

ICCCN 2020 Technical Program

All times listed in Honolulu, Hawaii USA time.

August 03 (Monday)

09:00-10:00

Keynote I: 360-Degree Video Delivery Systems: Research Challenges and Solutions

Speaker: Klara Nahrstedt, University of Illinois - Urbana-Champaign, USA
Chair: Jie Wu
Email: jiewu@temple.edu

10:30-12:30

Session 1: SDN & Network Virtualization

Chair: Bo Ji
Email: jibo.osu@gmail.com

- **SPARC: Reliability-Aware Service Function Chain Provisioning in Mobile Edge-Cloud Networks**
Shouxu Lin, Weifa Liang and Jing Li
- **Data-driven Routing Optimization based on Programmable Data Plane**
Qian Li, Jiao Zhang, Tian Pan, Tao Huang and Yunjie Liu
- **TaDPole: Traffic-aware Discovery Protocol for Software-Defined Wireless and Mobile Networks**
Faheed A.F. Alenezi, Sejun Song, Baek-Young Choi and Gebre-Amlak Haymanot

Session 2: Social Networks & Computing

Chair: Chen, Xiao
Email: xc10@txstate.edu

- **LogParse: Making Log Parsing Adaptive through Word Classification**

Weibin Meng, Ying Liu, Federico Zaiter, Shenglin Zhang, Yihao Chen, Yuzhe Zhang, Yichen Zhu, En Wang, Ruizhi Zhang, Shimin Tao, Dian Yang, Rong Zhou and Dan Pei

- **A Semantic-aware Representation Framework for Online Log Analysis**
Weibin Meng, Ying Liu, Shenglin Zhang and Dan Pei
- **Misinformation Detection and Adversarial Attack Cost Analysis in Directional Social Networks**
Huajie Shao, Shuochao Yao, Andong Jing, Shengzhong Liu, Dongxin Liu, Tianshi Wang, Jinyang Li, Chaoqi Yang, Ruijie Wang and Tarek Abdelzaher
- **A QoE-aware Short Video Content Distribution Optimization Scheme for Social Networks**
Huigui Rong, Zhangchi Xu, Na Zhang, Hui Zheng, Qin Liu and Bingguo Chang
- **A Q-learning based Method for Energy-Efficient Computation Offloading in Mobile Edge Computing**
Kai Jiang, Huan Zhou, Dawei Li, Xuxun Liu and Shouzhi Xu

Invited Session 1: Machine learning, Neural Networks, and Natural Language Processing

Chair: Tarek Abdelzhaer (UIUC)
Email: zaher@cs.uiuc.edu

- **ML Soft-decision Decoding for Binary Linear Block Codes Based on Trellises of Their Supercodes**
Ting-Yi Wu and Yunghsiang S. Han
- **DeepTxFinder: Multiple Transmitter Localization by Deep Learning in Crowdsourced Spectrum Sensing**
Anatolij Zubow, Suzan Bayhan, Piotr Gawłowicz, Falko Dressler

- **Reinforcement Learning Based Congestion Control in a Real Environment**

Lei Zhang, Kewei Zhu, Junchen Pan, Hang Shi, Yong Jiang, Yong Cui

- **POLANCO: Enforcing Natural Language Network Policies**

Sergio Rivera, Zongming Fei, James Griffioen

- **Residual Neural Networks for Heterogeneous Smart Device Localization in IoT Networks**

Ankur Pandey, Piyush Tiwary, Sudhir Kumar and Sajal K Das

13:30-15:00

Panel I: Internet Censorship and its Impact on Spread of Misinformation

Moderator: Dr. Indrajit Ray

indrajit@cs.colostate.edu;

Panelists: Francessca Spezzano, Hrishikesh Acharya, Jed Crandall, Tarek Abdelzaher

15:30-17:30

Session 3: Sensor/Embedded Networks and Pervasive Computing

Chair: Shuhui Yang

Email: Shuhuiyang@pnw.edu

- **QoS Aware Task Management Strategies for Mobile Crowdsensing Applications**

Shuhui Yang, Xuefeng Xi and Wei Li

- **ChordMics: Acoustic Signal Purification with Distributed Microphones**

Weiguo Wang, Jinming Li, Meng Jin and Yuan He

- **HGO: Hierarchical Graph Optimization for Accurate, Efficient, and Robust Network Localization**

