese University of Hong Kong, Hong Kong)

A Blockchain based Witness Model for Trustworthy Cloud Service Level Agreement Enforcement

Huan Zhou (University of Amsterdam, The Netherlands); Xue Ouyang (National University of Defense Technology, P.R. China); Zhijie Ren (Delft University of Technology, The Netherlands); Jinshu Su (National University of Defence Technology, P.R. China); Cees de Laat and Zhiming Zhao (University of Amsterdam, The Netherlands)

Burstable Instances for Clouds: Performance Modeling, Equilibrium Analysis, and Revenue Maximization

Yuxuan Jiang (The Hong Kong University of Science and Technology, Hong Kong); Mohammad Shahrad and David

Wentzlaff (Princeton University, USA); Danny H.K. Tsang (HKUST, Hong Kong); Carlee Joe-Wong (Carnegie Mellon University, USA)

Thursday, May 2

Thursday, May 2 7:30 - 9:00

Breakfast

Room: Galerie + Loft A/B/C/D/E/F

Thursday, May 2 9:00 - 10:30

8-A: Cognitive Radio Networks 1

Room: Scene D/E/F

Chair: Mehmet Can Vuran (University of Nebraska-Lincoln, USA)

Hiding Data in Plain Sight: Undetectable Wireless Communications Through Pseudo-Noise Asymmetric Shift Keying

Salvatore D'Oro, Francesco Restuccia and Tommaso Melodia (Northeastern University, USA)

Differentially-Private Incentive Mechanism for Crowdsourced Radio Environment Map Construction

Yidan Hu and Rui Zhang (University of Delaware, USA)

Orthogonality-Sabotaging Attacks against OFDMA-based Wireless Networks

Shangqing Zhao, Zhuo Lu, Zhengping Luo and Yao Liu (University of South Florida, USA)

Robust and Efficient Modulation Recognition Based on Local Sequential IQ Features

Wei Xiong (University At Albany, USA); Petko Bogdanov and Mariya Zheleva (UAlbany SUNY, USA)

8-B: Flow and Congestion Control

Room: Forum A/B

Chair: Michele Nogueira (Federal University of Parana (UFPR), Brazil)

Hysteresis-based Active Queue Management for TCP Traffic in Data Centers

Ahmed M. Abdelmoniem (Faculty of Computers and Information, Assiut University, Egypt & Hong Kong University of Science and Technology, Hong Kong); Brahim Bensaou (The Hong Kong University of Science and Technology, Hong Kong)

Large-Scale Network Utility Maximization: Countering Exponential Growth with Exponentiated Gradients

Luigi Vigneri (Huawei Technologies & Université Grenoble Alpes, France); Georgios S. Paschos (Huawei Technologies, France); Panayotis Mertikopoulos (French National Center for Scientific Research (CNRS) & Laboratoire d'Informatique de Grenoble, France)

Routing in Black Box: Modularized Load Balancing for Multipath Data Center Networks

Fujie Fan and Bing Hu (Zhejiang University, P.R. China); Kwan L Yeung (The University of Hong Kong, Hong Kong)

ReLeS: A Neural Adaptive Multipath Scheduler based on Deep Reinforcement Learning

Han Zhang, Wenzhong Li, Shaohua Gao, Xiaoliang Wang and Baoliu Ye (Nanjing University, P.R. China)

8-C: Medium Access Control

Room: Forum C

Chair: Kaushik Chowdhury (Northeastern University, USA)

Joint Antenna Allocation and Link Scheduling in FlexRadio Networks

Zhenzhi Qian (The Ohio State University, USA); Yang Yang (Qualcomm Corporate Research and Development, USA); Kannan Srinivasan and Ness B. Shroff (The Ohio State University, USA)

Powers Maximizing Proportional Fairness Among Poisson Bipoles

Nithin S Ramesan (The University of Texas at Austin, USA); Francois Baccelli (UT Austin & The University of Texas at Austin, USA)

A stack-vector routing protocol for automatic tunneling

Mohamed Lamine Lamali and Simon Lassourreille (Université de Bordeaux, France); Stephan Kunne (LRI, Université Paris-Sud, France); Johanne Cohen (LRI-CNRS, France)

Real-Time Scheduling for Event-Triggered and Time-Triggered Flows in Industrial Wireless Sensor-Actuator Networks

Xi Jin (Washington University in St. Louis; Shenyang Institute of Automation, Chinese Academy of Sciences); Abusayeed Saifullah (Wayne State University, USA); Chenyang Lu (Washington University in St. Louis, USA); Peng Zeng (Shenyang Institute of Automation, Chinese Academy of Sciences, Shenyang, P.R. China)

8-D: Online Social Networks

Room: Forum E/F

Chair: Xiaoming Fu (University of Goettingen, Germany)

Distributed Learning and Optimal Assignment in Multiplayer Heterogeneous Networks

Harshvardhan Tibrewal (Indian Institute of Technology Bombay, India); Sravan Patchala (Indian Institute of Technology, Bombay, India); Manjesh K Hanawal (Indian Institute of Technology Bombay, India); Sumit Jagdish Darak (IIT-Delhi, India)

Combinatorial Sleeping Bandits with Fairness Constraints

Fengjiao Li (Temple University, USA); Jia Liu (Iowa State University, USA); Bo Ji (Temple University, USA)

Beyond Uniform Reverse Sampling: A Hybrid Sampling Technique for Misinformation Prevention

Guangmo Tong (University of Delaware, USA); Ding-Zhu Du (University of Texas, Dallas, USA)

Regularized inversion of flow size distribution

Nelson Antunes (University of Algarve, Portugal); Vladas Pipiras (University of North Carolina, USA); Gonçalo Jacinto (Évora University & CIMA-UE, Investigation Center in Mathematics and Applications, Portugal)

8-E: Optical Networking and its Applications in Datacenters

Room: Forum G/H/I/J

Chair: Sinan Y Hanay (Erzurum Technical University, Turkey)

Impact of Network Topology on the Performance of DML: Theoretical Analysis and Practical Factors

Shuai Wang, Dan Li, Jinkun Geng, Yue Gu and Yang Cheng (Tsinghua University, P.R. China)

Routing and Spectrum Assignment Integrating Machine-Learning-Based QoT Estimation in Elastic Optical Networks

Matteo Salani (IDSIA - Dalle Molle Institute for Artificial Intelligence & University of Applied Sciences of Southern Switzerland, Switzerland); Cristina E.M. Rottondi (Politecnico di Torino, Italy); Massimo Tornatore (Politecnico di Milano & University of California, Davis, Italy)

No Regret in Cloud Resources Reservation with Violation Guarantees

Nikolaos Liakopoulos (Huawei Technologies & UPMC, France); Georgios S. Paschos (Huawei Technologies, France); Thrasyvoulos Spyropoulos (EURECOM, France)

Achieving a Fully-Flexible Virtual Network Embedding in Elastic Optical Networks

Nashid Shahriar, Sepehr Taeb and Shihabur Rahman Chowdhury (University of Waterloo, Canada); Massimo Tornatore (Politecnico di Milano & University of California, Davis, Italy); Raouf Boutaba (University of Waterloo, Canada); Jeebak Mitra

and Mahdi Hemmati (Huawei Technologies Canada, Canada)

8-F: Security in Cloud Computing

Room: Scene A

Chair: Wenjing Lou (Virginia Tech, USA)

Network Interdiction Using Adversarial Traffic Flows

Xinzhe Fu (Massachusetts Institute of Technology, USA); Eytan Modiano (MIT, USA)

Looking Glass of NFV: Inferring the Structure and State of NFV Network from External Observations

Yilei Lin (Pennsylvania State University, USA); Ting He (Penn State University, USA); Shiqiang Wang (IBM T. J. Watson Research Center, USA); Kevin S Chan (US Army Research Laboratory, USA); Stephen Pasteris (University College London, United Kingdom (Great Britain))

FAVE: A fast and efficient network Flow AVailability Estimation method with bounded relative error

Tingwei Liu (The Chinese University of Hong Kong, Hong Kong); John Chi Shing Lui (Chinese University of Hong Kong, Hong Kong)

A Near Optimal Reliable Composition Approach for Geo-Distributed Latency-Sensitive Service Chains

Dmitrii Chemodanov and Prasad Calyam (University of Missouri-Columbia, USA); Flavio Esposito (Saint Louis University, USA)

8-G: Wireless Charging

Room: Scene B

Chair: Enrico Natalizio (University of Lorraine/Loria, France)

Balancing Cost and Dissatisfaction in Online EV Charging under Real-time Pricing

Hanling Yi (The Chinese University of Hong Kong & Huawei Noah's Ark Lab, Hong Kong); Qiulin Lin and Minghua Chen (The Chinese University of Hong Kong, P.R. China)

Collaborated Tasks-driven Mobile Charging and Scheduling: A Near Optimal Result

Tao Wu (Army Engineering University, P.R. China); Panlong Yang (University of Science and Technology of China, P.R. China); Haipeng Dai (Nanjing University & State Key Laboratory for Novel Software Technology, P.R. China); Wanru Xu (Army Engineering University of PLA, P.R. China); Mingxue Xu (University of Science and Technology of China, P.R. China)

Minimizing Charging Delay for Directional Charging in Wireless Rechargeable Sensor Networks

Chi Lin and Yanhong Zhou (Dalian University of Technology, P.R. China); Fenglong Ma (University at Buffalo, SUNY, USA); Jing Deng (University of North Carolina at Greensboro, USA); Lei Wang and Guowei WU (Dalian University of Technology, P.R. China)

Self-sustainable Sensor Networks with Multi-source Energy Harvesting and Wireless Charging

Pengzhan Zhou (Stony Brook University, USA); Cong Wang (Old Dominion University, USA); Yuanyuan Yang (Stony Brook University, USA)

8-H: The Mobile Internet: Measurements and Economics

Room: Scene C

Chair: Carlee Joe-Wong (Carnegie Mellon University, USA)

Pricing for Revenue Maximization in IoT Data Markets: An Information Design Perspective

Weichao Mao, Zhenzhe Zheng and Fan Wu (Shanghai Jiao Tong University, P.R. China)

Economic Viability of Data Trading with Rollover

Zhiyuan Wang (The Chinese University of Hong Kong, Hong Kong); Lin Gao (Harbin Institute of Technology (Shenzhen), P.R.

China); Jianwei Huang (The Chinese University of Hong Kong, Hong Kong); Biying Shou (City University of Hong Kong, Hong Kong)

Dynamic Pricing and Capacity Allocation of UAV-provided Mobile Services

Xuehe Wang (Singapore University of Technology and Design, Singapore); Lingjie Duan (Singapore University of Technology and Design (SUTD), Singapore)

Auction-based Cache Trading for Scalable Videos in Multi-Provider Heterogeneous Networks

Behrouz Jedari (Nokia, Finland); Mario Di Francesco (Aalto University, Finland)

Thursday, May 2 10:30 - 11:00

Coffee Break

Room: Scene Foyer

Thursday, May 2 10:30 - 12:30

Poster Session 2

Room: Scene Foyer

Chairs: Nathalie Mitton (Inria Lille - Nord Europe, France), Venkatesha Prasad (Delft University of Technology, The Netherlands), Chuan Wu (The University of Hong Kong, Hong Kong)

Thursday, May 2 11:00 - 12:30

Award Lecture

Room: Scene B

9-A: Cognitive Radio Networks 2

Room: Scene D/E/F

Chair: Rui Zhang (University of Delaware, USA)

CapJack: Capture In-Browser Crypto-jacking by Deep Capsule Network through Behavioral Analysis

Rui Ning, Cong Wang, ChunSheng Xin, Jiang Li, Liuwan Zhu and Hongyi Wu (Old Dominion University, USA)

Label-Less: A Semi-automatic Labeling Tool for KPI Anomalies

Nengwen Zhao and Jing Zhu (Tsinghua University, P.R. China); Rong Liu (Stevens Institute of Technology, USA); Dapeng Liu (BizSeer, P.R. China); Ming Zhang (China Construction Bank, P.R. China); Dan Pei (Tsinghua University, P.R. China)

Unsupervised Anomaly Detection for Intricate KPIs via Adversarial Training of VAE

Wenxiao Chen, Haowen Xu, Zeyan Li and Dan Pei (Tsinghua University, P.R. China); Jie Chen, Honglin Qiao, Yang Feng and Zhaogang Wang (Alibaba Group, P.R. China)

Online Internet Anomaly Detection With High Accuracy: A Fast Tensor Factorization Solution

Xiaocan Li (Stony Brook University, New York, USA); Kun Xie (State University of New York at Stony Brook, USA); Xin Wang (Stony Brook University, USA); Gaogang Xie (Institute of Computing Technology, Chinese Academy of Sciences, P.R. China); Jigang Wen (Chinese Academy of Science & Institute of Computing Technology, P.R. China); Guangxing Zhang (Institute of Computing Technology Chinese Academy of Sciences, P.R. China); Zheng Qin (Hunan University, P.R. China)

9-B: Fault Tolerance and Survivability

Room: Forum A/B

Chair: Stefan Schmid (University of Vienna, Austria)

APRL: An Application-Aware, Predictive and Intelligent Load Balancing Solution for Data-Intensive Science

Deepak Nadig, Byrav Ramamurthy, Brian Bockelman and David Swanson (University of Nebraska-Lincoln, USA)

RABA: Resource-Aware Backup Allocation For A Chain of Virtual Network Functions

Jiao Zhang and Zenan Wang (Beijing University of Posts and Telecommunications, P.R. China); Chunyi Peng (Purdue University, USA); Linquan Zhang (Amazon, Canada); Tao Huang and Yunjie Liu (Beijing University of Posts and Telecommunications, P.R. China)

Learning Network Traffic Dynamics Using Temporal Point Process

Avirup Saha (IIT Kharagpur, India); Niloy Ganguly and Sandip Chakraborty (Indian Institute of Technology Kharagpur, India); Abir De (MPI-SWS, Germany)

Adjusting Matching Algorithm to Adapt to Workload Fluctuations in Content-based Publish/Subscribe Systems

Shiyu Qian and Weichao Mao (Shanghai Jiao Tong University, P.R. China); Jian Cao (Shanghai Jiaotong University, P.R. China); Frederic Le Mouel (INRIA / INSA Lyon, France); Minglu Li (Shanghai Jiao Tong University, P.R. China)

9-C: MIMO Networks

Room: Forum C

Chair: Huacheng Zeng (University of Louisville, USA)

Doppler Radar with In-Band Full Duplex Radios

Seyed Ali Hassani (KU Leuven, Belgium); Karthick Parashar, Andre Bourdoux and Barend van Liempd (IMEC, Belgium); Sofie Pollin (KU Leuven, Belgium)

To Cancel or Not to Cancel: Exploiting Interference Signal Strength in the Eigenspace for Efficient MIMO DoF Utilization

Yongce Chen, Shaoran Li, Chengzhang Li and Thomas Hou (Virginia Tech, USA); Brian Jalaiyan (US Army Research Laboratory, USA)

On User Selective Eavesdropping Attacks in MU-MIMO: CSI Forgery and Countermeasure

