**ICCCN 2020**

**The 29th International Conference on**

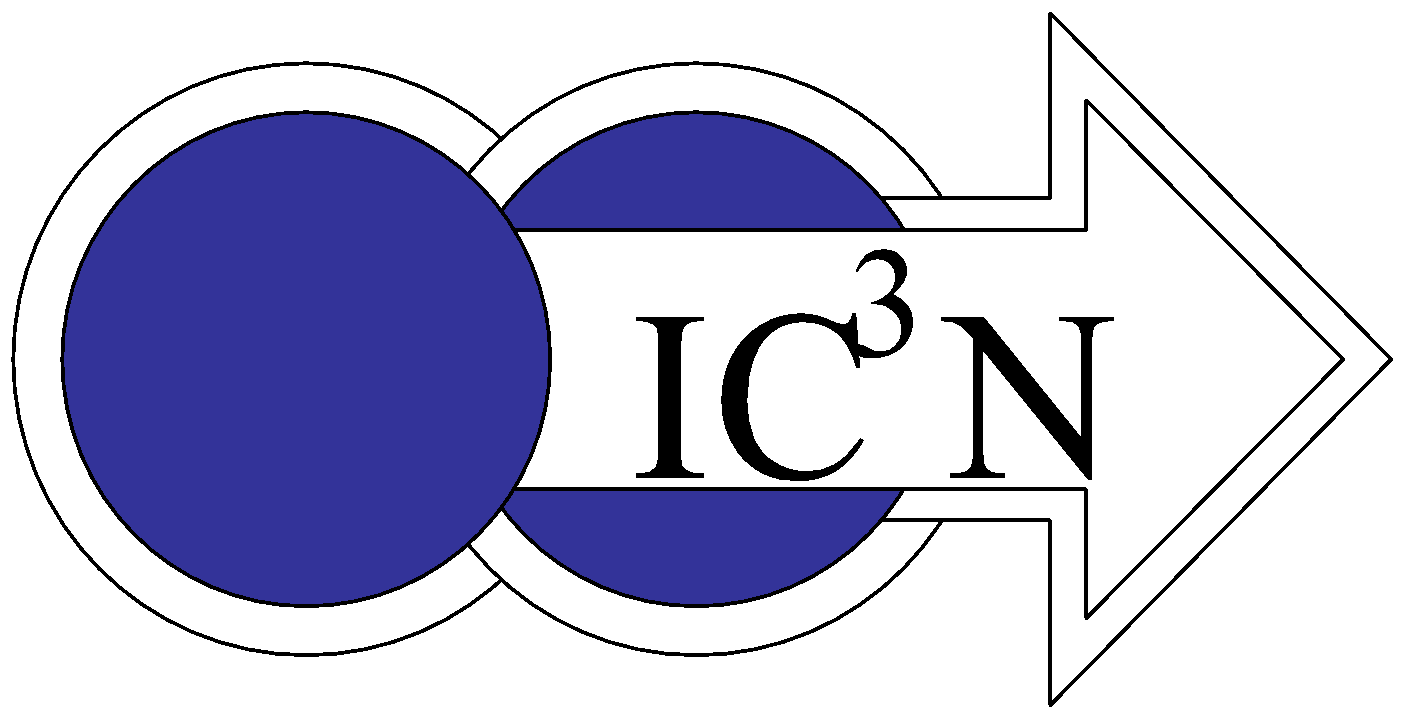
**Computer Communications and Networks**

**August 3 – August 6, 2020**

**Final Program**

**Honolulu, Hawaii, USA**



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ICCCN 2020 Program Overview (At-a-Glance)