Haodi Ping, Yongcai Wang and Deying Li

Session 4: Social Networks & Computing II

Chair: Mingjun Xiao

Email: xiaomj@ustc.edu.cn

- **Beyond Model-Level Membership**

Privacy Leakage: an Adversarial Approach in Federated Learning

Jiale Chen, Jiale Zhang, Yanchao Zhao, Hao Han, Kun Zhu and Bing Chen

- **Facial Micro-Expression Recognition Using Quaternion-Based Sparse Representation**

Hang Yang, Qingshan Wang, Qi Wang, Peng Liu and Wei Huang

- **Precise Identification of Rehabilitation Actions using AI based Strategy**

Min Lei, Peng Liu, Qingshan Wang and Qi Wang

Invited Session 2: Vision, Video, Imaging, and Scanning

Chair: Yu-Chee Tseng

Email: yctseng@cs.nctu.edu.tw

- **Computer Vision-Assisted Instant Alerts in 5G**

Yu-Yun Tseng, Po-Min Hsu, Jen-Jee Chen, Yu-Chee Tseng

- **Toward Mobile 3D Vision**

Huanle Zhang, Bo Han, Prasant Mohapatra

- **Optimizing Scan Times of BLE Scanning Systems**

John N Daigle, George A. Humphrey II, Henry C. Lena V, and Avijit Sarker

- **A Frame-Aggregation-Based Approach for Link Congestion Prediction in WiFi Video Streaming**

Shangyue Zhu, Alamin Mohammed, Aaron Striegel

- **MilliCam: Hand-held Millimeter-Wave Imaging**

Moh Sabbir Saadat, Sanjib Sur, Srihari Nelakuditi, Parmesh Ramanathan

August 04 (Tuesday)

*All times listed in **Honolulu, Hawaii USA time.***

08:30-09:30

Keynote II:

Speaker: Wattenhofer, ETH-Zurich, Switzerland

Chair: Feng Li

Email: fengli@iupui.edu

10:00-12:00

Session 5: Security, Privacy & Incentives I

Chair: Shetty, Sachin S.

Email: sshetty@odu.edu

- **The Trusted and Decentralized Network Resource Management**
Shuai Liu, Fei Yang, Dandan Li, Marcelo Bagnulo, Bingyang Liu and Xiaohong Huang
- **CPchain: A Copyright-Preserving Crowdsourcing Data Trading Framework Based on Blockchain**
Dingjie Sheng, Mingjun Xiao, An Liu, Xiang Zou, Baoyi An and Sheng Zhang
- **Privacy-Preserving Selective Video Surveillance**
Alem Fitwi and Yu Chen
- **Efficient Detection Approach for LDoS attack based on NCS-SVM Algorithm**
Zhiqing Zheng, Dan Tang, Siyuan Wang, Xiaoxue Wu and Jingwen Chen

Session 6: Data Centers and Edge/Cloud Computing

Chair: Dawei Li

Email: dawei.li@montclair.edu

- **CPSA: A Coordinated Process Scheduling Algorithm for Coupled Earth System Model**
Hongliang Li, Zhewen Xu, Fangyu Tang, Xiaohui Wei and Zhaohui Ding
- **Reducing Fault-tolerant Overhead for Distributed Stream Processing with Approximate Backup**
Yuan Zhuang, Xiaohui Wei, Hongliang Li, Mingkai Hou and Yundi Wang
- **An Experimental Study on Data Recovery Performance Improvement for HDFS with NVM**
Huijie Li, Xin Li, Youyou Lu and Xiaolin Qin
- **Performance Modeling and Prediction of Big Data Workflows: An Exploratory Analysis**
Wuji Liu, Chase Wu, Qianwen Ye, Aiqin Hou and Wei Shen
- **FT-VMP: Fault-Tolerant Virtual Machine Placement in Cloud Data Centers**
Christopher Gonzalez and Bin Tang
- **Machine Learning based Workload Prediction in Cloud Computing**
Jiechao Gao, Haoyu Wang and Haiying Shen