Sulei Wang (Fudan University, P.R. China); Zhe Chen (School of Computer Science and Engineering, Nanyang Technological University, Singapore); Yuedong Xu (Fudan University, P.R. China); Qiben Yan (University of Nebraska-Lincoln, USA); Chongbin Xu and Xin Wang (Fudan University, P.R. China)

LiBeam: Throughput-Optimal Cooperative Beamforming for Indoor Visible Light Networks

Nan Cen, Neil Dave and Emrecan Demirors (Northeastern University, USA); Zhangyu Guan (University at Buffalo, USA); Tommaso Melodia (Northeastern University, USA)

9-D: Real-World Social Networks

Room: Forum E/F

Chair: Ruidong Li (National Institute of Information and Communications Technology (NICT), Japan)

TDFI: Two-stage Deep Learning Framework for Friendship Inference via Multi-source Information

Yi Zhao (Tsinghua University, P.R. China); Meina Qiao (Beihang University, P.R. China); Haiyang Wang (University of Minnesota at Duluth, USA); Rui Zhang (Northwestern Polytechnical University, P.R. China); Dan Wang (The Hong Kong Polytechnic University, Hong Kong); Ke Xu and Qi Tan (Tsinghua University, P.R. China)

A Network-centric Framework for Auditing Recommendation Systems

Abhisek Dash (Indian Institute of Technology, Kharagpur, India); Animesh Mukherjee (IIT Kharagpur, India); Saptarshi Ghosh (Indian Institute of Technology Kharagpur & IIEST Shibpur, India)

NeuralWalk: Trust Assessment in Online Social Networks with Neural Networks

Guangchi Liu (Stratifyd Inc., USA); Chenyu Li (Stratifyd Inc, USA); Qing Yang (University of North Texas, USA)

Calibrate: Frequency Estimation and Heavy Hitter Identification with Local Differential Privacy via Incorporating Prior

Knowledge

Jinyuan Jia and Neil Gong (Iowa State University, USA)

9-E: Router and Switch Design

Room: Forum G/H/I/J

Chair: Tilman Wolf (University of Massachusetts, USA)

A Generic Technique for Sketches to Adapt to Different Counting Ranges

Tong Yang, JiaQi Xu, Xilai Liu, Peng Liu and Lun Wang (Peking University, P.R. China); Jun Bi (Tsinghua University, P.R. China); XiaoMing Li (Peking University, P.R. China)

MV-Sketch: A Fast and Compact Invertible Sketch for Heavy Flow Detection in Network Data Streams

Lu Tang (The Chinese University of Hong Kong, Hong Kong); Qun Huang (Institute of Computing Technology, Chinese Academy of Sciences, P.R. China); Patrick Pak-Ching Lee (The Chinese University of Hong Kong, Hong Kong)

Optimal Representations of a Traffic Distribution in Switch Memories

Yaniv Sadeh (Tel Aviv University, Israel); Ori Rottenstreich (Technion, Israel); Arye Barkan (Google, Israel); Yossi Kanizo (Tel-Hai College, Israel); Haim Kaplan (Tel-Aviv University, Israel)

Approximate Classifiers with Controlled Accuracy

Vitalii Demianiuk and Kirill Kogan (IMDEA Networks Institute, Spain); Sergey I Nikolenko (Steklov Mathematical Institute at St Petersburg, Russia)

9-F: Security in Mobile Cloud Computing

Room: Scene A

Chair: Cong Wang (Old Dominion University, USA)

Towards Privacy-preserving Incentive for Mobile Crowdsensing Under An Untrusted Platform

Zhibo Wang, Jingxin Li and Jiahui Hu (Wuhan University, P.R. China); Ju Ren (Central South University, P.R. China); Zhetao Li (Xiangtan University, P.R. China); Yanjun Li (Zhejiang University of Technology, P.R. China)

VoicePop: A Pop Noise based Anti-spoofing System for Voice Authentication on Smartphones

Qian Wang, Xiu Lin and Man Zhou (Wuhan University, P.R. China); Yanjiao Chen (School of Computer Science, Wuhan University, P.R. China); Cong Wang (City University of Hong Kong, Hong Kong); Qi Li (Tsinghua University, P.R. China); Luo Xiangyang (Zhengzhou Information Science and Technology Institute, P.R. China)

WristSpy: Snooping Passcodes in Mobile Payment Using Wrist-worn Wearables

Chen Wang (Rutgers University, USA); Jian Liu (WINLAB, Rutgers University, USA); Xiaonan Guo (Indiana University-Purdue University Indianapolis, USA); Yan Wang (SUNY at Binghamton, USA); Yingying Chen (Rutgers University, USA)

NAuth: Secure Face-to-Face Device Authentication via Nonlinearity

Xinyan Zhou (Zhejiang University, P.R. China); Xiaoyu Ji and Chen Yan (Zhejiang University, P.R. China); Jiangyi Deng (Zhejiang University, P.R. China); Wenyuan Xu (Zhejiang University, P.R. China)

9-H: Mobile Applications and Economics

Room: Scene C

Chair: Zhuo Lu (University of South Florida, USA)

Keeping Context In Mind: Automating Mobile App Access Control with User Interface Inspection

Hao Fu (University of California, Davis, USA); Zizhan Zheng (Tulane University, USA); Sencun Zhu (The Pennsylvania State University, USA); Prasant Mohapatra (University of California, Davis, USA)

A Business Model Analysis of Mobile Data Rewards

Haoran Yu, Ermin Wei and Randall A Berry (Northwestern University, USA)

On Optimal Hybrid Premium Peering and Caching Purchasing Strategy of Internet Content Providers

Lianjie Shi, Xin Wang and Richard T. B. Ma (National University of Singapore, Singapore)

TransLink: User Identity Linkage across Heterogeneous Social Networks via Translating Embeddings

Jingya Zhou and Jianxi Fan (Soochow University, P.R. China)

Thursday, May 2 12:30 - 14:00

Conference Lunch

Room: Galerie + Loft A/B/C/D/E/F

Thursday, May 2 14:00 - 15:30

Panel C: Big Teams - Big Money - Big Research

Room: Scene B

Chair: Mehmet Can Vuran (University of Nebraska-Lincoln, USA)

10-A: Cognitive Radio Networks 3

Room: Scene D/E/F

Chair: Vincenzo Mancuso (IMDEA Networks Institute, Spain)

LEGO-Fi: Transmitter-Transparent CTC with Cross-Demapping

Xiuzhen Guo and Yuan He (Tsinghua University, P.R. China); Xiaolong Zheng (Beijing University of Posts and Telecommunications, P.R. China); Zihao Yu (Tsinghua University, P.R. China); Yunhao Liu (Tsinghua University & The Hong Kong University of Science and Technology, P.R. China)

Dynamic Spectrum Management in 5G Wireless Networks: A Real-Life Modeling Approach

Panagiotis Vamvakas (National Technical University of Athens, Greece); Eirini Eleni Tsiropoulos (University of New Mexico, USA); Symeon Papavassiliou (ICCS/National Technical University of Athens, Greece)

SAS: Modeling and Analysis of Spectrum Activity Surveillance in Wireless Overlay Networks

Jie Wang (North Carolina State University, USA); Wenye Wang (NC State University, USA); Cliff Wang (North Carolina State University, USA)

Big Data Goes Small: Real-Time Spectrum-Driven Embedded Wireless Networking Through Deep Learning in the RF Loop

Francesco Restuccia and Tommaso Melodia (Northeastern University, USA)

10-B: Internet Monitoring and Measurement 1

Room: Forum A/B

Chair: Simone Silvestri (University of Kentucky, USA)

Detecting Network Disruptions At Colocation Facilities

Alexandros Milolidakis (University of Crete, Greece); Romain Fontugne (Internet Initiative Japan Inc., Japan); Xenofontas Dimitropoulos (University of Crete / FORTH, Greece)

Efficiently Inferring Top-k Elephant Flows based on Discrete Tensor Completion

Kun Xie (State University of New York at Stony Brook, USA); Jiazheng Tian (Stony Brook University, P.R. China); Xin Wang (Stony Brook University, USA); Gaogang Xie (Institute of Computing Technology, Chinese Academy of Sciences, P.R. China); Jigang Wen (Chinese Academy of Science & Institute of Computing Technology, P.R. China); Dafang Zhang (Hunan

University, P.R. China)

Detecting Anomaly in Large-scale Network using Mobile Crowdsourcing

Yang Li (Shanghai Jiaotong University, P.R. China); Jiachen Sun, Wenguang Huang and Xiaohua Tian (Shanghai Jiao Tong University, P.R. China)

A Probabilistic Framework to Node-level Anomaly Detection in Communication Networks

Batiste Le Bars (Ecole Normale Supérieure Paris-Saclay & Sigfox Company, France); Argyris Kalogeratos (Ecole Normale Supérieure Paris-Saclay, France)

10-C: Localization

Room: Forum C

Chair: Hongbo Liu (Indiana University-Purdue University Indianapolis, USA)

Perceiving Internet Anomalies via CDN Replica Shifts

Yihao Jia (Tsinghua University, P.R. China); Aleksandar Kuzmanovic (Northwestern University, USA)

Measuring Update Performance and Consistency Anomalies in Managed DNS Services

Zhaoyu Gao (University of Massachusetts Amherst, USA); Arun Venkataramani (UMass Amherst, USA)

Quick and Accurate False Data Detection in Mobile Crowd Sensing

Kun Xie (State University of New York at Stony Brook, USA); Xiaocan Li (Stony Brook University, New York, USA); Xin Wang (Stony Brook University, USA); Gaogang Xie (Institute of Computing Technology, Chinese Academy of Sciences, P.R. China); Dongliang Xie (State University of New York at Stony Brook, USA); Zhenyu Li (Institute of Computing Technology, Chinese Academy of Sciences, P.R. China); Jigang Wen (Chinese Academy of Science & Institute of Computing Technology, P.R. China); Zulong Diao (Stony Brook University, USA)

Statistical learning of geometric characteristics of wireless networks

Antoine Brochard (Huawei/Inria, France); Bartłomiej Błaszczyk (Inria-Ens, France); Stephane Mallat (Collège de France & École Normale Supérieure, France); Sixin Zhang (ENS, France)

10-D: Theoretical Foundations in Social Networks 1

Room: Forum E/F

Differentially-Private Two-Party Egocentric Betweenness Centrality

Leyla Roohi (The University of Melbourne, Australia); Benjamin Rubinstein (University of Melbourne, Australia); Vanessa Teague (The University of Melbourne, Australia)

PHDP: Preserving Persistent Homology in Differentially Private Graph Publications

Tianchong Gao and Feng Li (Indiana University-Purdue University Indianapolis, USA)

Smart Information Spreading for Opinion Maximization in Social Networks

Anuj Nayak and Seyyedali Hosseinalipour (North Carolina State University, USA); Huaiyu Dai (NC State University, USA)

Evolving Knowledge Graphs

Jiaqi Liu, Qin Zhang and Luoyi Fu (Shanghai Jiao Tong University, P.R. China); Xinbing Wang (Shanghai Jiaotong University, P.R. China); Songwu Lu (University of California at Los Angeles, USA)

10-E: Routing and Scheduling in Datacenter Networks

Room: Forum G/H/I/J

Chair: Byrav Ramamurthy (University of Nebraska-Lincoln, USA)

Scheduling Jobs with Random Resource Requirements in Computing Clusters

Konstantinos Psychas and Javad Ghaderi (Columbia University, USA)

When Network Matters: Data Center Scheduling with Network Tasks

Frederic Giroire (CNRS, France); Nicolas Huin (Huawei Technologies, France); Andrea Tomassilli (Université Côte d'Azur, Inria, I3S, France); Stephane Perennes (INRIA, France)

Dedas: Online Task Dispatching and Scheduling with Bandwidth Constraint in Edge Computing

Jiaying Meng, Haisheng Tan, Chao Xu, Wanli Cao, Liuyan Liu and Bojie Li (University of Science and Technology of China, P.R. China)

Minimum Age TDMA Scheduling

Tung-Wei Kuo (National Chengchi University, Taiwan)

Thursday, May 2 15:30 - 16:00

Coffee Break

Room: Scene Foyer

Thursday, May 2 16:00 - 17:30

11-A: Scheduling in Wireless Networks

Room: Scene D/E/F

Chair: Javad Ghaderi (Columbia University, USA)

Virtual Speed Test: an AP Tool for Passive Analysis of Wireless LANs

Peshal Nayak (Rice University, USA); Santosh Pandey (Cisco Systems Inc, USA); Edward W. Knightly (Rice University, USA)

Switching Constrained Max-Weight Scheduling for Wireless Networks

Soumya Basu (University of Texas at Austin, USA); Sanjay Shakkottai (The University of Texas at Austin, USA)

Robust Scheduling for Wireless Charger Networks

Xiaoyu Wang (Nanjing University, P.R. China); Haipeng Dai (Nanjing University & State Key Laboratory for Novel Software Technology, P.R. China); He Huang (Soochow University, P.R. China); Yunhuai Liu (Peking University, P.R. China); Guihai Chen (Shanghai Jiao Tong University, P.R. China); Wanchun Dou (Nanjing University, P.R. China)

Satisfying Network Slicing Constraints via 5G MAC Scheduling

Silvio Mandelli (Nokia Bell Labs, Germany); Matthew Andrews (Nokia Bell Labs, USA); Sem Borst (Eindhoven University of Technology & Nokia Bell Labs, USA); Siegfried Klein (Nokia Bell Labs, Germany)

11-B: Internet Monitoring and Measurement 2

Room: Forum A/B

Chair: Christophe Diot (Google, USA)

HyCloud: Tweaking Hybrid Cloud Storage Services for Cost-Efficient Filesystem Hosting

Jinlong E (Tsinghua University, P.R. China & Nanyang Technological University, Singapore); Yong Cui, Mingkang Ruan and Zhenhua Li (Tsinghua University, P.R. China); Ennan Zhai (Yale University, USA)

The Role of Network Topology for Distributed Machine Learning

Giovanni Neglia (Inria, France); Gianmarco Calbi (Inria & Università di Milano-Bicocca, France); Don Towsley (University of Massachusetts at Amherst, USA); Gayane Vardoyan (University of Massachusetts Amherst, USA)

Multisource Rumor Spreading with Network Coding

Yérom-David Bromberg, Quentin Dufour and Davide A Frey (Univ Rennes, Inria, CNRS, IRISA, France)

ACCEL: Accelerating the Bitcoin Blockchain for High-throughput, Low-latency Applications

Adiseshu Hari (Bell Laboratories & Nokia, USA); Murali Kodialam (Nokia Bell Labs, USA); T. V Lakshman (Bell Labs, Nokia, USA)

11-C: Indoor Localization

Room: Forum C

Chair: Kyunghan Lee (Ulsan National Institute of Science and Technology, Korea)

LEAP: Location Estimation and Predictive Handover with Consumer-Grade mmWave Devices

Joan Palacios and Paolo Casari (IMDEA Networks Institute, Spain); Hany Assasa (IMDEA Networks Institute & Universidad Carlos III de Madrid, Spain); Joerg Widmer (IMDEA Networks Institute, Spain)

