

Zihan (Tomson) Li

bio.tomson.li

Email : tomson.li@tomson.li

Mobile : +1-765-301-1953

EDUCATION

Washington University in St. Louis

Master of Science in Computer Science

St. Louis, MO

(Anticipated May. 2025)

Washington University in St. Louis

Bachelor of Science in Computer Engineering, Master of Science in Cybersecurity Engineering

St. Louis, MO

Aug. 2020 – May 2023

DePauw University

Bachelor of Arts

Greencastle, IN

Aug. 2017 – May 2020

EXPERIENCE

Graduate Research Assistant

Washington University in St. Louis

May 2022 – Present

St. Louis, MO

- Research focuses on system security and real-time system
- Conducted IoT devices firmware update pipeline study
- Developed experimental Linux scheduler enforcer for better performance
- Performed sensitive analysis on Linux perf counters
- Empirical study on communication cost of Federated Learning

C++ Backend Development Intern

Youme.im

July 2020 – Sept. 2020

Shenzhen, China

- Developed an end-to-end encryption module for audio and video real-time communication

PROJECTS

Federated Learning Optimization | *Machine Learning, Federated Learning, Python*

Aug 2024 – Present

- Conduct an empirical study on communication cost for federated learning
- Optimization on the federated learning process using gradient compression
- Designed a learning rate guided adaptive federated learning protocol
- Validation in real-world FL simulation

PUBLICATIONS

Your Firmware Has Arrived: A Study of Firmware Update Vulnerabilities

USENIX Security '24

Yuhao Wu, Jinwen Wang, Yujie Wang, Shixuan Zhai, **Zihan Li**, Yi He, Kun Sun, Qi Li, Ning Zhang

Work-in-Progress: Measuring Security Protection in Real-time Embedded Firmware

2022 IEEE Real-Time Systems Symposium (RTSS)

Yuhao Wu, Yujie Wang, Shixuan Zhai, **Zihan Li**, Ao Li, Jinwen Wang, Ning Zhang

HONOR AWARDS

2022 Dean's Select PhD Fellowship

Washington University in St. Louis

Nominated for the 2022 Dean's Select PhD Fellowship at Washington University in St. Louis.

Dean's List

DePauw University

Recognized on the Dean's List for 2017 and 2020

TECHNICAL SKILLS

Languages: C/C++, Python, Java, JavaScript, HTML/CSS, VHDL, Assembly, SQL, PHP

Frameworks: React, Node.js

Developer Tools: Git, Cmake, Docker, VS Code, Visual Studio, Eclipse, Wireshark, Xcode, Ghidra

Libraries: pandas, NumPy, Matplotlib, Tkinter