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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, Vaithyanathan 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, Iran); 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

Yousi 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 Uргаonkar (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 Technology, 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 Jedidiah 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 Koksall (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); Xinchun 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 Neamtii (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 Dehghan (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 (MIT 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)

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 ()

Boyuan 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 ()

Maialen Larranaga (LAAS, CNRS. INP Toulouse, France); Urtzi Ayesta (CNRS-LAAS and Ikerbasque-University of the Basque Country, Spain); Maaïke 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 Jurdzinski (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 Houthoofd, Sahel Sakhaf, 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 (Microsoft 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 Saniee (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 Chiasserini (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 %* * %
Qiongzhen 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

Omid 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 Meiroum (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"

Aemen 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 Vilardebó (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 Ahmadinejad (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 (University 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 (Microsoft Research Asia, P.R. China)

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

Jae-Han Lim (University of California, Los Angeles, USA); Katsuhiko 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 Chounos (University of Thessaly, Greece); Thanasis Korakis (Polytechnic Institute of New York University, USA); Leandros Tassioulas (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 Wrocław, Poland); Dariusz Kowalski (University of Liverpool, United Kingdom); Michał Różański and Grzegorz Stachowiak (University of Wrocław, 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 (Soundl.ly, 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 **&* ' &

Linqun 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 Chandrashekar (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 Jiao Tong 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)