PAMT: Phase-based Acoustic Motion Tracking in Multipath Fading Environments

Yang Liu (CAS Shanghai Institute of Microsystem and Information Technology & Shanghai Research Center for Wireless Communications, P.R. China); Wuxiong Zhang (Shanghai Research Center for Wireless Communications, P.R. China); Yang Yang (Shanghai Institute of Microsystem and Information Technology & Shanghai Reserach Center for Wireless Communications, P.R. China); Weidong Fang (Shanghai Research Center for Wireless Communication, P.R. China); Fei Qin (Chinese Academy of Sciences, P.R. China); Xuewu Dai (Northeastern University, P.R. China)

Incrementally-deployable Indoor Navigation with Automatic Trace Generation

Yuanchao Shu (Microsoft Research, USA); Zhuqi Li (Princeton University, USA); Börje Karlsson (Microsoft Research, P.R. China); Yiyong Lin (Microsoft, P.R. China); Thomas Moscibroda (Microsoft Research, USA); Kang Shin (University of Michigan, USA)

Automating CSI Measurement with UAVs: from Problem Formulation to Energy-Optimal Solution

Sixu Piao, Zhongjie Ba and Lu Su (State University of New York at Buffalo, USA); Dimitrios Koutsonikolas (University at Buffalo, SUNY, USA); Shi Li and Kui Ren (State University of New York at Buffalo, USA)

11-D: Theoretical Foundations in Social Networks 2

Room: Forum E/F

Performance Analysis of Online Social Platforms

Anastasios Giovanidis (Sorbonne Université & CNRS-LIP6, France); Bruno Baynat (Université Pierre et Marie Curie-LIP6, France); Antoine Vendeville (Sorbonne University, France)

Age Optimal Information Gathering and Dissemination on Graphs

Vishrant Tripathi, Rajat Talak and Eytan Modiano (MIT, USA)

Compressed Distributed Gradient Descent: Communication-Efficient Consensus over Networks

Xin Zhang, Jia Liu and Zhengyuan Zhu (Iowa State University, USA); Elizabeth Serena Bentley (AFRL, USA)

Data-Intensive Routing in Delay-Tolerant Networks

Kazuya Sakai (Tokyo Metropolitan University, Japan); Min-Te Sun (National Central University, Taiwan); Wei-Shinn Ku (Auburn University, USA)

11-E: Topology and Flow Control in Datacenter Networks

Room: Forum G/H/I/J

Chair: Wenye Wang (NC State University, USA)

Adaptive Interference-Aware VNF Placement for Service-Customized 5G Network Slices

Qixia Zhang, Fangming Liu and Chaobing Zeng (Huazhong University of Science and Technology, P.R. China)

Faster Placement of Virtual Machines through Adaptive Caching

Gil Einziger (Ben-Gurion University Of The Negev, Israel); Maayan Goldstein and Yaniv Sa'ar (Nokia Bell Labs, Israel)

Wireless and Computing Resource Allocation for Selfish Computation Offloading in Edge Computing

Slađana Jošilo and György Dán (KTH Royal Institute of Technology, Sweden)

Age of Information-aware Scheduling for Timely and Scalable Internet of Things Applications

Lorenzo Corneo, Christian Rohner and Per Gunningberg (Uppsala University, Sweden)

11-F: Secure Search in Cloud Computing

Room: Scene A

Chair: Yaling Yang (Virginia Tech, USA)

Search in My Way: Practical Outsourced Image Retrieval Framework Supporting Unshared Key

Xiangyu Wang (No. 2 Southern Tai Bai Rd. & Xidian University, P.R. China); Jianfeng Ma (Xidian University, P.R. China); Ximeng Liu (Singapore Management University, Singapore); Yinbin Miao (Xidian University, P.R. China)

Strongly Secure and Efficient Range Queries in Cloud Databases under Multiple Keys

Ke Cheng and Yulong Shen (Xidian University, P.R. China); Yongzhi Wang (Xidian University, P.R. China & Park University, USA); Liangmin Wang (Jiangsu University, P.R. China); Jianfeng Ma (Xidian University, P.R. China); Xiaohong Jiang (Future University-Hakodate, Japan); Cuicui Su (Xidian University, P.R. China)

Hardening Database Padding for Searchable Encryption

Lei Xu (Nanjing University of Science and Technology, P.R. China); Xingliang Yuan (Monash University, Australia); Cong Wang (City University of Hong Kong, Hong Kong); Qian Wang (Wuhan University, P.R. China); Chungen Xu (Nanjing University of Science and Technology, P.R. China)

Beyond Inferring Class Representatives: User-Level Privacy Leakage From Federated Learning

Zhibo Wang and Mengkai Song (Wuhan University, P.R. China); Zhifei Zhang (University of Tennessee, USA); Yang Song (University of Tennessee, Knoxville, USA); Qian Wang (Wuhan University, P.R. China); Hairong Qi (the University of Tennessee, USA)

11-G: Cooperative Networking

Room: Scene B

Chair: Sofie Pollin (KU Leuven, Belgium)

A Practical Underlay Spectrum Sharing Scheme for Cognitive Radio Networks

Pedram Kheirkhah Sangdeh, Hossein Pirayesh, Huacheng Zeng and Hongxiang Li (University of Louisville, USA)

Entrapment for Wireless Eavesdroppers

Song Fang (University of Oklahoma); Tao Wang, Yao Liu, Shangqing Zhao and Zhuo Lu (University of South Florida, USA)

Nomad: An Efficient Consensus Approach for Latency-Sensitive Edge-Cloud Applications

Zijiang Hao, Shanhe Yi and Qun Li (College of William and Mary, USA)

A Distributed Orchestration Algorithm for Edge Computing Resources with Guarantees

Gabriele Castellano (Politecnico di Torino, Italy); Flavio Esposito (Saint Louis University, USA); Fulvio Risso (Politecnico di Torino, Italy)

11-H: Demand Response

Room: Scene C

Chair: Qinghua Li (University of Arkansas, USA)

A Truthful FPTAS Mechanism for Emergency Demand Response in Colocation Data Centers

Jianhai Chen and Deshi Ye (Zhejiang University, P.R. China); Shouling Ji (Zhejiang University, P.R. China & Georgia Institute of Technology, USA); Qinming He (Zhejiang University, P.R. China); Yang Xiang (Swinburne University of Technology, Australia); Zhenguang Liu (National University of Singapore, Singapore)

An Online Market Mechanism for Edge Emergency Demand Response via Cloudlet Control

Shutong Chen (Huazhong University of Science and Technology, P.R. China); Lei Jiao (University of Oregon, USA); Lin Wang (VU Amsterdam & TU Darmstadt, The Netherlands); Fangming Liu (Huazhong University of Science and Technology, P.R. China)

OFM: An Online Fisher Market for Cloud Computing

Abhinandan Sridhara Rao Prasad, Mayutan Arumaithurai and David Koll (University of Goettingen, Germany); Yuming Jiang (Norwegian University of Science and Technology (NTNU), Norway); Xiaoming Fu (University of Goettingen, Germany)

Service Scheduling for Bernoulli Requests and Quadratic Cost

Ramya Burra, Chandramani Singh and Joy Kuri (Indian Institute of Science, India)

Program

1-A: IoT and Health

Continuous User Verification via Respiratory Biometrics

Jian Liu (University of Tennessee, Knoxville, USA); Yingying Chen (Rutgers University, USA); Yudi Dong (Stevens Institute of Technology, USA); Yan Wang and Tianming Zhao (Temple University, USA); Yu-Dong Yao (Stevens Institute of Technology, USA)
pp. 1-10

Deeper Exercise Monitoring for Smart Gym using Fused RFID and CV Data

Zijuan Liu, Xiulong Liu and Keqiu Li (Tianjin University, China)
pp. 11-19

Reconfigure and Reuse: Interoperable Wearables for Healthcare IoT

Nidhi Pathak (Indian Institute of Technology Kharagpur, India); Anandarup Mukherjee (University of Cambridge & Indian Institute of Technology Kharagpur, India); Sudip Misra (Indian Institute of Technology-Kharagpur, India)
pp. 20-29

TrueHeart: Continuous Authentication on Wrist-worn Wearables Using PPG-based Biometrics

Tianming Zhao and Yan Wang (Temple University, USA); Jian Liu (University of Tennessee, Knoxville, USA); Yingying Chen (Rutgers University, USA); Jerry Cheng (New York Institute of Technology, USA); Jiadi Yu (Shanghai Jiao Tong University, China)
pp. 30-39

1-B: Scheduling I

A Converse Result on Convergence Time for Opportunistic Wireless Scheduling

Michael Neely (University of Southern California, USA)
pp. 40-48

Is Deadline Oblivious Scheduling Efficient for controlling real-time traffic in cellular downlink systems?

Sherif ElAzzouni, Eylem Ekici and Ness B. Shroff (The Ohio State University, USA)
pp. 49-58

On the Power of Randomization for Scheduling Real-Time Traffic in Wireless Networks

Christos Tsanikidis and Javad Ghaderi (Columbia University, USA)
pp. 59-68

OST: On-Demand TSCH Scheduling with Traffic-awareness

Seungbeom Jeong and Hyung-Sin Kim (Seoul National University, Korea (South)); Jeongyeup Paek (Chung-Ang University, Korea (South)); Saewoong Bahk (Seoul National University, Korea (South))
pp. 69-78

1-C: Privacy I

(How Much) Does a Private WAN Improve Cloud Performance?

Todd W Arnold, Ege Gurmericliler and Georgia Essig (Columbia University, USA); Arpit Gupta (Columbia University); Matt Calder (Microsoft); Vasileios Gotsas (Lancaster University, United Kingdom (Great Britain)); Ethan Katz-Bassett (Columbia University, USA)
pp. 79-88

De-anonymization of Social Networks: the Power of Collectiveness

Jiapeng Zhang and Luoyi Fu (Shanghai Jiao Tong University, China); Xinbing Wang (Shanghai Jiaotong University, China); Songwu Lu (University of California at Los Angeles, USA)
pp. 89-98

Towards Correlated Queries on Trading of Private Web Browsing History

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Ben Niu (Institute of Information Engineering, Chinese Academy of Sciences, China); Yahong Chen (Institute of Information Engineering, CAS & School of Cyber Security, UCAS, China); Boyang Wang (University of Cincinnati, USA); Zhibo Wang (Zhejiang University, China); Fenghua Li (Institute of Information Engineering, CAS & School of Cyber Security, UCAS, China); Jin Cao (Xidian University, China)

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The Impact of Baseband Functional Splits on Resource Allocation in 5G Radio Access Networks

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Optimal Resource Allocation for Statistical QoS Provisioning in Supporting mURLLC Over FBC-Driven 6G Terahertz Wireless Nano-Networks

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6Hit: A Reinforcement Learning-based Approach to Target Generation for Internet-wide IPv6 Scanning

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DeepReserve: Dynamic Edge Server Reservation for Connected Vehicles with Deep Reinforcement Learning

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A Weak Consensus Algorithm and Its Application to High-Performance Blockchain

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Code is the (F)Law: Demystifying and Mitigating Blockchain Inconsistency Attacks Caused by Software Bugs

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Jorik Oostenbrink (TU Delft, The Netherlands); Fernando A. Kuipers (Delft University of Technology, The Netherlands)

On Network Topology Augmentation for Global Connectivity under Regional Failures

János Tapolcai, Zsombor László Hajdú and Alija Pašić (Budapest University of Technology and Economics, Hungary); Pin-Han Ho (University of Waterloo, Canada); Lajos Rónyai (Budapest University of Technology and Economics (BME), Hungary)

Fault-Tolerant Energy Management for Real-Time Systems with Weakly Hard QoS Assurance

Linwei Niu (Howard University, USA)

Efficient and Verifiable Proof of Replication with Fast Fault Localization

Haoran Yuan and Xiaofeng Chen (Xidian University, China); Guowen Xu (Nanyang Technological University, Singapore); Jianting Ning (Fujian Normal University, China); Joseph Liu (Monash University, Australia); Robert Deng (Singapore Management University, Singapore)

B-3: UAV Applications

Heuristic Algorithms for Co-scheduling of Edge Analytics and Routes for UAV Fleet Missions

Aakash Khochare and Yogesh Simmhan (Indian Institute of Science, India); Francesco Betti Sorbelli (University of Perugia, Italy); Sajal K. Das (Missouri University of Science and Technology, USA)

Minimizing the Number of Deployed UAVs for Delay-bounded Data Collection of IoT Devices

Junqi Zhang, Zheng Li, Wenzheng Xu and Jian Peng (Sichuan University, China); Weifa Liang (The Australian National University, Australia); Zichuan Xu (Dalian University of Technology, China); Xiaojiang Ren (Xidian University, China); Xiaohua Jia (City University of Hong Kong, Hong Kong)

Lifesaving with RescueChain: Energy-Efficient and Partition-Tolerant Blockchain Based Secure Information Sharing for UAV-Aided Disaster Rescue

Yuntao Wang (Xi'an Jiaotong University, China); Zhou Su and Qichao Xu (Shanghai University, China); Ruidong Li (Kanazawa University, Japan); Hao Luan (Xidian University, China)

Ultra-Wideband Swarm Ranging

Feng Shan, Jiaxin Zeng, Zengbao Li, Luo Junzhou and Weiwei Wu (Southeast University, China)

C-3: Mobile Edge/Cloud

Distributed Threshold-based Offloading for Large-Scale Mobile Cloud Computing

Xudong Qin and Bin Li (University of Rhode Island, USA); Lei Ying (University of Michigan, USA)

EdgeDuet: Tiling Small Object Detection for Edge Assisted Autonomous Mobile Vision

Xu Wang, Zheng Yang, Jiahang Wu and Yi Zhao (Tsinghua University, China); Zimu Zhou (Singapore Management University, Singapore)

To Talk or to Work: Flexible Communication Compression for Energy Efficient Federated Learning over Heterogeneous Mobile Edge Devices

Liang Li (Xidian University, China); Dian Shi (University of Houston, USA); Ronghui Hou and Hui Li (Xidian University, China); Miao Pan and Zhu Han (University of Houston, USA)

TiBroco: A Fast and Secure Distributed Learning Framework for Tiered Wireless Edge Networks

Dong-Jun Han (KAIST, Korea (South)); Jy-yong Sohn (Korea Advanced Institute of Science and Technology, Korea (South)); Jaekyun Moon (KAIST, Korea (South))

D-3: Backscatter and RF

RapidRider: Efficient WiFi Backscatter with Uncontrolled Ambient Signals

Qiwei Wang (University of Science and Technology of China, China); Si Chen and Jia Zhao (Simon Fraser University, Canada); Wei Gong (University of Science and Technology of China, China)

Turbocharging Deep Backscatter Through Constructive Power Surges with a Single RF Source

Zhenlin An, Qiongzheng Lin and Qingrui Pan (The Hong Kong Polytechnic University, Hong Kong); Lei Yang (The Hong Kong Polytechnic University, China)

Physical Layer Key Generation between Backscatter Devices over Ambient RF Signals

Pu Wang (Xidian University, China); Long Jiao and Kai Zeng (George Mason University, USA); Zheng Yan (Xidian University & Aalto University, China)