Invited Session 3: Sensing Technology and IoT Systems

Chair: Imad Jawhar

Email: imad@midcomp.net

- **Mobile Device Usage Recommendation based on User Context Inference Using Embedded Sensors**
Cong Shi, Xiaonan Guo, Ting Yu, Yingying Chen, Yucheng Xie and Jian Liu
- **Area Charging for Wireless Rechargeable Sensors**
Haipeng Dai, Xiaoyu Wang, Lijie Xu, Chao Dong, Qian Liu, Lei Meng, Guihai Chen

- **A Self-Adaptive Bluetooth Localization System using LSTM-based Distance Estimator**

Zhuo Li, Jiannong , Xiulong Liu, Jiuwu Zhang, Haoyuan Hu, Didi Yao

- **Rapid Top-Down Synthesis of Large-Scale IoT Networks**

Pradipta Ghosh, Jonathan Bunton, Dimitrios Pylorof, Marcos Vieira, Kevin Chan, Ramesh Govindan, Gaurav Sukhatme, Paulo Tabuada and Gunjan Verma

- **ecUWB: A Energy-Centric Communication Scheme for Unstable WiFi Based Backscatter Systems**

Yue Xu, Jingwen Zhang, Hao Zhou, Xiaoyan Wang, Zhi Liu, Yusheng Ji

13:00-15:00

Session 7: Security, Privacy & Incentives II

Chair: Kewei Sha

Email: comersha@gmail.com

- **T2DNS: A Third-Party DNS Service with PrivacyPreservation and Trustworthiness**

Qingxiu Liu, Wenfei Wu, Qingsong Liu and Qun Huang

- **BundleSense: A Task-Bundling-Based Incentive Mechanism for Mobile Crowd Sensing**

Yifan Zhang and Xinglin Zhang

- **Attack Detection and Mitigation for Sensor and CAN Bus Attacks in Vehicle Anti-lock Braking Systems**

Liuwang Kang and Haiying Shen

- **BDB: Blockchain-based Distributed Banking**

Wenjun Fan, Sang-Yoon Chang, Shawn Emery and Xiaobo Zhou

- **Splitter: An Efficient Scheme to Determine the Geolocation of Cloud Data Publicly**

Dongzheng Jia, Yang Zhang, Shijie Jia, Limin Liu and Jingqiang Lin

Session 8: Hot Topics in Networking

Chair: Marcelo Carvalho

Email: mmcarvalho@ene.unb.br

- **Advanced Passive Operating System Fingerprinting Using Machine Learning and Deep Learning**

Desta Haileselassie Hagos, Martin Løland, Anis Yazidi, Øivind Kure and Paal Engelstad

- **Impact of 802.15.4 Radio Antenna Orientation on UAS Aerial Data Collection**

Michael Nekrasov, Maxton Ginier, Ryan Allen, Irina Artamonova and Elizabeth Belding

- **Data Collection Maximization for UAV-Enabled Wireless Sensor Networks**

Mengyu Chen, Weifa Liang and Yuchen Li

- **Enabling Surveillance Cameras to Navigate**

Liang Dong, Jingao Xu, Guoxuan Chi, Danyang Li, Xinglin Zhang, Jianbo Li, Qiang Ma and Zheng Yang

- **Towards Reliable Message Dissemination for Multiple Cooperative Drivings: A Hybrid Approach**

Bingyi Liu, Chunli Yu, Weizhen Han, Dongyao Jia, Jianping Wang, Enshu Wang and Kejie Lu

- **Distributed Energy-Aware Reliable Routing and TDMA Link Scheduling in Wireless Sensor Networks**