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

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| **August 03 (Monday)** |
| |  |  | | --- | --- | | 08:00 | Registration Open | |
| |  |  | | --- | --- | | 08:15 - 09:00 | Opening Remarks | |
| |  |  | | --- | --- | | 09:00 - 10:00 | Keynote I:  Speaker: Klara Nahrstedt, University of Illinois - Urbana-Champaign, USA  Chair: Jie Wu  Room: Zoom Link 1 | |
| |  |  | | --- | --- | | 10:00 - 10:30 | Coffee break | |
| |  |  |  |  |  | | --- | --- | --- | --- | --- | | 10:30 - 12:30 | Session 1  SDN & Network Virtualization  (Zoom link 1) | Session 2  Social Networks & Computing I  (Zoom link 2) | Invited 1  Machine learning, Neural Networks, and Natural Language Processing  (Zoom link 3) |  | |
| |  |  | | --- | --- | | 12:30 - 13:30 | Lunch break | |
| |  |  | | --- | --- | | 13:30 - 15:00 | Panel I: Internet Censorship and its Impact on Spread of Misinformation  Moderator: Dr. Indrajit Ray (Program Director, Secure and Trustworthy Cyberspace, NSF CISE/CNS): Zoom Link 1 | |
| |  |  | | --- | --- | | 15:00 - 15:30 | Coffee break | |
| |  |  |  |  |  | | --- | --- | --- | --- | --- | | 15:30 - 17:30 | Session 3  Sensor/Embedded Networks and Pervasive Computing  (Zoom link 1) | Session 4  Social Networks & Computing II  (Zoom link 2) | Invited 2  Vision, Video, Imaging, and Scanning  (Zoom link 3) |  | |

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| **August 04 (Tuesday)**  ***All times listed in Honolulu, Hawaii USA time.*** |
| |  |  | | --- | --- | | 08:30 | Registration Open | |
| |  |  | | --- | --- | | 08:30 - 09:30 | Keynote II:  Speaker:  Roger Wattenhofer, ETH-Zurich, Switzerland  Chair: Feng Li  Room: Zoom Link 1 | |
| |  |  | | --- | --- | | 09:30 - 10:00 | Coffee break | |
| |  |  |  |  |  | | --- | --- | --- | --- | --- | | 10:00 - 12:00 | Session 5  Security, Privacy & Incentives I  (Zoom link 1) | Session 6  Data Centers and Edge/Cloud Computing  (Zoom link 2) | Invited 3 Sensing Technology and IoT Systems  (Zoom link 3) |  | |
| |  |  | | --- | --- | | 12:00 - 13:00 | Lunch break | |
|  |
| |  |  |  |  |  | | --- | --- | --- | --- | --- | | 13:00 - 15:00 | Session 7  Security, Privacy & Incentives II  (Zoom link 1) | Session 8  Hot Topics in Networking  (Zoom link 2) | Invited 4  Performance and Optimization in Networks and Systems  (Zoom link 3) |  | |
| |  |  | | --- | --- | | 15:00 - 15:30 | Coffee break | |
| |  |  |  |  |  | | --- | --- | --- | --- | --- | | 15:30 - 17:30 | Session 9  Security, Privacy & Incentives III  (Zoom link 1) | Session 10  Internet of Things I  (Zoom link 2) | Invited 5  Security and Privacy  (Zoom link 3) |  | |
| **August 05 (Wednesday)**  ***All times listed in Honolulu, Hawaii USA time.*** |
| |  |  | | --- | --- | | 08:30 | Registration Open | |
| |  |  | | --- | --- | | 08:30 - 09:30 | Keynote III:  Speaker: Raghu Ganti, IBM T. J. Watson Research Center, Yorktown Height, NY, USA  Chair: Tarek F. Abdelzaher  Room: Zoom Link 1 | |
| |  |  | | --- | --- | | 09:30 - 10:00 | Coffee break | |
| |  |  |  |  |  | | --- | --- | --- | --- | --- | | 10:00 - 12:00 | Session 11  Internet of Things II  (Zoom link 1) | Session 12  Communication Networks Architectures, Algorithms, Measurement and Performance Evaluation I  (Zoom link 2) | Session 13  Game, AI, and ML aided Network Design and Application  (Zoom link 3) |  | |
|  |
| |  |  | | --- | --- | | 12:00 - 13:00 | Lunch break | |
| |  |  |  |  |  |  | | --- | --- | --- | --- | --- | --- | | 13:00 - 15:00 | Session 14  Green Networking and Sustainable Computing  (Zoom link 1) | Session 15  Communication Networks Architectures, Algorithms, Measurement and Performance Evaluation II  (Zoom link 2) | Session 16  Grid, Cloud, Internet and Middleware Computing and Communication  (Zoom link 3) |  |  | |
| |  |  | | --- | --- | | 15:00 - 15:30 | Coffee break | |
| |  |  |  |  | | --- | --- | --- | --- | | 15:30 - 17:30 | Poster  Session  (Zoom link 1) |  |  | |
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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, [jiewu@temple.edu](mailto:jiewu@temple.edu)