Signal Detection and Classification in Shared Spectrum: A Deep Learning Approach

Wenhan Zhang (University of Arizona, USA); Mingjie Feng (Huazhong University of Science and Technology, China); Marwan Krunz and Amir Hossein Yazdani Abyaneh (University of Arizona, USA)

E-3: RL Protocols

DRL-OR: Deep Reinforcement Learning-based Online Routing for Multi-type Service Requirements

Chenyi Liu, Mingwei Xu, Yuan Yang and Nan Geng (Tsinghua University, China)

An Experience Driven Design for IEEE 802.11ac Rate Adaptation based on Reinforcement Learning

Syuan-Cheng Chen (National Chiao Tung University, Taiwan); Chi-Yu Li (National Yang Ming Chiao Tung University, Taiwan); Chui-Hao Chiu (National Chiao Tung University, Taiwan)

Owl: Congestion Control with Partially Invisible Networks via Reinforcement Learning

Alessio Sacco (Politecnico di Torino, Italy); Matteo Flocco and Flavio Esposito (Saint Louis University, USA); Guido Marchetto (Politecnico di Torino, Italy)

Leveraging Domain Knowledge for Robust Deep Reinforcement Learning in Networking

Ying Zheng, Haoyu Chen, Qingyang Duan and Lixiang Lin (Fudan University, China);
Yiyang Shao and Wei Wang (Huawei, China); Xin Wang and Yuedong Xu (Fudan University, China)

F-3: AoI

Age of Information in Random Access Networks with Stochastic Arrivals

Igor Kadota (Columbia University, USA); Eytan Modiano (MIT, USA)

Analyzing Age of Information in Multiaccess Networks by Fluid Limits

Zhiyuan Jiang (Shanghai University, China)

Minimizing the Sum of Age of Information and Transmission Cost under Stochastic Arrival Model

Kumar Saurav (Tata Institute of Fundamental Research, India); Rahul Vaze (TIFR Mumbai, India)

Real-time sampling and estimation on random access channels: Age of Information and Beyond

Xingran Chen, Xinyu Liao and Shirin Saeedi Bidokhti (University of Pennsylvania, USA)

G-3: MIMO

AMT: Acoustic Multi-target Tracking with Smartphone MIMO System

Chao Liu, Penghao Wang and Ruobing Jiang (Ocean University of China, China); Yanmin Zhu (Shanghai Jiao Tong University, China)

Camel: Context-Aware Magnetic MIMO Wireless Power Transfer with In-band Communication

Hao Zhou, Zhao Chen, Wangqiu Zhou, Haisheng Tan, Panlong Yang and Xiang-Yang Li (University of Science and Technology of China, China)

DyLoc: Dynamic Localization for Massive MIMO Using Predictive Recurrent Neural Networks

Farzam Hejazi, Katarina Vuckovic and Nazanin Rahnavard (University of Central Florida, USA)

D-4: Human Sensing

AWash: Handwashing Assistance for the Elderly With Dementia via Wearables

Yetong Cao (Beijing Institute of Technology, China); Huijie Chen (Beijing University of Technology, China); Fan Li and Song Yang (Beijing Institute of Technology, China); Yu Wang (Temple University, USA)

vGaze: Implicit Saliency-Aware Calibration for Continuous Gaze Tracking on Mobile Devices

Songzhou Yang, Yuan He and Meng Jin (Tsinghua University, China)

PALMAR: Towards Adaptive Multi-inhabitant Activity Recognition in Point-Cloud Technology

Mohammad Arif Ul Alam, Md Mahmudur Rahman and Jared Widberg (University of Massachusetts Lowell, USA)

SmartDistance: A Mobile-based Positioning System for Automatically Monitoring Social Distance

Li Li (Shenzhen Institutes Of Advanced Technology Chinese Academy Of Sciences, China); Xiaorui Wang (The Ohio State University, USA); Wenli Zheng (Shanghai Jiaotong University, China); Cheng-Zhong Xu (University of Macau, China)

E-4: RL Networking

INCdeep: Intelligent Network Coding with Deep Reinforcement Learning

Qi Wang (Institute of Computing Technology, Chinese Academy of Sciences, China); Jianmin Liu (Institute of Computing Technology Chinese Academy of Sciences, China); Katia Jaffrès-Runser (University of Toulouse - Toulouse INP & IRIT Laboratory, France); Yongqing Wang, ChenTao He, Cunzhuang Liu and Yongjun Xu (Institute of Computing Technology, Chinese Academy of Sciences, China)

Bound Inference and Reinforcement Learning-based Path Construction in Bandwidth Tomography

Cuiying Feng, Jianwei An and Kui Wu (University of Victoria, Canada); Jianping Wang (City University of Hong Kong, Hong Kong)

A Universal Transcoding and Transmission Method for Livecast with Networked Multi-Agent Reinforcement Learning

Xingyan Chen and Changqiao Xu (Beijing University of Posts and Telecommunications, China); Mu Wang (State Key Laboratory of Networking and

Switching Technology, China); Zhonghui Wu and Shujie Yang (Beijing University of Posts and Telecommunications, China); Lujie Zhong (Capital Normal University, China); Gabriel-Miro Muntean (Dublin City University, Ireland)

Reliability-aware Dynamic Service Chain Scheduling in 5G Networks based on Reinforcement Learning

Junzhong Jia and Lei Yang (South China University of Technology, China); Jiannong Cao (Hong Kong Polytechnical University, Hong Kong)

F-4: Scheduling 1

Motion-Prediction-based Wireless Scheduling for Multi-User Panoramic Video Streaming

Jiangong Chen, Xudong Qin and Guangyu Zhu (University of Rhode Island, USA); Bo Ji (Virginia Tech, USA); Bin Li (University of Rhode Island, USA)

Optimal Wireless Scheduling for Remote Sensing through Brownian Approximation

Daojing Guo (Texas A&M University, USA); Ping-Chun Hsieh (National Chiao Tung University, Taiwan); I-Hong Hou (Texas A&M University, USA)

Randomized Scheduling of Real-Time Traffic in Wireless Networks Over Fading Channels

Christos Tsanikidis and Javad Ghaderi (Columbia University, USA)

Rate Region of Scheduling a Wireless Network with Discrete Propagation Delays

Jun Ma, Yanxiao Liu and Shenghao Yang (The Chinese University of Hong Kong, Shenzhen, China)

G-4: Theory 1

Competing Epidemics on Graphs - Global Convergence and Coexistence

Vishwaraj Doshi, Shailaja Mallick and Do Young Eun (North Carolina State University, USA)

A Worst-Case Approximate Analysis of Peak Age-of-Information Via Robust Queueing Approach

Zhongdong Liu (Virginia Tech, USA); Yu Sang (Temple University, USA); Bin Li (University of Rhode Island, USA); Bo Ji (Virginia Tech, USA)

Comparison of Decentralized and Centralized Update Paradigms for Remote

Tracking of Distributed Dynamic Sources

Sunzung Kang and Atilla Eryilmaz (The Ohio State University, USA); Changhee Joo (Korea University, Korea (South))

Looking for the Maximum Independent Set: A New Perspective on the Stable Path Problem

Yichao Cheng and Ning Luo (Yale University, USA); Jingxuan Zhang (Tongji University, China); Timos Antonopoulos and Ruzica Piskac (Yale University, USA); Qiao Xiang (Xiamen University, USA)

D-5: Human Sensing 2

CanalScan: Tongue-Jaw Movement Recognition via Ear Canal Deformation Sensing

Yetong Cao (Beijing Institute of Technology, China); Huijie Chen (Beijing University of Technology, China); Fan Li (Beijing Institute of Technology, China); Yu Wang (Temple University, USA)

HearFit: Fitness Monitoring on Smart Speakers via Active Acoustic Sensing

Yadong Xie, Fan Li and Yue Wu (Beijing Institute of Technology, China); Yu Wang (Temple University, USA)

RespTracker: Multi-user Room-scale Respiration Tracking with Commercial Acoustic Devices

Haoran Wan, Shuyu Shi, Wenyu Cao, Wei Wang and Guihai Chen (Nanjing University, China)

Mobile Crowdsensing for Data Freshness: A Deep Reinforcement Learning Approach

Zipeng Dai, Hao Wang, Chi Harold Liu and Rui Han (Beijing Institute of Technology, China); Jian Tang (Syracuse University, USA); Guoren Wang (Northeastern University, China)

E-5: Federated Learning 1

FAIR: Quality-Aware Federated Learning with Precise User Incentive and Model Aggregation

Yongheng Deng (Tsinghua University, China); Feng Lyu and Ju Ren (Central South University, China); Yi-Chao Chen (Shanghai Jiao Tong University, China); Peng Yang (Huazhong University of Science and Technology, China); Yuezhi Zhou and Yaxue Zhang (Tsinghua University, China)

FedSens: A Federated Learning Approach for Smart Health Sensing with Class Imbalance in Resource Constrained Edge Computing

Daniel Zhang and Ziyi Kou (University of Notre Dame, USA); Dong Wang (University of Illinois at Urbana-Champaign, USA)

Learning for Learning: Predictive Online Control of Federated Learning with Edge Provisioning

Yibo Jin (Nanjing University, China); Lei Jiao (University of Oregon, USA); Zhuzhong Qian, Sheng Zhang and Sanglu Lu (Nanjing University, China)

Resource-Efficient Federated Learning with Hierarchical Aggregation in Edge Computing

Zhiyuan Wang, Hongli Xu and Jianchun Liu (University of Science and Technology of China, China); He Huang (Soochow University, China); Chunming Qiao (University at Buffalo, USA); Yangming Zhao (University of Science and Technology of China, China)

F-5: Scheduling 2

Aion: A Bandwidth Optimized Scheduler with AOL Guarantee

Qingyu Liu, Chengzhang Li, Thomas Hou and Wenjing Lou (Virginia Tech, USA); Sastry Kompella (Naval Research Laboratory, USA)

On Scheduling with AOL Violation Tolerance

Chengzhang Li, Qingyu Liu, Shaoran Li, Yongce Chen, Thomas Hou and Wenjing Lou (Virginia Tech, USA)

A Sum-of-Ratios Multi-Dimensional-Knapsack Decomposition for DNN Resource Scheduling

Menglu Yu (Iowa State University, USA); Chuan Wu (The University of Hong Kong, Hong Kong); Bo Ji (Virginia Tech, USA); Jia Liu (The Ohio State University, USA)

Optimal Multicast Scheduling for Millimeter Wave Networks Leveraging Directionality and Reflections

In Sop Cho and Seung Jun Baek (Korea University, Korea (South))

G-5: Theory 2

Sequential Resource Access: Theory and Algorithm

Lin Chen (Sun Yat-sen University, China); Anastasios Giovanidis (Sorbonne Université & CNRS-LIP6, France); Wei Wang (Zhejiang University, China); Shan Lin (Stony Brook University, USA)

Optimal Online Balanced Graph Partitioning

Maciej Pacut, Mahmoud Parham and Stefan Schmid (University of Vienna, Austria)

Combining Regularization with Look-Ahead for Competitive Online Convex Optimization

Ming Shi and Xiaojun Lin (Purdue University, USA); Lei Jiao (University of Oregon, USA)

ITE: A Structural Entropy Based Approach for Source Detection

Chong Zhang, Qiang Guo, Luoyi Fu and Xiaoying Gan (Shanghai Jiao Tong University, China); Xinbing Wang (Shanghai Jiaotong University, China)

A-6: Network Functions and Tasking

NFD: Using Behavior Models to Develop Cross-Platform Network Functions

Hongyi Huang, Wenfei Wu, Yongchao He and Bangwen Deng (Tsinghua University, China); Ying Zhang (Facebook, USA); Yongqiang Xiong (Microsoft Research Asia, China); Guo Chen (Hunan University, China); Yong Cui (Tsinghua University, China); Peng Cheng (Microsoft Research, China)

NFReducer: Redundant Logic Elimination for Network Functions with Runtime Configurations

Bangwen Deng and Wenfei Wu (Tsinghua University, China)

Accelerating LSH-based Distributed Search with In-network Computation

Penghao Zhang, Heng Pan and Zhenyu Li (Institute of Computing Technology, Chinese Academy of Sciences, China); Peng He (Institute of Computing Technology Chinese Academy of Sciences, China); Zhibin Zhang (Institute of Computing Technology, Chinese Academy of Sciences, China); Gareth Tyson (Queen Mary, University of London, United Kingdom (Great Britain)); Gaogang Xie (CNIC Chinese Academy of Sciences & University of Chinese Academy of Sciences, China)

Flow Algebra: Towards an Efficient, Unifying Framework for Network Management

Tasks

Christopher Leet, Robert Soulé and Y. Richard Yang (Yale University, USA); Ying Zhang (Facebook, USA)

B-6: IoT

GOLDIE: Harmonization and Orchestration Towards a Global Directory for IoT

Luoyao Hao and Henning Schulzrinne (Columbia University, USA)

WiProg: A WebAssembly-based Approach to Integrated IoT Programming

Borui Li, Wei Dong and Yi Gao (Zhejiang University, China)

Ruledger: Ensuring Execution Integrity in Trigger-Action IoT Platforms

Jingwen Fan (Sichuan Changhong Electric Co., Ltd., China); Yi He (Tsinghua University, China); Bo Tang (Sichuan Changhong Electric Co., Ltd., China); Qi Li (Tsinghua University, China); Ravi Sandhu (University of Texas at San Antonio, USA)

Low-Power Downlink for the Internet of Things using IEEE 802.11-compliant Wake-Up Receivers

Johannes Blobel (TU Berlin, Germany); Vu Tran and Archan Misra (Singapore Management University, Singapore); Falko Dressler (TU Berlin, Germany)

C-6: Robotic Applications

POLO: Localizing RFID-Tagged Objects for Mobile Robots

Dianhan Xie, Xudong Wang, Aimin Tang and Hongzi Zhu (Shanghai Jiao Tong University, China)

SILoc: A Speed Inconsistency-Immune Approach to Mobile RFID Robot Localization

Jiuwu Zhang and Xiulong Liu (Tianjin University, China); Tao Gu (Macquarie University, Australia); Xinyu Tong, Sheng Chen and Keqiu Li (Tianjin University, China)

Multi-Robot Path Planning for Mobile Sensing through Deep Reinforcement Learning

Yongyong Wei and Rong Zheng (McMaster University, Canada)

Enabling Edge-Cloud Video Analytics for Robotics Applications

Yiding Wang and Weiyang Wang (Hong Kong University of Science and Technology, Hong Kong); Duowen Liu (Hong Kong University of Science & Technology, Hong Kong); Xin Jin (Peking University, China); Junchen Jiang (University of Chicago, USA); Kai Chen (Hong Kong University of Science and Technology, China)

D-6: Crowdsourcing

Crowdsourcing System for Numerical Tasks based on Latent Topic Aware Worker Reliability

Zhuan Shi, Shanyang Jiang and Lan Zhang (University of Science and Technology of China, China); Yang Du (Soochow University, China); Xiang-Yang Li (University of Science and Technology of China, China)