Huang Huang and Jingjing Li

Invited Session 4: Performance and Optimization in Networks and Systems

Chair: Abdallah Khreishah

Email: abdallah@njit.edu

- **Pump and Dumps in the Bitcoin Era: Real Time Detection of Cryptocurrency Market Manipulations**
Massimo La Morgia, Alessandro Mei, Francesco Sassi, Julinda Stefa
- **Towards Performant Workflows, Monitoring and Measuring**
Jeanette Sperhac, Robert L. DeLeon, Joseph P. White, Matthew Jones, Andrew E. Bruno, Renette Jones-Ivey, Thomas R. Furlani, Jonathan E. Bard, Vipin Chaudhary
- **On the Asymptotic Optimality of Work-Conserving Disciplines in Completion Time Minimization**
Wenxin Li, Ness Shroff
- **Fast-Fourier-Forecasting Resource Utilisation in Distributed Systems**
Paul J. Pritz, Daniel Perez, Kin K. Leung
- **Dependent Task Offloading for Multiple Jobs in Edge Computing**
Zhiqing Tang, Jiong Lou, Fuming Zhang, and Weijia Jia
- **Geographic and Energy aware Epidemic Strategy for Mobile Opportunistic DTN**
Floriano De Rango, Salvatore Amelio

15:30-17:30

Session 9: Security, Privacy & Incentives III

Chair: Qin Liu

Email: gracelq628@hnu.edu.cn

- **A Preliminary Analysis of Password Guessing Algorithm**
Jing Zhang, Chao Yang, Yu Zheng, Wei You, Ruidan Su and Jianfeng Ma

- **SuperB: Superior Behavior-based Anomaly Detection Defining Authorized Users' Traffic Patterns** Daniel Y. Karasek, Jeehyeong Kim, Victor Youdom Kemmoe, Md Zakirul Alam Bhuiyan, Sunghyun Cho and Junggab Son
- **Location Privacy-Preserving Truth Discovery in Mobile Crowd Sensing**
Gaojingsheng, Fushaojing, Luoyuchuan and Xietao
- **User-Friendly Design of Cryptographically-Enforced Hierarchical Role-based Access Control Models**
Xiaoyuan Yu, Brandon Haakenson, Tyler Phillips and Xukai Zou
- **A Facial Privacy Protection Framework Based on Component difference and Template Morphing**
Min Long, Sai Long, Guo-Lou Ping and Fei Peng
- **A Middleware Approach to Synchronize Transaction Data to Blockchain**
Ning Wang, Bo Wang, Taoying Liu, Wei Li and Shuhui Yang

Session 10: Internet of Things I

Chair: Lei Xie

Email: lxie@nju.edu.cn

- **DeCoRIC: Decentralized Connected Resilient IoT Clustering**
Nitin Shivaraman, Saravanan Ramanathan, Shanker Shreejith, Arvind Easwaran and Sebastian Steinhorst

- **RF-Detector: Internal 3D Structure Detection of Logistics Packages via RFID Systems**
Jingyi Ning, Lei Xie, Chuyu Wang, Yanling Bu, Baoliu Ye and Sanglu Lu
- **A Scalable Blockchain-based Approach for Authentication and Access Control in Software Defined Vehicular Networks**
Leo Mendiboure, Mohamed Aymen Chalouf and Francine Krief
- **Driver Identification Leveraging Single-turn Behaviors via Mobile Devices**
Yan Wang, Tianming Zhao, Fatemeh Tahmasbi, Jerry Cheng, Yingying Chen and Jiadi Yu
- **SD-seq2seq: A Deep Learning Model for Bus Bunching Prediction Based on Smart Card Data**
Zengyang Gong, Bo Du, Zhidan Liu, Wei Zeng, Pascal Perez and Kaishun Wu

Invited Session 5: Security and Privacy

Chair: Youssef Khazbak

Email: yossuf.khazbak@gmail.com

- **Implementation of Network Source Authentication and Path Validation Using Orthogonal Sequences**
Hao Cai and Tilman Wolf
- **Measurement-driven Security Analysis of Imperceptible Impersonation Attacks**
Shasha Li, Karim Khalil, Rameswar Panda, Chengyu Song
- **Secure Broadcast Protocol for Unmanned Aerial Vehicle Swarms**
Hongpeng Guo, Tianyuan Liu, King-Shan Lui, Claudiu Danilov, Klara Nahrstedt
- **MLGuard: Mitigating Poisoning Attacks in Privacy Preserving Distributed Collaborative Learning**
Youssef Khazbak, Tianxiang Tan, and Guohong Cao
- **Towards Model-Centric Security for IoT Systems**
Yunqi Guo, Zhaowei Tan, Songwu Lu

August 05 (Wednesday)

All times listed in Honolulu, Hawaii USA time.