# 10:30-12:30

## Session 1: SDN & Network Virtualization

Chair: Bo Ji

Email: [jibo.osu@gmail.com](mailto: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](mailto: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](mailto: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: Internet Censorship and its Impact on Spread of Misinformation

Moderator/Session Chair: Dr. Indrajit Ray

[indrajit@cs.colostate.edu](mailto: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](mailto: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](mailto: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: ****Next Economic Crisis? It's the Network!****

Speaker: Wattenhofer, ETH-Zurich, Switzerland

Chair: Feng Li, fengli@iupui.edu

# 10:00-12:00

## Session 5: Security, Privacy & Incentives I

Chair: Shetty, Sachin S.

Email: [sshetty@odu.edu](mailto: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](mailto: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 Center**s

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](mailto: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 Cao, 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](mailto: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](mailto: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](mailto: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](mailto: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](mailto: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, Srikanth V. Krishnamurthy, Amit K. Roy-Chowdhury, Ananthram Swami

* **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, [zaher@cs.uiuc.edu](mailto:zaher@cs.uiuc.edu)

# 10:00-12:00

## Session 11: Internet of Things II

Chair: Sejun Song

Email: [songsej@umkc.edu](mailto: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 Terrain**

Kerry Veenstra and Katia Obraczka

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

Chair: Anu G Bourgeois

Email: [abourgeois@gsu.edu](mailto: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

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

Mohammad Jahanian, Jiachen Chen and K. K. Ramakrishnan

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

Chair: Shen, Haiying

Email: [hs6ms@virginia.edu](mailto: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](mailto: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, Rajshekharx 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](mailto: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, Wenchi Zhang, Junjie Chen, Kaixin Sui and Dan Pei

* **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](mailto: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](mailto: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

* **PDSProxy: 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

ICCCN 2020 Workshop Program Overview (At-a-Glance)

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| --- | --- | --- | --- |
| **August 6 (Thursday) – Workshops**  ***All times listed in Honolulu, Hawaii USA time.*** | | | |
| 8:45 – 9:00 ICCCN workshop virtual welcome | | | |
| 9:00 - 10:30 | Zoom Link 1  IoTSPT 1 | Zoom Link 2  VENITS 1 | Zoom Link 3  BDMLS 1 |
| 10:30 – 10:45 | Virtual Coffee break | | |
| 10:45 – 12:15 | Zoom Link 1  IoTSPT 2 | Zoom Link 2  VENITS 2 | Zoom Link 3  BDMLS 2 |
| 12:15 - 13:30 | Virtual Lunch break | | |
| 13:30 - 15:30 | Zoom Link 1  SmartCityCom | Zoom Link 2  AFEC 1 | Zoom Link 3  BDMLS 3 |
| 15:30 – 15:45 | Virtual Coffee break | | |
| 15:45 – 17:15 |  | Zoom Link 2  AFEC 2 | Zoom Link 3  BDMLS 4 |
| Closing | | | |

Integrated Workshop Schedule

**Aug 6 (Thursday)**

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

**IoTSPT-ML Workshop (Zoom Link 1)**

Chair: Geetha Thamilarasu (University of Washington Bothell, USA) and Abhishek Parakh (University of Nebraska at Omaha, USA

Welcome 8:45 – 9:00

**Session 1: 9:00 – 10:30**

**Session Chair: Geetha Thamilarasu (University of Washington Bothell, USA)**

**Email:** [**geetha@uw.edu**](mailto:geetha@uw.edu)

* **Fingerprinting Analog IoT Sensors for Secret-Free Authentication**

Felix Lorenz, Lauritz Thamsen, Andreas Wilke, Ilja Behnke, Jens Waldmüller-Littke,