Strategic Information Revelation in Crowdsourcing Systems Without Verification

Chao Huang (The Chinese University of Hong Kong, Hong Kong); Haoran Yu (Beijing Institute of Technology, China); Jianwei Huang (The Chinese University of Hong Kong, Shenzhen, China); Randall A Berry (Northwestern University, USA)

Minimizing Entropy for Crowdsourcing with Combinatorial Multi-Armed Bandit

Yiwen Song and Haiming Jin (Shanghai Jiao Tong University, China)

Distributed Neighbor Distribution Estimation with Adaptive Compressive Sensing in VANETs

Yunxiang Cai, Hongzi Zhu and Xiao Wang (Shanghai Jiao Tong University, China); Shan Chang (Donghua University, China); Jiangang Shen and Minyi Guo (Shanghai Jiao Tong University, China)

E-6: Federated Learning 2

P-FedAvg: Parallelizing Federated Learning with Theoretical Guarantees

Zhicong Zhong (Sun Yat-sen University, China); Yipeng Zhou (Macquarie University, Australia); Di Wu (Sun Yat-Sen University, China); Xu Chen (Sun Yat-sen University, China); Min Chen (Huazhong University of Science and Technology, China); Chao Li (Tencent, China); Quan Z. Sheng (Macquarie University, Australia)

Cost-Effective Federated Learning Design

Bing Luo (Shenzhen Institute of Artificial Intelligence and Robotics for Society & The Chinese University of Hong Kong, Shenzhen, China); Xiang Li (The Chinese University of Hong Kong, Shenzhen, China); Shiqiang Wang (IBM T. J. Watson Research Center, USA); Jianwei Huang (The Chinese University of Hong Kong, Shenzhen, China); Leandros Tassiulas (Yale University, USA)

Federated Learning over Wireless Networks: A Band-limited Coordinated Descent Approach

Junshan Zhang (Arizona State University, USA); Na Li (Harvard University, USA);

Mehmet Dedeoglu (Arizona State University, USA)

Dual Attention-Based Federated Learning for Wireless Traffic Prediction

Chuanting Zhang (King Abdullah University of Science and Technology, Saudi Arabia); Shuping Dang (University of Bristol, United Kingdom (Great Britain)); Basem Shihada (KAUST, Saudi Arabia); Mohamed-Slim Alouini (King Abdullah University of Science and Technology (KAUST), Saudi Arabia)

F-6: Caching 1

Cocktail Edge Caching: Ride Dynamic Trends of Content Popularity with Ensemble Learning

Tongyu Zong, Chen Li, Yuanyuan Lei and Guangyu Li (New York University, USA); Huawei Cao (New York Institute of Technology, USA); Yong Liu (New York University, USA)

Cost-Driven Data Caching in the Cloud: An Algorithmic Approach

Yang Wang (Shenzhen Institute of Advanced Technology, China); Yong Zhang (SIAT, CAS, China); Xinxin Han and Pengfei Wang (Shenzhen Institutes of Advanced Technology, China); Cheng-Zhong Xu (University of Macau, China); Joseph Horton (University of New Brunswick, Canada); Joseph Culberson (University of Alberta, Canada)

Fresh Caching for Dynamic Content

Bahman Abolhassani (The Ohio State University, USA); John Tadrous (Gonzaga University, USA); Atilla Eryilmaz (The Ohio State University, USA); Edmund Yeh (Northeastern University, USA)

GRADES: Gradient Descent for Similarity Caching

Anirudh Sabnis (University of Massachusetts Amherst, USA); Tareq Si Salem (Université Côte d'Azur & Inria, France); Giovanni Neglia (Inria, France); Michele Garetto (Università di Torino, Italy); Emilio Leonardi (Politecnico di Torino, Italy); Ramesh K Sitaraman (University of Massachusetts, Amherst & Akamai Technologies, USA)

G-6: Classification

Learning the unknown: Improving modulation classification performance in unseen scenarios

Erma Perenda and Sreeraj Rajendran (KU Leuven, Belgium); Gérôme Bovet

(Armasuisse, Switzerland); Sofie Pollin (KU Leuven, Belgium); Mariya Zheleva (UAlbany SUNY, USA)

Can You Fix My Neural Network? Real-Time Adaptive Waveform Synthesis for Resilient Wireless Signal Classification

Salvatore D'Oro, Francesco Restuccia and Tommaso Melodia (Northeastern University, USA)

Adaptive Clustering-based Malicious Traffic Classification at the Network Edge

Alec F Diallo (The University of Edinburgh, United Kingdom (Great Britain)); Paul Patras (University of Edinburgh, United Kingdom (Great Britain))

Robust Online Learning against Malicious Manipulation with Application to Network Flow Classification

Yupeng Li (Hong Kong Baptist University, Hong Kong); Ben Liang (University of Toronto, Canada); Ali Tizghadam (TELUS Communications, Canada)

A-7: Video Streaming

Towards Video Streaming Analysis and Sharing for Multi-Device Interaction with Lightweight DNNs

Yakun Huang, Hongru Zhao and Xiuquan Qiao (Beijing University of Posts and Telecommunications, China); Jian Tang (Syracuse University, USA); Ling Liu (Georgia Tech, USA)

AMIS: Edge Computing Based Adaptive Mobile Video Streaming

Phil K. Mu, Jinkai Zheng, Tom H. Luan and Lina Zhu (Xidian University, China); Zhou Su (Shanghai University, China); Mianxiong Dong (Muroran Institute of Technology, Japan)

Robust 360° Video Streaming via Non-Linear Sampling

Mijanur R Palash, Voicu Popescu, Amit Sheoran and Sonia Fahmy (Purdue University, USA)

Popularity-Aware 360-Degree Video Streaming

Xianda Chen, Tianxiang Tan and Guohong Cao (The Pennsylvania State University, USA)

B-7: Cloud

Robust Service Mapping in Multi-Tenant Clouds

Jingzhou Wang, Gongming Zhao and Hongli Xu (University of Science and Technology of China, China); He Huang (Soochow University, China); Luyao Luo (University of Science and Technology of China, China); Yongqiang Yang (Huawei Technologies Co., Ltd, China)

Scalable On-Switch Rate Limiters for the Cloud

Yongchao He and Wenfei Wu (Tsinghua University, China); Xuemin Wen and Haifeng Li (Huawei, China); Yongqiang Yang (Huawei Technologies Co., Ltd, China)

Monitoring Cloud Service Unreachability at Scale

Kapil Agrawal (Microsoft Research, India); Viral Mehta (Google, India); Sundararajan Renganathan (Stanford, USA); Sreangsu Acharyya (Microsoft Research, India); Venkata N. Padmanabhan (Microsoft Research, USA); Chakri Kotipalli (Microsoft, USA); Liting Zhao (Microsoft, China)

Near Optimal and Dynamic Mechanisms Towards a Stable NFV Market in Multi-Tier Cloud Networks

Zichuan Xu and Haozhe Ren (Dalian University of Technology, China); Weifa Liang (The Australian National University, Australia); Qiufen Xia (Dalian University of Technology, China); Wanlei Zhou (University of Technology Sydney, Australia); Guowei WU (Dalian University of Technology, China); Pan Zhou (Huazhong University of Science and Technology, China)

C-7: Containers and Data Centers

Exploring Layered Container Structure for Cost Efficient Microservice Deployment

Lin Gu (Huazhong University of Science and Technology, China); Deze Zeng (China University of Geosciences, China); Jie Hu and Hai Jin (Huazhong University of Science and Technology, China); Song Guo (Hong Kong Polytechnic University, Hong Kong); Albert Zomaya (The University of Sydney, Australia)

NetMARKS: Network Metrics-AwaRe Kubernetes Scheduler Powered by Service Mesh

Łukasz Wojciechowski (Samsung R&D Institute Poland, Poland); Krzysztof Opasiak and Jakub Łatusek (Warsaw University of Technology & Samsung R&D Institute Poland, Poland); Maciej Wereski (Samsung R&D Institute Poland, Poland); Victor Morales (Samsung Research America, USA); Taewan Kim (Samsung Research, Samsung Electronics Co., Ltd., Korea (South)); Moonki Hong (Samsung Electronics,

Co., Ltd., Korea (South))

Optimal Rack-Coordinated Updates in Erasure-Coded Data Centers

Guowen Gong, Zhirong Shen and Suzhen Wu (Xiamen University, China); Xiaolu Li and Patrick Pak-Ching Lee (The Chinese University of Hong Kong, Hong Kong)

Primus: Fast and Robust Centralized Routing for Large-scale Data Center Networks

Guihua Zhou, Guo Chen, Fusheng Lin, Tingting Xu, Dehai Wei and Jianbing Wu (Hunan University, China); Li Chen (Huawei, Hong Kong); Yuanwei Lu and Andrew Qu (Tencent, China); Hua Shao (Tsinghua University & Tencent, China); Hongbo Jiang (Hunan University, China)

D-7: Measurement and Monitoring

Self-Adaptive Sampling for Network Traffic Measurement

Yang Du, He Huang and Yu-e Sun (Soochow University, China); Shigang Chen (University of Florida, USA); Guoju Gao (Soochow University, China)

MTP: Avoiding Control Plane Overload with Measurement Task Placement

Xiang Chen (Peking University, Pengcheng Lab, and Fuzhou University, China); Qun Huang (Peking University, China); Wang Peiqiao (Fuzhou University, China); Hongyan Liu (Zhejiang University, China); Yuxin Chen (University of Science and Technology of China, China); Dong Zhang (Fuzhou University, China); Haifeng Zhou (Zhejiang University, and Zhejiang Lab, China); Chunming Wu (Zhejiang Lab, and Zhejiang University, China)

Low Cost Sparse Network Monitoring Based on Block Matrix Completion

Kun Xie and Jiazheng Tian (Hunan University, China); Gaogang Xie (Institute of Computing Technology, Chinese Academy of Sciences, China); Guangxing Zhang (Institute of Computing Technology Chinese Academy of Sciences, China); Dafang Zhang (Hunan University, China)

Expectile Tensor Completion to Recover Skewed Network Monitoring Data

Kun Xie and Siqi Li (Hunan University, China); Xin Wang (Stony Brook University, USA); Gaogang Xie (Institute of Computing Technology, Chinese Academy of Sciences, China); Yudian Ouyang (Hunan University, China)

E-7: Federated Learning 3

Device Sampling for Heterogeneous Federated Learning: Theory, Algorithms, and

Implementation

Su Wang (Purdue University, USA); Mengyuan Lee (Zhejiang University, China); Seyyedali Hosseinalipour (Purdue University, USA); Roberto Morabito (Ericsson Research & Princeton University, Finland); Mung Chiang (Purdue University, USA); Christopher G. Brinton (Purdue University & Zoomi Inc., USA)

Sample-level Data Selection for Federated Learning

Anran Li, Lan Zhang, Juntao Tan, Yaxuan Qin, Junhao Wang and Xiang-Yang Li (University of Science and Technology of China, China)

An Incentive Mechanism for Cross-Silo Federated Learning: A Public Goods Perspective

Ming Tang and Vincent W.S. Wong (University of British Columbia, Canada)

Learning-Driven Decentralized Machine Learning in Resource-Constrained Wireless Edge Computing

Zeyu Meng, Hongli Xu and Min Chen (University of Science and Technology of China, China); Yang Xu (University of Science and Technology of China & School of Computer Science and Technology, China); Yangming Zhao (University of Science and Technology of China, China); Chunming Qiao (University at Buffalo, USA)

F-7: Caching 2

Attack Resilience of Cache Replacement Policies

Tian Xie (Pennsylvania State University, USA); Ting He (Penn State University, USA); Patrick McDaniel and Namitha Nambiar (Pennsylvania State University, USA)

Rate Allocation and Content Placement in Cache Networks

Khashayar Kamran, Armin Moharrer, Stratis Ioannidis and Edmund Yeh (Northeastern University, USA)

Joint Cache Size Scaling and Replacement Adaptation for Small Content Providers

Jiahui Ye, Zichun Li, Zhi Wang and Zhuobin Zheng (Tsinghua University, China); Han Hu (Beijing Institute of Technology, China); Wenwu Zhu (Tsinghua University, China)

Self-adjusting Advertisement of Cache Indicators with Bandwidth Constraints

Itamar Cohen (Politecnico di Torino, Italy); Gil Einziger (Ben-Gurion University Of The Negev, Israel); Gabriel Scalosub (Ben-Gurion University of the Negev, Israel)

G-7: Wireless

GPU-Ether: GPU-native packet I/O for GPU applications on commodity Ethernet

Changue Jung, Suhwan Kim, Ikjun Yeom, Honguk Woo and Younghoon Kim
(Sungkyunkwan University, Korea (South))

On the Reliability of IEEE 802.1CB FRER

Doğanalp Ergenç and Mathias Fischer (University Hamburg, Germany)

Reversible Models for Wireless Multi-Channel Multiple Access

Michael Neely (University of Southern California, USA)

A-8: Attacks

Launching Smart Selective Jamming Attacks in WirelessHART Networks

Xia Cheng, Junyang Shi and Mo Sha (State University of New York at Binghamton, USA); Linke Guo (Clemson University, USA)

Your Home is Insecure: Practical Attacks on Wireless Home Alarm Systems

Tao Li (Indiana University-Purdue University Indianapolis, USA); Dianqi Han, Jiawei Li, Ang Li and Yan Zhang (Arizona State University, USA); Rui Zhang (University of Delaware, USA); Yanchao Zhang (Arizona State University, USA)

Tornadoes In The Cloud: Worst-Case Attacks on Distributed Resources Systems

Jhonatan Tavori and Hanoch Levy (Tel Aviv University, Israel)

Invisible Poison: A Blackbox Clean Label Backdoor Attack to Deep Neural Networks

Rui Ning, Jiang Li, ChunSheng Xin and Hongyi Wu (Old Dominion University, USA)

B-8: Optimization

Blind Optimal User Association in Small-Cell Networks

Livia E. Chatzileftheriou (Athens University of Economics and Business, Greece); Apostolos Destounis (Huawei Technologies France Research Center, France); Georgios Paschos (Amazon, Luxembourg); Iordanis Koutsopoulos (Athens University of Economics and Business, Greece)

Dynamically Choosing the Candidate Algorithm with Ostasos in Online Optimization

Weirong Chen, Jiaqi Zheng and Haoyu Yu (Nanjing University, China)

Taming Time-Varying Information Asymmetry in Fresh Status Acquisition

Zhiyuan Wang (The Chinese University of Hong Kong, Hong Kong); Lin Gao (Harbin Institute of Technology (Shenzhen), China); Jianwei Huang (The Chinese University of Hong Kong, Shenzhen, China)

ToP: Time-dependent Zone-enhanced Points-of-interest Embedding-based Explainable Recommender system

En Wang, Yuanbo Xu, Yongjian Yang, Fukang Yang, Chunyu Liu and Yiheng Jiang (Jilin University, China)

C-8: Sea, Space and Quantum Network

PolarTracker: Attitude-aware Channel Access for Floating Low Power Wide Area Networks

Yuting Wang, Xiaolong Zheng, Liang Liu and Huadong Ma (Beijing University of Posts and Telecommunications, China)

Mobility- and Load-Adaptive Controller Placement and Assignment in LEO Satellite Networks

Long Chen, Feilong Tang and Xu Li (Shanghai Jiao Tong University, China)

Time-Varying Resource Graph Based Resource Model for Space-Terrestrial Integrated Networks

Long Chen and Feilong Tang (Shanghai Jiao Tong University, China); Zhetao Li (Xiangtan University, China); Laurence T. Yang (St. Francis Xavier University, Canada); Jiadi Yu and Bin Yao (Shanghai Jiao Tong University, China)

Redundant Entanglement Provisioning and Selection for Throughput Maximization in Quantum Networks

Yangming Zhao (University of Science and Technology of China, China); Chunming Qiao (University at Buffalo, USA)

D-8: WiFi

BLESS: BLE-aided Swift Wi-Fi Scanning in Multi-protocol IoT Networks

Wonbin Park and Dokyun Ryoo (Seoul National University, Korea (South)); Changhee Joo (Korea University, Korea (South)); Saewoong Bahk (Seoul National University, Korea (South))

Efficient Association of Wi-Fi Probe Requests under MAC Address Randomization

Jiajie Tan and S.-H. Gary Chan (The Hong Kong University of Science and Technology, China)

Coexistence of Wi-Fi 6E and 5G NR-U: Can We Do Better in the 6 GHz Bands?