08:30-09:30

Keynote III: From Rhinos to Asteroids: AI/ML on Large Scale Spatiotemporal Data

Speaker: Raghu Ganti, IBM T. J. Watson
Research Center, Yorktown Height, NY, USA

Chair: Tarek F. Abdelzaher

Email: zaher@cs.uiuc.edu

10:00-12:00

Session 11: Internet of Things II

Chair: Sejun Song

Email: songsej@umkc.edu

- **Quality-driven Energy Optimization in Internet of Things**
Vineet Dhaimodker, Rahul Desai, S. Mini and Deepak Kumar Tosh
- **WiEat: Fine-grained Device-free Eating Monitoring Leveraging Wi-Fi Signals**
Zhenzhe Lin, Yucheng Xie, Xiaonan Guo, Yanzhi Ren, Yingying Chen and Chen Wang
- **Using Trust as a Measure to Derive Data Quality in Data Shared IoT Deployments**
John Byabazaire, Gregory O'hare and Declan Delaney
- **PDSProxy++: Proactive Proxy Deployment for Confidential Ad-hoc Personalization of AI Services**
Christian Meurisch, Dennis Werner, Florian Giger, Bekir Bayrak and Max Mühlhäuser
- **Grid Partition: an Efficient Greedy Approach for Outdoor Camera IoT Deployments in 2.5D**
TerrainKerry Veenstra and Katia Obraczka

Session 12: Communication Networks Architectures, Algorithms, Measurement and Performance Evaluation I

Chair: Anu G Bourgeois

Email: abourgeois@gsu.edu

- **ZIDX: A Generic Framework for Random Access to BGP Records in Compressed MRT Datasets**
Omer Ozarslan and Kamil Sarac
- **Evaluation of Network Assisted Handoffs in Heterogeneous Networks**
Prasad Netalkar, Sumit Maheshwari and Dipankar Raychaudhuri
- **High rate-reliability beamformer design for 2 X 2 MIMO-OFDM system under hostile jamming**
Anu Jagannath, Jithin Jagannath and Andrew Drozd
- **Choosing TCP Variants for Cloud Tenants -- A Measurement based Approach**
Anirudh Ganji, Anand Singh and Muhammad Shahzad

Session 13: Game, AI, and ML aided Network Design and Application

Chair: Shen, Haiying

Email: hs6ms@virginia.edu

- **Multitask Learning for Network Traffic Classification**
Shahbaz Rezaei and Xin Liu
- **Deep Learning Model Reuse and Composition in Knowledge Centric Networking**
Dolly Sapra and Andy Pimentel

- **A Learning-based Data Augmentation for Network Anomaly Detection**

Mohammad Al Olaimat, Dongeun Lee, Youngsoo Kim, Jonghyun Kim and Jinoh Kim

- **Adaptive and Low-cost Traffic Engineering based on Traffic Matrix Classification**

Nan Geng, Mingwei Xu, Yuan Yang, Enhuan Dong and Chenyi Liu

13:00-15:00

Session 14: Green Networking and Multimedia & Real-Time Networking

Chair: Md Zakirul Alam Bhuiyan

Email: mbhuiyan3@fordham.edu

- **ICSTrace: A Malicious IP Traceback Model for Attacking Data of Industrial Control System**

Feng Xiao, Qiang Xu and Xianguo Zhang

- **Joint Energy Optimization of Cooling Systems and Virtual Machine Consolidation in Data Centers**

Hai Liu, Wai Kit Wong, Shujin Ye and Yu Tak Ma

- **Optimizing Multi-block Energy Harvesting Relays with Decoding Costs and Energy Storage**