Ilya Komarov, Odej Kao and Manfred Paeschke (Technische Universität Berlin and Bundesdruckerei GmbH)

* **Modelling DoS Attacks & Interoperability in the Smart Grid**

Dilara Acarali, Muttukrishnan Rajarajan, Doron Chema and Mark Ginzburg (City, University of London and L7Defense)

* **Quantitative Risk Modeling and Analysis for Large-Scale Cyber-Physical Systems**

Adeel A. Malik and Deepak K. Tosh

(University of Texas at El Paso)

**Coffee Break: 10:30 – 10:45**

**Session 2: 10:45 – 12:15**

**Session Chair: Abhishek Parakh (University of Nebraska at Omaha, USA)**

**Email:** [**aparakh@unomaha.edu**](mailto:aparakh@unomaha.edu)

* **Bidirectional Blockchain**

Joshua Lampkins and Tiffany Hyun-Jin Kim (HRL Laboratories)

* **Statistical Analysis of Enhanced SDEx Encryption Method Based on SHA-512 Hash Function**

Artur Hłobaż (University of Lodz)

* **Secure Single-Server Nearly-Identical Image Deduplication**

Jonathan Takeshita , Ryan Karl and Taeho Jung (University of Notre Dame)

**Lunch Break 12:15 – 13:30**

**SmartCityCom Workshop (Zoom Link 1)**

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

**Welcome 13:30 – 13:40**

**Session 13:40 – 15:30**

**Session Chair: Shuhui Yang**

**Email:** [**Shuhuiyang@pnw.edu**](mailto:Shuhuiyang@pnw.edu)

* **NFEH: An SDN Framework for Containerized Network Function-enabled End Hosts**

Rahil Gandotra, Levi Perigo

*(University of Colorado Boulder)*

* **On the Mitigation of Controllable Event Triggering Attack in WSNs**

Haoran Hu, Wei Chang

*(Saint Josephs University)*

* **Minor Privacy Protection Through Real-time Video Processing at the Edge**

Meng Yuan, Seyed Yahya Nikouei, Alem Fitwi, Yu chen and Yunxi Dong

*(State University of New York - Binghamton, Syracuse University)*

Closing

**VENITS Workshop (Zoom Link 2)**

Chair: Francisco J. Martinez (University of Zaragoza, Spain), Carlos T. Calafate (Technical University of Valencia, Spain).

**Welcome 8:45 – 9:00**

**Session 1: 9:00 – 10:30**

**Session Chair: Carlos T. Calafate (Technical University of Valencia, Spain)**

**Email:** [**calafate@disca.upv.es**](mailto:calafate@disca.upv.es)

* **Real-time Cooperative Vehicle Tracking in VANETs**

Taku Noguchi, Yu-Cheng Ting, Masami Yoshida, Alberto Gallegos Ramonet (Ritsumeikan University)

* **Analyzing the impact of VIM systems over the MEC management and orchestration in vehicular communications**

Nina Slamnik-Krijestorac, Michael Peeters, Steven Latre and Johann Marquez-Barja (University of Antwerp & imec, IDLab)

* **Adaptive level lane estimation policy of automotive systems moving within arbitrary road networks**

Jennie Lioris, Neila BHOURL (Univ Eiffel/ENPC)

**Coffee Break: 10:30 – 10:45**

**Session 2: 10:45 – 12:15**

**Session Chair: Francisco J. Martinez (University of Zaragoza, Spain)**

**Email:** [**f.martinez@unizar.es**](mailto:f.martinez@unizar.es)

* **A Low Latency Transmission Control for Multi-link WLAN**, Yoshihisa Kondo, Hiroyuki Yomo, Hiroyuki Yokoyama (ATR, Kansai University)
* **Providing resilience to UAV swarms following planned missions**

Jamie Wubben, Izan Catalán, Manel Lurbe, Francisco Fabra, Francisco J. Martinez, Carlos T. Calafate, Juan-Carlos Cano, Pietro Manzoni (Universitat Politecnica de Valencia)

* **Asynchronous Distributed Topology Control for Signature Management in Mobile Networks**

Benjamin Campbell (DST)

