Jinghao (Vincent) Zhao

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EDUCATION

University of California, Los Angeles (UCLA) **Los Angeles, CA**
Ph.D. Candidate in Computer Science (GPA: 3.9/4.0) *September 2018 – Expected Jun 2023*
Advisor: Prof. Songwu Lu
Research Interests: *mobile edge computing, mobile systems and security, wireless networks*

Shanghai Jiao Tong University (SJTU) **Shanghai, China**
B.E. in Electrical & Electronic Engineering (Major GPA: 3.8/4.0) *June 2018*

EXPERIENCE

Meta Platforms, Inc. **Palo Alto, CA**
Software Engineer Intern | Golang, C++ *Jun 2022 – Sep 2022*
Developed performant and highly available 5G UPF to support metaverse traffic requirements
Designed and developed extensible GTP modules for 5G Core NFs
Developed eBPF-based high-performance data plane for distributive 5G NFs

MobIQ Technologies **Los Angeles, CA**
Software Engineer | C/C++, Java, Android *2019 – 2020*
Developed and patented a device-based mobile gaming latency reduction solution (1 US patent)
Designed the in-SIM network optimization for smart IoT devices
Cooperated with two of the top-five global phone vendors (Xiaomi & Vivo) for integration
Conducted 107 customer interviews in 7 weeks in NSF I-Corps incubator phasea

University of California, Los Angeles **Los Angeles, CA**
Graduate Research Assistant | C/C++, Java, Android, Django, GNU Radio *September 2018 – Present*
Topics: VR/AR Platform, Network Security, Network System, Network Diagnosis

Shanghai Jiao Tong University **Shanghai, China**
Undergraduate Research Assistant | Web, Python, MATLAB, PHP, SQL, JavaScript *April 2016 – June 2018*
Topics: Scholar search engine, data visualization, and big data analytics on scholar networks

SELECTED PROJECTS

Mobile Edge Computing VR&AR Platform *Feb 2020 – Present*
- Developed a full-fledged mobile edge computing platform for VR&AR applications under 5G/LTE
- Designed a device-based cellular latency reduction for mobile VR&AR application
- Developed MEC AR system supporting Point Cloud processing, ML tasks, 3D rendering and multi-user cooperation

eSIM Platform *June 2019 – Present*
- Designed & developed the first open-sourced eSIM platform for 5G/LTE with commodity devices
- Uncovered vulnerabilities in the current SIM/eSIM & developed a secure SIM service for 5G/LTE
- Devised SIM-based cellular failure diagnosis for 5G/LTE network

NB-IoT Platform & Analytics *May 2021 – Present*
- Developed the first open-sourced NB-IoT SDR Platform Sonica supporting commodity NB-IoT devices
- Designed the NB-IoT analyzing tools at the device & network side for cross-layer analytics
- Devised a C-IoT based AR system to support wide-area AR services on IoT devices

PUBLICATIONS

- **J. Zhao**, Z. Tan, Y. Xu, Z. Zhang and S. Lu. *"SEED: A SIM-Based Solution to 5G Failures"*, **ACM SIGCOMM 2022.**
- **J. Zhao***, Q. Li*, Z. Yuan, Z. Zhang and S. Lu. *"5G Messaging: System Insecurity and Defenses"*, **IEEE CNS 2022.**

• Z. Zhang, Y. Li, Qianru Li, **J. Zhao**, G. Baig, L. Qiu, S. Lu. *"Movement-Based Reliable Mobility Management for Beyond 5G Cellular Networks"*, IEEE/ACM Transactions on Networking **(TON), 2022.**

• Z. Tan, B. Ding, **J. Zhao**, Y. Guo, S. Lu. *"Breaking Cellular IoT with Forged Data-Plane Signaling: Attacks and Countermeasure"*, ACM Transactions on Sensor Networks **(TOSN), 2022.**

• **J. Zhao**, B.Ding, Y. Guo, Z. Tan and S. Lu. *"SecureSIM: Rethinking Authentication and Access Control for SIM/eSIM"*, **ACM MobiCom 2021.**

• Z. Tan, B. Ding, **J. Zhao**, Y. Guo and S. Lu. *"Data-Plane Signaling in Cellular IoT: Attacks and Defense"*, **ACM MobiCom 2021.**

• Y. Li, C. Peng, Z. Zhang, Z. Tan, H. Deng, **J. Zhao**, Q. Li, Y. Guo, K. Ling, B. Ding, H. Li, and S. Lu. *"Experience: A Five-Year Retrospective of MobileInsight"*, **ACM MobiCom 2021.**

• B. Ding, **J. Zhao**, Z. Tan, and S. Lu. *"Sonica: an open-source NB-IoT prototyping platform"*, **ACM MobiCom 2021.**

• Z. Tan, **J. Zhao**, Y. Li, Y. Xu, and S. Lu. *"Device-Based LTE Latency Reduction at the Application Layer"*, **USENIX NSDI 2021.**

• Y.Li, Z. Yuan, **J.Zhao,** S. Lu. *"Methods, systems, apparatuses and devices for facilitating optimizing of a network connection established between the device and one or more servers"*, US patent, US20210112509A1, Apr. 2021.

• K. Chen and **J. Zhao**. "*Skip The Question You Don't Know: An Embedding Space Approach"*, **IJCNN 2019.**

SERVICES AND HONORS

CS118: Computer Network Fundamentals *Fall 2021 & Spring 2022*
CS161: Fundamentals of Artificial Intelligence Spring *2020 & Fall 2020 & Fall 2021*
CS180: Introduction to Algorithms and Complexity *Summer 2020*

SIGCOMM 2022 Travel Grant *2022*
Member of Outstanding Engineers Education *2017*
Academic Excellent Scholarship of SJTU *2015-2017*