Yanxin Yao, Zhengwei Ni, Rajshekhar Bhat and Mehul Motani

- **Pipeline-Based Chunk Scheduling to Improve ABR Performance in DASH System**

Weihe Li, Jiawei Huang, Shaojun Zou, Zhuoran Liu, Qichen Su, Xuxing Chen and Jianxin Wang

- **Viewing the 360-degree Future: Trade-Off Between User Field-of-View Prediction, Network Bandwidth, and Delay**

Shahryar Afzal, Jiasi Chen and K. K. Ramakrishnan

- **Evaluating the Use of QoS for Video Delivery in Vehicular Networks**

Pedro Pablo Garrido Abenza, Manuel Pérez Malumbres, Pablo Piñol Peral and Otoniel López Granado

Session 15: Communication Networks Architectures, Algorithms, Measurement and Performance Evaluation II

Chair: Weifa Liang

Email: weifa.liang@anu.edu.au

- **Joint Optimization Of Routing and Flexible Ethernet Assignment in Multi-layer Multi-domain Networks**

Dahina Koulougli, Kim Khoa Nguyen and Mohamed Cheriet

- **Practical and White-Box Anomaly Detection through Unsupervised and Active Learning**

Yao Wang, Zhaowei Wang, Zejun Xie, Nengwen Zhao, Wenchu Zhang, Junjie Chen, Kaixin Sui and Dan Pei

- **Managing the Evolution to Future Internet Architectures and Seamless Interoperation**

Mohammad Jahanian, Jiachen Chen and K. K. Ramakrishnan

- **TA-MAC: A Traffic-Aware TDMA MAC Protocol for Safety Message Dissemination in MEC-assisted VANETs**

Dongxiao Deng, Wenbi Rao, Bingyi Liu, Dongyao Jia, Yang Sheng, Jianping Wang and Shengwu Xiong

Session 16: Grid, Cloud, Internet and Middleware Computing and Communication

Chair: Jiacheng Shang

Email: tug07865@temple.edu

- **Combining High Throughput and Low Migration Latency for Consistent Data Storage on the Edge**

Nuno Afonso, Manuel Bravo and Luis Rodrigues

- **Sec-ALG: An Open-source Application Layer Gateway for Secure Access to Private Networks**

Maria Riaz, Juha-Matti Tilli and Raimo Kantola

- **PStream: Priority-Based Stream Scheduling for Heterogeneous Paths in Multipath-QUIC**

Xiang Shi, Lin Wang, Fa Zhang, Biyu Zhou and Zhiyong Liu

- **An Effective and Lightweight Countermeasure Scheme to Multiple Network Attacks in NDNs**

Dapeng Qu, Shijun Qu, Yue Yang and Haiying Shen

15:30-17:30

Poster Session:

Chair: Shuhui Yang

Email: Shuhuiyang@pnw.edu

- **Multi-User Distributed Spectrum Access Method for 802.11ax Stations**

Dheeraj Kotagiri, Koichi Nihei and Tansheng Li

- **Comprehensive Visualization of Physical and MAC Layer Data for Wireless Network Monitoring**

Morihiko Tamai, Akio Hasegawa and Hiroyuki Yokoyama

- **Data Transmissions From a Drone Using Multi-AP Wireless LAN: A Field Trial**

Kazuki Ikeda, Yua Imai, Hiroyuki Yomo, Yoshihisa Kondo and Hiroyuki Yokoyama

- **Human Action Recognition for Disaster Detection**

Han and Youngbok Choi

- **Network Testing Using a Novel Framework for Traffic Modeling and Generation**

Oluwamayowa Ade Adeleke, Deniz Gurkan and Nicholas Bastin

- **SmartBullets: A Cloud-Assisted Bullet Screen Filter based on Deep Learning**

Haoran Niu, Jiangnan Li and Yu Zhao

- **PDSPProxy: Trusted IoT Proxies for Confidential Ad-hoc Personalization of AI Services**

Christian Meurisch, Bekir Bayrak, Florian Giger and Max Mühlhäuser

- **Efficient Multicast Labelling for OpenFlow-Based Switches**

Ci-Hung Ciou and Pi-Chung Wang