**AFEC Workshop (Zoom Link 2)**

Chair: Wei Chang (Saint Joseph's University, USA), Ning Wang (Rowan University, USA)

**Welcome 13:30 – 13:40**

**Session 1: 13:40 -15:30**

**Session Chair: Ning Wang (Rowan University, USA)**

**Email:** [**wangn@rowan.edu**](mailto:wangn@rowan.edu)

* **Towards Optimal System Deployment for Edge Computing: A Preliminary Study**

Dawei Li, Chigozie Asikaburu, Boxiang Dong, Huan Zhou, and Sadoon Azizi

(Montclair State University, China Three Gorges University, and University of Kurdistan)

* **An Energy Saving-Oriented Incentive Mechanism in Colocation Data Centers**

Ce Chi, Zhiyong Liu, Kaixuan Ji, Avinab Marahatta, Fa Zhang, and Youshi Wang (Chinese Academy of Sciences, and Meituan-Dianping Group)

* **Slicenomics: How to Provide Cost-Based Intra and Inter Slice Resource Management?**

Alexander Gerasimov, and Vitaly Antonenko

(J'son&Partners Consulting, and Lomonosov Moscow State University)

* **Research on Design and Application of Mobile Edge Computing Model Based on SDN**

Shaohua Cao, Dingde Jiang, Zhihao Wang, Yizhi Chen, Yang Yan, and Hui Chen

(China University of Petroleum (East China), and University of Electronic Science and Technology of China)

* **PeerCould: Enhancing Mobile Cloud with Social-Aware Device-to-Device Offloading**

Xiaomei Zhang (University of South Carolina Beaufort)

**Coffee Break: 15:30 – 15:45**

**Session 2: 15:45 – 17:15**

**Session Chair: Wei Chang (Saint Joseph's University, USA)**

**Email:** [**wchang@sju.edu**](mailto:wchang@sju.edu)

* **AI-Governance and Levels of Automation for AIOps-supported system administration**

Odej Kao, Anton Gulenko, Alexander Acker, and Feng Liu (TU Berlin, and Huawei Research Center Munich)

* **Resource Management for Processing Wide Area Data Streams on Supercomputers**

Joaquin Chung, Mainak Adhikari, Satish Narayana Srirama, Eun Sung Jung, and Rajkumar Kettimuthu (Argonne National Laboratory, University of Tartu, Hongik University, and The University of Chicago)

* **Trade-offs in the Design of Blockchain of Finite-Lifetime Blocks for Edge-IoT Applications**

Shravan Garlapati (Qualcomm Technologies Inc)

* **Comparing Energy Efficiencies of SDN Hardware Based on Forwarding Configurations**

Rahil Gandotra, and Levi Perigo (University of Colorado Boulder)

Closing

**BDMLS Workshop (Zoom Link 3):**

Chair: Yuqing Zhang(University of Chinese Academy of Sciences), Xiaofeng Lu (Beijing University of Posts and Telecommunications)

Welcome 8:45 – 9:00

**Session 1: 9:00 – 10:30**

**Session Chair: Juhua Pu (Beihang University)**

**Email:** [**pujh@buaa.edu.cn**](mailto:pujh@buaa.edu.cn)

**Topic:** *Network Security*

* **Research on the Important Nodes Affecting Network Security in Complex Networks**

Yongshan Liu, Jianjun Wang, Haitao He, Guoyan Huang and Weibo Shi(Yanshan University)

* **IoT-APIScanner: Detecting API Unauthorized Access Vulnerabilities of IoT Platform**

Yilian Li, Yiyu Yang, Xiao Yu, Ting Yang, Lihua Dong, Wenjie Wang and Yuqing Zhang(School of Communication Engineering, Xidan University, Xian, China, National Computer Network Intrusion Protection Center, university of Chinese of Academy of Sciences, and College of Information Science and Engineering, Hebei University of Science and Technology, Shijiazhuang, China)

* **A Security Scheme for the Cloud Source Data of IoT**

Yongkai Fan, Guanqun Zhao, Wenqian Shang, Weiguo Lin and Jianxiang Cao(Communication University of China, and China University of Petroleum)