Gaurang Naik and Jung-Min (Jerry) Park (Virginia Tech, USA)

LoFi: Enabling 2.4GHz LoRa and WiFi Coexistence by Detecting Extremely Weak Signals

Gonglong Chen, Wei Dong and Jiamei Lv (Zhejiang University, China)

E-8: Distributed ML

Live Gradient Compensation for Evading Stragglers in Distributed Learning

Jian Xu (Tsinghua University, China); Shao-Lun Huang (Tsinghua-Berkeley Shenzhen Institute, China); Linqi Song (City University of Hong Kong, Hong Kong); Tian Lan (George Washington University, USA)

Exploiting Simultaneous Communications to Accelerate Data Parallel Distributed Deep Learning

Shaohuai Shi (The Hong Kong University of Science and Technology, Hong Kong); Xiaowen Chu (Hong Kong Baptist University, Hong Kong); Bo Li (Hong Kong University of Science and Technology, Hong Kong)

Low Sample and Communication Complexities in Decentralized Learning: A Triple Hybrid Approach

Xin Zhang (Iowa State University, USA); Jia Liu (The Ohio State University, USA); Zhengyuan Zhu (Iowa State University, USA); Elizabeth Serena Bentley (AFRL, USA)

DC2: Delay-aware Compression Control for Distributed Machine Learning

Ahmed M. Abdelmoniem and Marco Canini (KAUST, Saudi Arabia)

F-8: LoRa

Modeling Communication Reliability in LoRa Networks with Device-level Accuracy

Verónica Toro-Betancur and Gopika Premsankar (Aalto University, Finland); Mariusz Slabicki (Institute of Theoretical and Applied Informatics, Polish Academy of Sciences, Poland); Mario Di Francesco (Aalto University, Finland)

Jamming of LoRa PHY and Countermeasure

Ningning Hou, Xianjin Xia and Yuanqing Zheng (The Hong Kong Polytechnic University, Hong Kong)

Radio Frequency Fingerprint Identification for LoRa Using Spectrogram and CNN

Guanxiong Shen, Junqing Zhang and Alan Marshall (University of Liverpool, United Kingdom (Great Britain)); Lining Peng (Southeast University, China); Xianbin Wang (Western University, Canada)

Pyramid: Real-Time LoRa Collision Decoding with Peak Tracking

Zhenqiang Xu, Pengjin Xie and Jiliang Wang (Tsinghua University, China)

G-8: Routing

Grafting Arborescences for Extra Resilience of Fast Rerouting Schemes

Klaus-Tycho Foerster (University of Vienna, Austria); Andrzej Kamisiński (AGH University of Science and Technology, Poland); Yvonne-Anne Pignolet (DFINITY, Switzerland); Stefan Schmid (University of Vienna, Austria); Gilles Tredan (LAAS-CNRS, France)

A Fast-Convergence Routing of the Hot-Potato

Jean-Romain Luttringer and Quentin Bramas (University of Strasbourg, France); Cristel Pelsser (University of Strasbourg); Pascal Mérindol (Université de Strasbourg, France)

Threshold-based rerouting and replication for resolving job-server affinity relations

Youri Raaijmakers and Onno Boxma (Eindhoven University of Technology, The Netherlands); Sem Borst (Eindhoven University of Technology & Nokia Bell Labs, USA)

A-9: Attack and Anomaly Detection

MANDA: On Adversarial Example Detection for Network Intrusion Detection System

Ning Wang (Virginia Tech, USA); Yimin Chen (Virginia Polytechnic Institute and State University, USA); Yang Hu (Virginia Tech, USA); Wenjing Lou and Thomas Hou (Virginia Tech, USA)

Detecting Localized Adversarial Examples: A Generic Approach using Critical Region Analysis

Fengting Li, Xuankai Liu, XiaoLi Zhang and Qi Li (Tsinghua University, China); Kun Sun (George Mason University, USA); Kang Li (University of Georgia, USA)

Towards Cross-Modal Forgery Detection and Localization on Live Surveillance Videos

Yong Huang, Xiang Li, Wei Wang and Tao Jiang (Huazhong University of Science and Technology, China); Qian Zhang (Hong Kong University of Science and Technology, Hong Kong)

CTF: Anomaly Detection in High-Dimensional Time Series with Coarse-to-Fine Model Transfer

Ming Sun and Ya Su (Tsinghua University, China); Shenglin Zhang, Yuanpu Cao and Yuqing Liu (Nankai University, China); Dan Pei and Wenfei Wu (Tsinghua University, China); Yongsu Zhang, Xiaozhou Liu and Junliang Tang (ByteDance, China)

B-9: Packets and Flows

ECLAT: An ECN Marking System for Latency Guarantee in Cellular Networks

Junseon Kim (Ulsan National Institute of Science and Technology (UNIST), Korea (South)); Youngbin Im (Ulsan National Institute of Science and Technology, Korea (South)); Kyunghan Lee (Seoul National University, Korea (South))

PCL: Packet Classification with Limited knowledge

Vitalii Demianiuk (Ariel University, Israel); Chen Hajaj (Ariel University & Data Science and Artificial Intelligence Research Center, Israel); Kirill Kogan (Ariel University, Israel)

Towards the Fairness of Traffic Policer

Danfeng Shan and Peng Zhang (Xi'an Jiaotong University, China); Wanchun Jiang (Central South University, China); Hao Li (Xi'an Jiaotong University, China); Fengyuan Ren (Tsinghua University, China)

Jellyfish: Locality-sensitive Subflow Sketching

Yongquan Fu (National University of Defense Technology, China); Lun An (Beijing University of Posts and Telecommunications, China); Siqi Shen (Xiamen University, China); Kai Chen (Hong Kong University of Science and Technology, China); Pere Barlet-Ros (Universitat Politècnica de Catalunya, Spain)

C-9: Social Networks and Applications

Medley: Predicting Social Trust in Time-Varying Online Social Networks

Wanyu Lin and Baochun Li (University of Toronto, Canada)

Setting the Record Straighter on Shadow Banning

Erwan Le Merrer (Inria, France); Benoit Morgan (IRIT-ENSEEIHT, University of Toulouse, France); Gilles Tredan (LAAS-CNRS, France)

MIERank: Co-ranking Individuals and Communities with Multiple Interactions in Evolving Networks

Shan Qu (Shanghai Jiaotong University, China); Luoyi Fu (Shanghai Jiao Tong University, China); Xinbing Wang (Shanghai Jiaotong University, China)

ProHiCo: A Probabilistic Framework to Hide Communities in Large Networks

Xuecheng Liu and Luoyi Fu (Shanghai Jiao Tong University, China); Xinbing Wang (Shanghai Jiaotong University, China); John Hopcroft (Cornell University, USA)

D-9: Localization

VideoLoc: Video-based Indoor Localization with Text Information

Shusheng Li and Wenbo He (McMaster University, Canada)

The Effect of Ground Truth Accuracy on the Evaluation of Localization Systems

Chen Gu (Google, USA); Ahmed Shokry and Moustafa Youssef (Alexandria University, Egypt)

Train Once, Locate Anytime for Anyone: Adversarial Learning based Wireless Localization

Danyang Li, Jingao Xu, Zheng Yang, Yumeng Lu and Qian Zhang (Tsinghua University, China); Xinglin Zhang (South China University of Technology, China)

Failure Localization through Progressive Network Tomography

Viviana Arrigoni (Sapienza, University of Rome, Italy); Novella Bartolini (Sapienza University of Rome, Italy); Annalisa Massini (Sapienza Università di Roma, Italy); Federico Trombetti (Sapienza, University of Rome, Italy)

E-9: Sensing and Learning

DeepSense: Fast Wideband Spectrum Sensing Through Real-Time In-the-Loop Deep

Learning

Daniel Uvaydov, Salvatore D'Oro, Francesco Restuccia and Tommaso Melodia
(Northeastern University, USA)

Bayesian Online Learning for Energy-Aware Resource Orchestration in Virtualized RANs

Jose A. Ayala-Romero (Trinity College Dublin, Ireland); Andres Garcia-Saavedra (NEC Labs Europe, Germany); Xavier Costa-Perez (NEC Laboratories Europe, Germany); George Iosifidis (Delft University of Technology, The Netherlands)

Multi-Agent Reinforcement Learning for Urban Crowd Sensing with For-Hire Vehicles

Rong Ding (Shanghai Jiao Tong University, China); Zhaoxing Yang, Yifei Wei and Haiming Jin (Shanghai Jiao Tong University, China); Xinbing Wang (Shanghai Jiaotong University, China)

Near-Optimal Topology-adaptive Parameter Synchronization in Distributed DNN Training

Zhe Zhang and Chuan Wu (The University of Hong Kong, Hong Kong); Zongpeng Li (Wuhan University & University of Calgary, China)

F-9: Performance

On the Performance of Pipelined HotStuff

Jianyu Niu (The University of British Columbia, Canada); Fangyu Gai (University of British Columbia, Canada); Mohammad Jalalzai (The University of British Columbia); Chen Feng (University of British Columbia, Canada)

Practical Analysis of Replication-Based Systems

Florin Ciucu (University of Warwick, United Kingdom (Great Britain)); Felix Poloczek (University of Warwick / TU Berlin, Germany); Lydia Y. Chen (IBM Zurich Research Laboratory, Switzerland); Martin Chan (University of Warwick, Germany)

WebMythBusters: An In-depth Study of Mobile Web Experience

Seonghoon Park and Yonghun Choi (Yonsei University, Korea (South)); Hojung Cha (Yonsei University, S. Korea, Korea (South))

SOBA: Session optimal MDP-based network friendly recommendations

Theodoros Giannakas (EURECOM, France); Anastasios Giovanidis (Sorbonne Université & CNRS-LIP6, France); Thrasyvoulos Spyropoulos (EURECOM, France)

G-9: Miscellaneous

De-anonymizing Social Networks Under Partial Overlap: An F-score Based Approach

Jiapeng Zhang and Luoyi Fu (Shanghai Jiao Tong University, China); Xinbing Wang (Shanghai Jiaotong University, China); Guihai Chen (Shanghai Jiao Tong University, China)

First-Order Efficient General-Purpose Clean-label Data Poisoning

Tianhang Zheng and Baochun Li (University of Toronto, Canada)

INT-label: Lightweight In-band Network-Wide Telemetry via Interval-based Distributed Labelling

Enge Song, Tian Pan and Chenhao Jia (Beijing University of Posts and Telecommunications, China); Wendi Cao (Peking University, China); Jiao Zhang, Tao Huang and Yunjie Liu (Beijing University of Posts and Telecommunications, China)

Finding Critical Files from a Packet

JunNyung Hur, Hahoon Jeon, Hyeon gy Shon, Young Jae Kim and MyungKeun Yoon (Kookmin University, Korea (South))

A-10: Security

Bipartite Graph Matching Based Secret Key Generation

Hongbo Liu (University of Electronic Science and Technology of China, China); Yan Wang (Temple University, USA); Yanzhi Ren (University of Electronic Science and Technology of China, China); Yingying Chen (Rutgers University, USA)

ScreenID: Enhancing QRCode Security by Fingerprinting Screens

Yijie Li and Yi-Chao Chen (Shanghai Jiao Tong University, China); Xiaoyu Ji (Zhejiang University, China); Hao Pan, Lanqing Yang, Guangtao Xue and Jiadi Yu (Shanghai Jiao Tong University, China)

Prison Break of Android Reflection Restriction and Defense

Zhen Ling and Ruizhao Liu (Southeast University, China); Yue Zhang (Jinan University, China); Kang Jia (Southeast University, China); Bryan Pearson (University of Central Florida, USA); Xinwen Fu (University of Massachusetts Lowell, USA); Luo Junzhou (Southeast University, China)

Counter-Collusion Smart Contracts for Watchtowers in Payment Channel Networks

Yuhui Zhang and Dejun Yang (Colorado School of Mines, USA); Guoliang Xue

(Arizona State University, USA); Ruozhou Yu (North Carolina State University, USA)

B-10: Programmable Switches

Programmable Switches for in-Networking Classification

Bruno Missi Xavier and Rafael Silva Guimaraes (Federal Institute of Espírito Santo - Campus Cachoeiro de Itapemirim, Brazil); Giovanni Comarela (Universidade Federal do Espírito Santo, Brazil); Magnos Martinello (Federal University of Espírito Santo, Brazil)

Fix with P6: Verifying Programmable Switches at Runtime

Apoorv Shukla (Huawei Munich Research Center, Germany); Kevin Hudemann (SAP, Germany); Zsolt Vági (SWISSCOM, Switzerland); Lily Hügerich (TU Berlin, Germany); Georgios Smaragdakis (TU Berlin and Max Planck Institute for Informatics, Germany); Artur Hecker (Huawei, Germany); Stefan Schmid (University of Vienna, Austria); Anja Feldmann (Max Planck Institute for Informatics & Saarland Informatics Campus / TU Berlin, Germany)

Making Multi-String Pattern Matching Scalable and Cost-Efficient with Programmable Switching ASICs

Shicheng Wang, Menghao Zhang, Guanyu Li, Chang Liu and Ying Liu (Tsinghua University, China); Xuya Jia (Huawei Technologies Co. Ltd., China); Mingwei Xu (Tsinghua University, China)

Traffic-aware Buffer Management in Shared Memory Switches

Sijiang Huang, Mowei Wang and Yong Cui (Tsinghua University, China)

C-10: Memory Topics

Adaptive Batch Update in TCAM: How Collective Optimization Beats Individual Ones

Ying Wan (Tsinghua University, China); Haoyu Song (Futurewei Technologies, USA); Yang Xu (Fudan University, China); Chuwen Zhang (Tsinghua University, China); Yi Wang (Southern University of Science and Technology, China); Bin Liu (Tsinghua University, China)

