Zhehui (Kelsey) Zhang

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EDUCATION

University of California, Los Angeles (UCLA) — **Los Angeles, CA**
Ph.D. Candidate in Computer Science (GPA: 3.85/4.0) — *September 2022 [expected]*
Advisor: Prof. Songwu Lu
Research Interests: *mobile networks & systems, data center networks, network security*

Shanghai Jiao Tong University (SJTU) — **Shanghai, China**
B.S. in Computer Science & Technology (Major GPA: 3.9/4.0) — *June 2016*

SELECTED PUBLICATIONS

In total, I have Seventeen papers published, Three US patents filed (One granted)

Zhehui Zhang, Yuanjie Li, Qianru Li, Jinghao Zhao, Ghufran Baig, Lili Qiu, Songwu Lu. *Movement-based Reliable Mobility Management for Beyond 5G Cellular Networks*. IEEE/ACM Transactions on Networking, 2022

Zhehui Zhang, Haiyang Zheng, Jiayao Hu, Xiangning Yu, Chenchen Qi, Xuemei Shi, Guohui Wang. *Hashing Linearity Enables Relative Path Control in Data Centers*. USENIX ATC, 2021

Zhehui Zhang, Shu Shi, Varun Gupta, Rittwik Jana. *Analysis of Cellular Network Latency for Edge-Based Remote Rendering Streaming Applications*. SIGCOMM Workshop on NEAT, 2019

Zhehui Zhang, Duowen Liu, Sujie Zhu, Shangjie Chen, Xiaohua Tian. *Squeeze More from the Fingerprints Reporting Strategy for Indoor Localization.* IEEE SECON, 2016

EXPERIENCE

University of California, Los Angeles — **Los Angeles, CA**
Graduate Research Assistant | Python, C/C++, Android — *September 2016 – Present*
- Investigated dependent misconfigurations in mobile networks and designed an in-phone detection tool
- Invented delay-doppler-based channel estimation to improve network reliability under extreme mobility
- Researched on security loopholes and tested with proof-of-concept attacks for Diameter-based mobile core
- Analyzed radio latency for VR/AR applications and co-designed a low latency Android-based solution
- Co-developed MobileInsight, a full stack cellular network monitoring and analysis tool

Azure for Operators Research, Microsoft — **Virtual**
Research Intern | Python, C/C++ — *June 2021 – September 2021*
- Designed a run-time ML-based troubleshooting system for virtualized radio access network
- Experimented with Variational auto-encoder and LSTM for anomaly detection, leading to 95%+ detection accuracy
- Profiled resource contention by monitoring per-thread KPIs with eBPF

Alibaba group — **Sunnyvale, CA**
Research Intern | C/C++ — *July 2019 – September 2019*
- Designed a relative path control scheme by leveraging hashing linearity in data centers (published in ATC)
- Analyzed TCP Reno/BBR performance and how TCP reacts upon various failure scenarios
- Implemented a protocol of concept in Linux kernel that reduces failure disruption from minutes to seconds

AT&T Labs — **Bedminster, NJ**
Student Technician II | C/C++, Android — *June 2018 – August 2018*
- Integrated an edge cloud-based VR system and a remote panoramic video streaming system (published in NEAT)
- Examined how radio configurations interoperate and impact latency on an edge cloud testbed
- Reduced end-to-end latency by 57% with field-of-view prediction and GPU acceleration

SERVICES AND HONORS

Reviewer at IEEE TVT, **External reviewer** at ACM MobiCom, IEEE INFOCOM — *2015-2021*
Outstanding TA award honorable mention — *2019*
Organizing Committee member at N2Women — *2017*
Student Travel Grant – ATC'21, SIGCOMM'19, SIGMETRICS'18, SECON'16 — *2016-2021*

SKILLS

Programming Languages: Python, C/C++, Java, MATLAB, Verilog
Tools and Framework: Android, GNU Radio, Network simulators (NS2/3, Mininet), Tensorflow, Flask, Flink