**Coffee Break: 10:30 – 10:45**

**Session 2: 10:45 – 12:15**

**Session Chair: Junfeng Tian**

**Email:** [**tjf@hbu.edu.cn**](mailto:tjf@hbu.edu.cn)

**Topic:** *NLP for Security*

* **IFVD: Design of Intelligent Fusion Framework for Vulnerability Data Based on Text Measures**

Ruike Li, Shichong Tan, Chensi Wu, Xudong Cao, Haitao He, Wenjie Wang and Yuqing Zhang(Xidian University, National Computer Network Intrusion Protection Center, University of Chinese Academy of Sciences, and College of Information Science and Engineering, Yanshan University, Qinhuangdao, Hebei)

* **Open source threat intelligence discovery based on topic detection**

Dong Li, Xiaofeng Lu, Xiao Zhou and Ao Xue(Beijing University of Posts and Telecommunications)

* **Relational Database Watermarking Based on Chinese Word Segmentation and Word Embedding**

Wenling Li, Jianen Yan and Zhaoxin Zhang(Harbin Institute of Technology)

**Lunch Break: 12:15 – 13:30**

**Session 3: 13:30 – 15:30**

**Session Chair: Yongkai Fan (Communication University of China)**

**Email:** [**fanyongkai@gmail.com**](mailto:fanyongkai@gmail.com)

**Topic:** *Prediction & Selection Model*

* **Trustworthy Web Service Selection Method Based on Personality Preference**

Ruizhong Du, Chong Qin, Pengliang Shi and Junfeng Tian(hebei univesity , and Dacheng County Branch of China United Network Communication Co, Ltd, Hebei Province, Langfang)

* **AtPGAN: A Rule-based Password Guessing Model**

Ru Tan, Hongjun Bi, Yanhui Chen, Cheng Luo, Jianjun Zhao and Qixu Liu(Beijing Jiaotong University, University of Chinese Academy of Science, and China Academy of Information and Communications Technology)

* **A Model Based on Program Slice and Deep Learning for Software Defect Prediction**

Junfeng Tian and Yongqing Tian(School of Cyberspace Security and Computer Institute, Hebei University)

* **Predict the Next Attack Location via An Attention-based Fused-SpatialTemporal LSTM**

Zhuang Liu, Juhua Pu, Nana Zhan and Xingwu Liu(Beihang University, Research Institute of Beihang University in Shenzhen, and Institute of Computing Technology, Chinese Academy of Sciences)

* **Smart e-Health Security and Safety Monitoring with Machine Learning Services**

Wei Liu, EK Park, U. Krieger, and S.S. Zhu (GGC, UCCN, Otto-Friedrich University Bamberg, and Shantou University)

**Coffee Break: 15:30 – 15:45**

**Session 4: 15:45 – 17:15**

**Session Chair: Qixu Liu (China Academy of Information and Communications Technology)**

**Email:** [**liuqixu@iie.ac.cn**](mailto:liuqixu@iie.ac.cn)

**Topic:** *Power LTE & IoT*

* **Fast Authentication Protocol With Privacy Preserving For Large-Scale Power LTE Private Network Terminals**

Weiwei Miao, Chengling Jiang, Huang Jin, Liwu Zhang and Luo Wei(Nari Information Communication Technology Co., Ltd, and State Grid Jiangsu Electric Power Co., Ltd. information communication branch)

* **The Enhanced EAP Authentication Protocol for Devices in Power LTE Private Network**

Liu Rui, Zhao Gaofeng, Liu Jinsuo, Zhang Ying and Gong Liangliang(Nanjing Nari Information Communication Technology)

* **Multi-user broadcast authentication in Power LTE Private Network with Compressed Bloom Filter**

Liu Jinsuo, Liu Rui, Huang Jin, Zhang Mingxuan and Miao Weiwei(Nanjing Nari Information Communication Technology Co., Ltd, and State Grid Jiangsu Electric Power Co., Ltd. information communication branc)

* **A Secure ECC-based RFID Authentication Protocol in IoT**

Xuejun Li, Jia Zhao and Tianyi Jiang(School of Cyber Engineering, Xidian University)

Closing

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