HAVS: Hardware-accelerated Shared-memory-based VPP Network Stack

Shujun Zhuang and Jian Zhao (Shanghai Jiao Tong University, China); Jian Li (Shanghai Jiao Tong University, China); Ping Yu and Yuwei Zhang (Intel, China); Haibing Guan (Shanghai Jiao Tong University, China)

Maximizing the Benefit of RDMA at End Hosts

Xiaoliang Wang (Nanjing University, China); Hexiang Song (NJU, China); Cam-Tu Nguyen (Nanjing University, Vietnam); Dongxu Cheng and Tiancheng Jin (NJU, China)

D-10: SDN

Safety Critical Networks using Commodity SDNs

Ashish Kashinath (University of Illinois at Urbana-Champaign, USA); Monowar Hasan (Wichita State University, USA); Rakesh Kumar (University of Illinois, Urbana-Champaign, USA); Sibin Mohan (University of Illinois at Urbana-Champaign, USA); Rakesh B. Bobba (Oregon State University, USA); Smruti Padhy (University of Texas at Austin, USA)

Bandwidth Isolation Guarantee for SDN Virtual Networks

Gyeongsik Yang, Yeonho Yoo and Minkoo Kang (Korea University, Korea (South)); Heesang Jin (ETRI, Korea (South)); Chuck Yoo (Korea University, Korea (South))

Online Joint Optimization on Traffic Engineering and Network Update in Software-defined WANs

Jiaqi Zheng, Yimeng Xu and Li Wang (Nanjing University, China); Haipeng Dai (Nanjing University & State Key Laboratory for Novel Software Technology, China); Guihai Chen (Shanghai Jiao Tong University, China)

Modeling the Cost of Flexibility in Communication Networks

Alberto Martínez Alba (Technische Universität München, Germany); Péter Babarczi (Budapest University of Technology and Economics, Hungary & Technische Universität München, Germany); Andreas Blenk and Mu He (Technische Universität München, Germany); Patrick Kalmbach (Technical University of Munich, Germany); Johannes Zerwas and Wolfgang Kellerer (Technische Universität München, Germany)

E-10: Learning Networks

Analyzing Learning-Based Networked Systems with Formal Verification

Arnaud Dethise and Marco Canini (KAUST, Saudi Arabia); Nina Narodytska (VMware Research Group, USA)

Bringing Fairness to Actor-Critic Reinforcement Learning for Network Utility Optimization

Jingdi Chen and Yimeng Wang (The George Washington University, USA); Tian Lan (George Washington University, USA)

Incentive Mechanism Design for Distributed Coded Machine Learning

Ningning Ding (The Chinese University of Hong Kong, Hong Kong); Zhixuan Fang (Tsinghua University, China); Lingjie Duan (Singapore University of Technology and Design (SUTD), Singapore); Jianwei Huang (The Chinese University of Hong Kong, Shenzhen, China)

Efficient Learning-based Scheduling for Information Freshness in Wireless Networks

Bin Li (University of Rhode Island, USA)

F-10: Protocols

802.11ad in Smartphones: Energy Efficiency, Spatial Reuse, and Impact on Applications

Shivang Aggarwal (Northeastern University, USA); Moinak Ghoshal (Northeastern University, Boston, MA, USA); Piyali Banerjee (University at Buffalo, USA); Dimitrios Koutsonikolas (Northeastern University, USA); Joerg Widmer (IMDEA Networks Institute, Spain)

Age-Dependent Distributed MAC for Ultra-Dense Wireless Networks

Dheeraj Narasimha (Arizona State University, USA); Srinivas G Shakkottai (Texas A&M University, USA); Lei Ying (University of Michigan, USA)

Delay-Tolerant Constrained OCO with Application to Network Resource Allocation

Juncheng Wang and Ben Liang (University of Toronto, Canada); Min Dong (Ontario Tech University, Canada); Gary Boudreau and Hatem Abou-zeid (Ericsson, Canada)

Multicast Communications with Varying Bandwidth Constraints

Yuval Emek and Shay Kutten (Technion, Israel); Mordechai Shalom (Tel-Hai College & Technion, Israel); Shmuel Zaks (Technion, Israel)

G-10: Miscellaneous

BlendVLC: A Cell-free VLC Network Architecture Empowered by Beamspot Blending

Jona Beysens (KU Leuven, Belgium); Qing Wang (Delft University of Technology, The

Netherlands); Maxim Van den Abeele and Sofie Pollin (KU Leuven, Belgium)

Characterizing Ethereum's Mining Power Decentralization at a Deeper Level

Liyi Zeng (Tsinghua University, China); Yang Chen (Microsoft Research Asia, China); Shuo Chen (Microsoft Research, USA); Xian Zhang and Zhongxin Guo (Microsoft Research Asia, China); Wei Xu (Tsinghua University, China); Thomas Moscibroda (Microsoft Research, USA)

Uplink Multi-User Beamforming on Single RF Chain mmWave WLANs

Keerthi Priya Dasala (Rice University, USA); Josep M Jornet (Northeastern University, USA); Edward W. Knightly (Rice University, USA)

Program

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Break-1-May3: Virtual Lunch Break

A-1: Security 1

Fast and Secure Key Generation with Channel Obfuscation in Slowly Varying Environments

Guyue Li and Haiyu Yang (Southeast University, China); Junqing Zhang (University of Liverpool, United Kingdom (Great Britain)); Hu Aiqun (Southeast University, China); Hongbo Liu (University of Electronic Science and Technology of China, China)
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MILLIEAR: Millimeter-wave Acoustic Eavesdropping with Unconstrained Vocabulary

Pengfei Hu and Yifan Ma (Shandong University, China); Panneer Selvam Santhalingam and Parth Pathak (George Mason University, USA); Xiuzhen Cheng (Shandong University, China)
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The Hanging ROA: A Secure and Scalable Encoding Scheme for Route Origin Authorization

Yanbiao Li (Computer Network Information Center, Chinese Academy of Sciences, China); Hui Zou and Yuxuan Chen (University of Chinese Academy of Sciences & Computer Network Information Center, Chinese Academy of Sciences, China); Yinbo Xu and Zhuoran Ma (University of Chinese Academy of Sciences & Computer Network Information Center, China); Di Ma (Internet Domain Name System National Engineering Research Center, China); Ying Hu (Computer Network Information Center, Chinese Academy of Science, China); Gaogang Xie (CNIC Chinese Academy of Sciences & University of Chinese Academy of Sciences, China)
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Thwarting Unauthorized Voice Eavesdropping via Touch Sensing in Mobile Systems

Wenbin Huang (Hunan University, China); Wenjuan Tang (HNU, China); Kuan Zhang (University of Nebraska-Lincoln, USA); Haojin Zhu (Shanghai Jiao Tong University, China); Yaoxue Zhang (Tsinghua University, China)
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B-1: Collaborative Learning

ComAI: Enabling Lightweight, Collaborative Intelligence by Retrofitting Vision DNNs

Kasthuri Jayarajah (University of Maryland Baltimore County, USA); Dhanuja Wanniarachchige (Singapore Management University, Singapore); Tarek Abdelzaher (University of Illinois, Urbana Champaign, USA); Archana Misra (Singapore Management University, Singapore)
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Dual-track Protocol Reverse Analysis Based on Share Learning

Weiyao Zhang, Xuying Meng and Yujun Zhang (Institute of Computing Technology, Chinese Academy of Sciences, China)
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FedFPM: A Unified Federated Analytics Framework for Collaborative Frequent Pattern Mining

Zibo Wang and Yifei Zhu (Shanghai Jiao Tong University, China); Dan Wang (The Hong Kong Polytechnic University, Hong Kong); Zhu Han (University of Houston, USA)
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Layer-aware Collaborative Microservice Deployment toward Maximal Edge Throughput

Lin Gu, Zirui Chen and Honghao Xu (Huazhong University of Science and Technology, China); Deze Zeng (China University of Geosciences, China); Bo Li (Hong Kong University of Science and Technology, Hong Kong); Hai Jin (Huazhong University of Science and Technology, China)
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C-1: Human Sensing

Amaging: Acoustic Hand Imaging for Self-adaptive Gesture Recognition

Penghao Wang, Ruobing Jiang and Chao Liu (Ocean University of China, China)
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mmECG: Monitoring Human Cardiac Cycle in Driving Environments Leveraging Millimeter Wave

Xiangyu Xu (Southeast University, China); Jiadi Yu (Shanghai Jiao Tong University, China); Chenguang Ma (Ant Financial Services Group, China); Yanzhi Ren and Hongbo Liu (University of Electronic Science and Technology of China, China); Yanmin Zhu, Yi-Chao Chen and Feilong Tang (Shanghai Jiao Tong University, China)

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Mudra: A Multi-Modal Smartwatch Interactive System with Hand Gesture Recognition and User Identification

Kaiwen Guo, Hao Zhou, Ye Tian and Wangqiu Zhou (University of Science and Technology of China, China); Yusheng Ji (National Institute of Informatics, Japan); Xiang-Yang Li (University of Science and Technology of China, China)

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Sound of Motion: Real-time Wrist Tracking with A Smart Watch-Phone Pair

Tianyue Zheng and Cai Chao (Nanyang Technological University, Singapore); Zhe Chen (School of Computer Science and Engineering, Nanyang Technological University, Singapore); Jun Luo (Nanyang Technological University, Singapore)

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D-1: MIMO

D\(^2\)\BF---Data-Driven Beamforming in MU-MIMO with Channel Estimation Uncertainty

Shaoran Li, Nan Jiang, Yongce Chen, Thomas Hou, Wenjing Lou and Weijun Xie (Virginia Tech, USA)

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M3: A Sub-Millisecond Scheduler for Multi-Cell MIMO Networks under C-RAN Architecture

Yongce Chen, Thomas Hou, Wenjing Lou and Jeffrey Reed (Virginia Tech, USA); Sastry Kompella (Naval Research Laboratory, USA)

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MUSTER: Subverting User Selection in MU-MIMO Networks

Tao Hou (University of South Florida, USA); Shengping Bi and Tao Wang (New Mexico State University, USA); Zhuo Lu and Yao Liu (University of South Florida, USA); Satyajayant Misra (New Mexico State University, USA); Yalin E Sagduyu (Virginia Tech, USA)

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Semi-Online Precoding with Information Parsing for Cooperative MIMO Wireless Networks

Juncheng Wang and Ben Liang (University of Toronto, Canada); Min Dong (Ontario Tech University, Canada); Gary Boudreau (Ericsson, Canada); Hatem Abou-Zeid (University of Calgary, Canada)

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E-1: Packets and Flows

FlowShark: Sampling for High Flow Visibility in SDNs

Sogand Sadrhaghghi (University of Calgary, Canada); Mahdi Dolati (University of Tehran, Iran); Majid Ghaderi (University of Calgary, Canada); Ahmad Khonsari (University of Tehran, Iran)

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Joint Resource Management and Flow Scheduling for SFC Deployment in Hybrid Edge-and-Cloud Network

Yingling Mao, Xiaojun Shang and Yuanyuan Yang (Stony Brook University, USA)

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NFlow and MVT Abstractions for NFV Scaling

Ziyan Wu and Yang Zhang (University of Minnesota, USA); Wendi Feng (Beijing Information Science and Technology University, China); Zhi-Li Zhang (University of Minnesota, USA)

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The Information Velocity of Packet-Erasure Links

Elad Domanovitz (Tel Aviv University, Israel); Tal Philosof (Samsung, Israel); Anatoly Khina (Tel Aviv University, Israel)

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F-1: Robustness

Distributed Bandits with Heterogeneous Agents

Lin Yang (University of Massachusetts, Amherst, USA); Yu-Zhen Janice Chen (University of Massachusetts at Amherst, USA); Mohammad Hajiesmaili (University of Massachusetts Amherst, USA); John Chi Shing Lui (Chinese University of Hong Kong, Hong Kong); Don Towsley (University of Massachusetts at Amherst, USA)

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Experimental Design Networks: A Paradigm for Serving Heterogeneous Learners under Networking Constraints

Yuezhou Liu, Yuanyuan Li, Lili Su, Edmund Yeh and Stratis Ioannidis (Northeastern University, USA)

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MC-Sketch: Enabling Heterogeneous Network Monitoring Resolutions with Multi-Class Sketch

Kate Ching-Ju Lin (National Chiao Tung University, Taiwan); Wei-Lun Lai (National Yang-Ming Chiao Tung University, Taiwan)
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Stream Iterative Distributed Coded Computing for Learning Applications in Heterogeneous Systems

Homa Esfahanizadeh (Massachusetts Institute of Technology, USA); Alejandro Cohen (Technion, Israel); Muriel Médard (MIT, USA)
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G-1: Mobile Networks and Beyond

ChARM: NextG Spectrum Sharing Through Data-Driven Real-Time O-RAN Dynamic Control

Luca Baldesi, Francesco Restuccia and Tommaso Melodia (Northeastern University, USA)
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MARISA: A Self-configuring Metasurfaces Absorption and Reflection Solution Towards 6G

Antonio Albanese (NEC Laboratories Europe GmbH & Universidad Carlos III de Madrid, Germany); Francesco Devoti and Vincenzo Sciancalepore (NEC Laboratories Europe GmbH, Germany); Marco Di Renzo (CNRS & Paris-Saclay University, France); Xavier Costa-Perez (ICREA and i2cat & NEC Laboratories Europe, Spain)
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OnionCode: Enabling Multi-priority Coding in LED-based Optical Camera Communications

Haonan Wu, Yi-Chao Chen, Guangtao Xue and Yuehu Jiang (Shanghai Jiao Tong University, China); Ming Wang (University of Illinois at Urbana-Champaign, USA); Shiyou Qian and Jiadi Yu (Shanghai Jiao Tong University, China); Pai-Yen Chen (University of Illinois at Chicago, USA)
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OrchestRAN: Network Automation through Orchestrated Intelligence in the Open RAN

Salvatore D'Oro, Leonardo Bonati, Michele Polese and Tommaso Melodia (Northeastern University, USA)

Break-2-May3: Virtual Coffee Break A-2: Security 2

Backdoor Defense with Machine Unlearning

Yang Liu (Xidian University, China); MingYuan Fan (University of FuZhou, China); Cen Chen (East China Normal University, China); Ximeng Liu (Fuzhou University, China); Zhuo Ma (Xidian University, China); Wang Li (Ant Group, China); Jianfeng Ma (Xidian University, China)

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Revisiting Frequency Analysis against Encrypted Deduplication via Statistical Distribution

Jingwei Li, Guoli Wei, Jiacheng Liang and Yanjing Ren (University of Electronic Science and Technology of China, China); Patrick Pak-Ching Lee (The Chinese University of Hong Kong, Hong Kong); Xiaosong Zhang (University of Electronic Science and Technology of China, China)

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Switching Gaussian Mixture Variational RNN for Anomaly Detection of Diverse CDN Websites

