

EDUCATION

University at Buffalo

Ph.D. in Computer Science and Engineering, GPA: 3.91/4.00

NY, U.S.
2021–Current

- Advisor: Prof. Ziming Zhao
- Research Area: System Security

University at Buffalo

M.S. in Engineering Science (Robotics), GPA: 3.89/4.00

NY, U.S.
2019–2021

Fuzhou University

B.E. in Software Engineering

Fujian, China
2015–2019

RESEARCH TOPICS

System security with a focus on embedded systems

2021–Current

Cortex-M Systematization of Knowledge

- This research provides an overview of the security landscape of Arm Cortex-M microcontroller-based systems, analyzing hardware security limitations and issues, conducting a deep study of the software stack, categorizing reported implementation issues, and systematizing efforts to secure Cortex-M systems.
- *Submitted to IEEE S&P 2023*

Cortex-M Return to Non-Secure World Attack

- This research presents a new attack vector on Cortex-M TrustZone, ret2ns, which exploits the return from a secure state to a non-secure state to escalate privilege and execute arbitrary code, and proposes two mechanisms to mitigate the attack.
- *Submitted to DAC 2023*

EXPERIENCE

University at Buffalo

CyberTruck Challenge 2022 Participant

NY, U.S.
Summer 2022

Team member of Cacti for MITRE eCTF 2022 (5th place)

Spring 2022

Team member of Cacti for Baidu AutoDriving CTF (6th place)

Summer 2021

CSE573 Computer Vision and Image Processing Group Project

Spring 2020

- Visual Welcome Center, *Group Leader*
- In this project, we developed an interface to interact with visitors to the CSE department. The system has features of real-time facial recognition, background database and business card OCR reader. The project was written in Python.

MAE593 Robotics I Group Project

Fall 2020

- FANUC Robot Manipulator, *Group Member*
- In this project, we used a FANUC Robot LR Mate 200iD Robot as the base model, and derived the corresponding robotics dynamic equations from the physical parameters. The calculation was done in Matlab.

- Robot Vacuum Cleaner Simulation, *Group Leader*
- In this project we simulated a robot cleaner with laser sensor in ROS and implemented some path planning algorithm to build the room map. The goal is to construct the shortest comprehensive motion path.

Fuzhou University

Fujian, China

Graduation Thesis

Spring 2019

- Spam Message Machine Learning Classification Model Based on TensorFlow and NLP Technology
- The subject mainly applies machine learning classification models such as support vector machine, naive Bayes and word embedded NN neural network, and fits the source training data after training through NLP algorithm.

West2Online - A student operated software outsourcing studio

Fujian, China

Formal Member / iOS Developer

2016–2019

- Ctrl-Ctrl App Development, *Founder and Group Leader*
- Awarded 1st Prize in Software Design Innovation and Entrepreneurship Competition, Fuzhou U & Jiangsu Shidadime Data Processing Company
- Launch a business plan: to equip unused mobile phones with multi-functions (cloud storage, remote monitoring, signal transferring and etc.)
- FZUHelper App Development, *Group Member*
- Accessible in iOS App Store
- Responsible for the development and maintenance

INTERNSHIP

State Grid Corporation of China

Shanxi, China

Network Test Assistant

Jan 2016–Feb 2016

- Assisted with network set-up in Intelligent Meter Cabinet facilities
- Install new hardware or software systems or components, ensuring integration with existing network systems. Configure wide area network (WAN) or local area network (LAN) routers or related equipment.

PROGRAMMING SKILLS

- **Programming Languages:**
Python, C, C++, Java, MATLAB, LaTeX, etc.

EXTRACURRICULAR ACTIVITIES

- Teaching Assistant 2021–Current
for UB CSE 4/589: Modern Networking Concepts
- Member of West2Online 2016–2019
participated in development outsourcing projects
- Technical Consultant at Fuzhou University Yiban Service Center 2016–2017
deal with computer problems and teach employees computer skills
- Member at Student Associations in Fuzhou University 2015–2016
video-maker in the Network Department