Liang Dai (Institute of Information Engineering, Chinese Academy of Sciences, China); Chen Wenchao (National Laboratory of Radar Signal Processing, Xidian University, China); Yanwei Liu (Institute of Information Engineering, Chinese Academy of Sciences, China); Antonios Argyriou (University of Thessaly, Greece); Chang Liu (University of Chinese Academy of Science, China); Tao Lin (Communication University of China, China); Wang Penghui (National Laboratory of Radar Signal Processing, Xidian University, China); Zhen Xu (Institute of Information Engineering, Chinese Academy of Sciences, China); Bo Chen (National Laboratory of Radar Signal Processing, Xidian University, China)

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Towards an Efficient Defense against Deep Learning based Website Fingerprinting

Zhen Ling, Gui Xiao, Wenjia Wu, Xiaodan Gu and Ming Yang (Southeast University, China); Xinwen Fu (University of Massachusetts Lowell, USA)

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B-2: Distributed ML

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- **Learning and Fusing Multimodal Deep Features for Acoustic Scene Categorization** 1892
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Roger Zimmermann (*National University of Singapore*)
- **Dynamic Sound Field Synthesis for Speech and Music Optimization** 1901
Zhenyu Tang, Nicolas Morales (*University of North Carolina-Chapel Hill*),
Dinesh Manocha (*University of Maryland*)
- **DASH for 3D Networked Virtual Environment** 1910
Thomas Forgione, Axel Carlier, Géraldine Morin (*Université de Toulouse - IRIT*),
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Praveen Kumar Yadav (*National University of Singapore*)

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Session Chair: Wenwu Zhu (*Tsinghua University*)

- **Transforming Retailing Experiences with Artificial Intelligence** 1919
Bowen Zhou (*JD.com*)

Session: Deep-3 (Image Processing-Inpainting, Super-Resolution, Deblurring)

Session Chair: Qin Jin (*Renmin University of China*)

- **Learning Collaborative Generation Correction Modules for Blind Image Deblurring and Beyond** 1921
Risheng Liu, Yi He, Shichao Cheng, Xin Fan, Zhongxuan Luo (*Dalian University of Technology & Key Laboratory for Ubiquitous Network and Service Software of Liaoning Province*),
- **When Deep Fool Meets Deep Prior: Adversarial Attack on Super-Resolution Network** 1930
Minghao Yin, Yongbing Zhang (*Tsinghua University*), Xiu Li (*Tsinghua University*),
Shiqi Wang (*City University of Hong Kong*)

- **Semantic Image Inpainting with Progressive Generative Networks**..... 1939
Haoran Zhang, Zhenzhen Hu, Changzhi Luo (*Hefei University of Technology*),
Wangmeng Zuo (*Harbin Institute of Technology*), Meng Wang (*Hefei University of Technology*)
- **Structural inpainting** 1948
Huy V. Vo (*Ecole Polytechnique*), Ngoc Q. K. Duong (*Technicolor*), Patrick Pérez (*Valeo.ai*)

Session: Brave New Ideas

Session Chair: Kiyoharu Aizawa (*University of Tokyo*)

- **Fluid Annotation: A Human-Machine Collaboration Interface for Full Image Annotation** 1957
Mykhaylo Andriluka, Jasper R. R. Uijlings, Vittorio Ferrari (*Google*)
- **Images2Poem : Generating Chinese Poetry from Image Streams**..... 1967
Lixin Liu, Xiaojun Wan, Zongming Guo (*Peking University*)
- **Harnessing AI for Speech Reconstruction using Multi-view Silent Video Feed** 1976
Yaman Kumar (*Adobe Systems*), Mayank Aggarwal, Pratham Nawal (*Netaji Subhas Institute of Technology*),
Shin'ichi Satoh (*National Institute of Informatics*),
Rajiv Ratn Shah (*Indraprastha Institute of Information Technology - Delhi*),
Roger Zimmermann (*National University of Singapore*)
- **ALERT: Adding a Secure Layer in Decision Support for Advanced Driver Assistance System (ADAS)**..... 1984
Kanchan Bahirat, Umang Shah, Alvaro A. Cardenas, Balakrishnan Prabhakaran (*University of Texas at Dallas*)
- **Cross-Modal Health State Estimation** 1993
Nitish Nag, Vaibhav Pandey, Preston J. Putzel, Hari Bhimaraju (*University of California, Irvine*),
Srikanth Krishnan (*University of California, Los Angeles*), Ramesh Jain (*University of California, Irvine*)

Session: Grand Challenge-1

Session Chair: Shuqiang Jiang (*Chinese Academy of Sciences*)

- **An Effective Text-based Characterization Combined with Numerical Features for Social Media Headline Prediction** 2003
Liuwu Li, Sihong Huang, Ziliang He, Wenyin Liu (*Guangdong University of Technology*)
- **An Iterative Refinement Approach for Social Media Headline Prediction** 2008
Chih-Chung Hsu (*National Pingtung University of Science and Technology*),
Chia-Yen Lee (*National United University*), Ting-Xuan Liao, Jun-Yi Lee, Tsai-Yne Hou,
Ying-Chu Kuo, Jing-Wen Lin, Ching-Yi Hsueh (*National Pingtung University of Science and Technology*),
Zhong-Xuan Zhang, Hsiang-Chin Chien (*National United University*)
- **Random Forest Exploiting Post-related and User-related Features for Social Media Popularity Prediction** 2013
Feitao Huang, Junhong Chen, Zehang Lin, Peipei Kang, Zhenguo Yang
(*Guangdong University of Technology*)
- **Content-Based Video Relevance Prediction with Second-Order Relevance and Attention Modeling** 2018
Xusong Chen, Rui Zhao, Shengjie Ma, Dong Liu, Zheng-Jun Zha
(*University of Science and Technology of China*)

Session: Vision-4 (Representation Learning)

Session Chair: Marcel Worring (*University of Amsterdam*)

- **Fine-Grained Representation Learning and Recognition by Exploiting Hierarchical Semantic Embedding** 2023
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Le Dong (*University of Electronic Science and Technology of China*),
Xiaonan Luo (*Guilin University of Electronic Technology*), Liang Lin (*Sun Yat-sen University*)
- **Dissimilarity Representation Learning for Generalized Zero-Shot Recognition** 2032
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- **Attribute-Aware Attention Model for Fine-grained Representation Learning** 2040
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- **Regional Maximum Activations of Convolutions with Attention for Cross-domain Beauty and Personal Care Product Retrieval** 2073
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- **TAGapp Visualization: An Application Based Visual Art Installation** 2084
Yong Soon Xuan, Wong Chee Onn, Tan Kong Cheng, Anis Haron (*Multimedia University*)

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- **To Recognize Families In the Wild: A Machine Vision Tutorial** 2096
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- **Deep Learning Interpretation** 2098
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- **DSANet: Dynamic Segment Aggregation Network for Video-Level Representation Learning** 1903
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- **StrucTexT: Structured Text Understanding with Multi-Modal Transformers** 1912
Yulin Li (*Baidu Inc.*), Yuxi Qian (*Beijing University of Posts and Telecommunications*), Yuechen Yu, Xiameng Qin, Chengquan Zhang (*Baidu Inc.*), Yan Liu (*Taikang Insurance Group*), Kun Yao, Junyu Han, Jingtuo Liu, Errui Ding (*Baidu Inc.*)
- **Local Graph Convolutional Networks for Cross-Modal Hashing** 1921
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- **Metric Learning for Anti-Compression Facial Forgery Detection** 1929
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- **ASFM-Net: Asymmetrical Siamese Feature Matching Network for Point Completion** 1938
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- **Capsule-based Object Tracking with Natural Language Specification** 1948
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- **Faster-PPN: Towards Real-Time Semantic Segmentation with Dual Mutual Learning for Ultra-High Resolution Images** 1957
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- **Distributed Attention for Grounded Image Captioning** 1966
Nenglun Chen (*The University of Hong Kong*), Xingjia Pan (*YouTu Lab, Tencent*), Runnan Chen, Lei Yang (*The University of Hong Kong*), Zhiwen Lin, Yuqiang Ren, Haolei Yuan, Xiaowei Guo, Feiyue Huang (*YouTu Lab, Tencent*), Wenping Wang (*University of Hong Kong*)
- **Multi-initialization Optimization Network for Accurate 3D Human Pose and Shape Estimation** 1976
Zhiwei Liu (*Institute of Automation, Chinese Academy of Sciences; University of Chinese Academy of Sciences; & ObjectEye, Inc.*), Xiangyu Zhu (*Institute of Automation, Chinese Academy of Sciences & University of Chinese Academy of Sciences*), Lu Yang (*Beijing University of Posts and Telecommunications*), Xiang Yan (*Dilusense Technology Corporation*), Ming Tang (*Institute of Automation, Chinese Academy of Sciences & University of Chinese Academy of Sciences*), Zhen Lei (*Institute of Automation Chinese Academy of Sciences; University of Chinese Academy of Sciences; & Hong Kong Institute of Science and Innovation, Chinese Academy of Sciences*), Guibo Zhu (*Institute of Automation, Chinese Academy of Sciences & University of Chinese Academy of Sciences*), Xuetao Feng, Yan Wang (*Alibaba Group*), Jinqiao Wang (*Institute of Automation, Chinese Academy of Sciences; University of Chinese Academy of Sciences; & ObjectEye, Inc.*)
- **Feedback Network for Mutually Boosted Stereo Image Super-Resolution and Disparity Estimation** 1985
Qinyan Dai, Juncheng Li, Qiaosi Yi, Faming Fang, Guixu Zhang (*East China Normal University*)
- **Merging Multiple Template Matching Predictions in Intra Coding with Attentive Convolutional Neural Network** 1994
Qijun Wang, Guodong Zheng (*Anhui University*)
- **Camera-Agnostic Person Re-Identification via Adversarial Disentangling Learning** 2002
Hao Ni, Jingkuan Song, Xiaosu Zhu (*University of Electronic Science and Technology of China*), Feng Zheng (*Southern University of Science and Technology*), Lianli Gao (*University of Electronic Science and Technology of China*)

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- **Speech2AffectiveGestures: Synthesizing Co-Speech Gestures with Generative Adversarial Affective Expression Learning** 2027
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- **Video Background Music Generation with Controllable Music Transformer** 2037
Shangzhe Di, Zeren Jiang, Si Liu, Zhaokai Wang, Leyan Zhu, Zexin He (*Beihang University*),
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- **PIMNet: A Parallel, Iterative and Mimicking Network for Scene Text Recognition** 2046
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Wei Wang (*Institute of Information Engineering, Chinese Academy of Sciences & School of Cyber Security, University of Chinese Academy of Sciences*), Yuan Zhang (*Communication University of China*),
Ning Jiang, Hongbin Wang (*Mashang Consumer Finance Co., Ltd.*),
Weiping Wang (*Institute of Information Engineering, Chinese Academy of Sciences*)
- **Theophany: Multimodal Speech Augmentation in Instantaneous Privacy Channels** 2056
Abhishek Kumar (*University of Helsinki*), Tristan Braud (*Hong Kong University of Science and Technology*),
Lik Hang Lee (*Korea Advanced Institute of Science and Technology*), Pan Hui (*Hong Kong University of Science and Technology & University of Helsinki*)
- **aBio: Active Bi-Olfactory Display Using Subwoofers for Virtual Reality** 2065
You-Yang Hu, Yao-Fu Jan, Kuan-Wei Tseng, You-Shin Tsai, Hung-Ming Sung (*National Taiwan University*),
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Session 16: ACM SIGMM Awards

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Tao Xue, Shuqi Mei (*Tencent Technology (Beijing) Co., Ltd.*),
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- **R-GAN: Exploring Human-like Way for Reasonable Text-to-Image Synthesis via Generative Adversarial Networks** 2085
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Ning Ding (*South China University of Technology*),
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Qinwei Lin (*Beijing Jiaotong University*), Lin Ma (*Meituan*),
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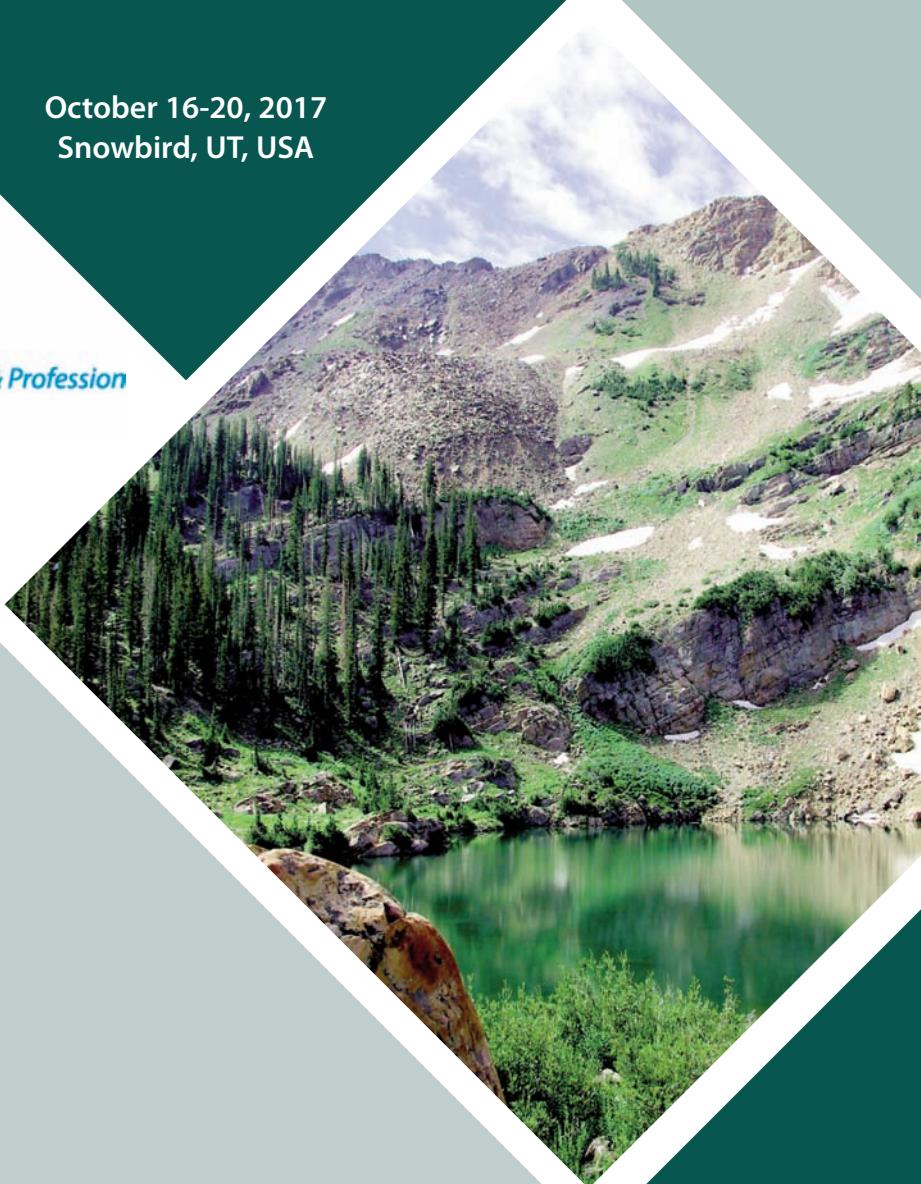
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