

PhD student specializing in vulnerability detection through program analysis.

## 🎓 Education

### Texas A&M University

Ph.D., Computer Science

09/2019 – 12/2025(Expected)

College Station, TX

### Wuhan University

Bachelor of Engineering, Computer Science

09/2014 – 06/2018

Wuhan, China

## 💼 Work Experience

### SRI International

Summer Intern

05/2020 – 08/2020

Menlo Park, CA, USA

⚙️ Android Application Analysis, Data Analysis

- Identified two vulnerabilities in the design of popular COVID tracking apps
- Assessed the risks posed by two vulnerabilities in 10+ popular COVID tracking apps

### Texas A&M University

Teaching Assistant

Ongoing

Texas, USA

⚙️ Computer Security, Reverse Engineering, Risk Analysis

- CSCE 465: Computer & Network Security, Assisted the professor in teaching
- CSCE 451/652: Software Reverse Engineering, Assisted students in solving CTF challenges
- CSCE 477/703: Cybersecurity Risk, Set up class CTF

## 🔬 Projects

### 🎓 Blackbox Fuzzing on Web Application with LLM Assistance

Ongoing

⚙️ Fuzzing, LLM Agent Development, JavaScript Instrumentation

- Designed an LLM-driven framework for client-side fuzzing of web applications.
- Evaluating the framework on open-source web applications and conducting large-scale testing on Docker Hub images.

### 🎓 Security Analysis on Ethereum Name Service (ENS)

2024

⚙️ Android Reverse Engineering, Android Instrumentation, Security Analysis

- Discovered a unique security vulnerability in ENS.
- Identified inconsistencies in ENS domain normalization across popular wallets, dApps, and ENS controllers.
- **Identified security risks in 200+ widely used dApps** and collaborated with vendors to mitigate them.

### 🎓 Security Analysis of One-Time Tokens in Web Applications

In Submission

⚙️ Threat Modeling, JavaScript Static Analysis

- Identified discrepancies between RFC specifications and real-world implementations.
- Defined the lifecycle and essential security properties of One-Time Tokens in web applications.
- Developed an automated tool to detect and assess the security properties of One-Time Tokens.
- Evaluated the security of One-Time Tokens in popular Node.js web applications, **uncovering 20+ vulnerabilities**.

### 🎓 Zero Trust Framework Design and Implementation

2023

⚙️ Linux Kernel, System Programming, Software-Defined, Intrusion Detection

- Developed sysflow [Controller](#) [Dataplane](#), a Zero Trust Framework. Implemented the telemetry in Linux Kernel and communication channel between the dataplane and the controller.
- Implemented an application with sysflow to provide context-aware access control in web applications by applying privileges defined application-level to files.

### 🎓 Security Framework Based on Service Worker

2022

⚙️ Web Security, Client-side Defenses

- Contributed to the development of a Service Worker-based security framework [SWAPP](#). Designed and implemented the storage management pipeline the communication channel between DOM and service worker

- › Designed and implemented two security applications within the framework to defend against information leakage and MITM attacks on the client-side

## 🎓 Hidden Property Abusing in the Node.js Ecosystem

2021

⚙️ *JavaScript Static/Dynamic Analysis, Taint Analysis*

- › Developed an automated tool [Final Release](#) [Development Repository](#) to detect hidden properties in Node.js programs with a combination of static and dynamic taint analysis.
- › Evaluated the tool on over 70 widely used Node.js libraries and **identified 15+ vulnerabilities**.

## 🎓 Security Analysis of SDN Controllers

2018-2020

⚙️ *Java Static Analysis, Taint Analysis*

- › Conducted security analysis of the top open-source SDN controllers.
- › **Discovered 18 vulnerabilities** related to unintended data dependency creation.
- › Developed a tool to identify sensitive methods in SDN controllers and generate data dependencies for targeted attacks.

## 👤 iOS Application Analysis

2017

⚙️ *iOS Reverse Engineering, iOS Instrumentation*

- › Developed an automated tool [Corgi](#) to identify key functions of specific features in iOS applications.
- › Uncovered critical vulnerabilities in WeChat SDK and Meituan.

## 🏆 Awards

### TAMUCTF 2024 – 4th (TAMU), 50th Overall

2024

- › Competed individually and solved **all Web challenges**.

### BCTF 2015 - 1st Place

2015

- › solved **all Web challenges**.

### OCTF 2015 - 3rd Place

2015

- › solved **all Web challenges**.

### Software-Defined Networking (SDN) Development Competition - 2nd Prize

2015, China

- › Designed a moving target defense mechanism with OpenDayLight, which rotates IP addresses in the network to obfuscate the topology

## 📖 Publications

### Curtain: Keep Your Hosts Away from USB Attacks

ISC 2017

- › Jianming Fu, **Jianwei Huang**, and Lanxin Zhang

### Chaos: An SDN-Based Moving Target Defense System

SCN 2017

- › Yuan Shi, Huanguo Zhang, Juan Wang, Feng Xiao, **Jianwei Huang**, Daochen Zha, Hongxin Hu, Fei Yan, Bo Zhao

### Hacking the Brain: Customize Evil Protocol to Pwn an SDN Controller

DEF CON 26, 2018

- › Feng Xiao, **Jianwei Huang**, Peng Liu

### Unexpected Data Dependency Creation and Chaining: A New Attack to SDN

IEEE S&P 2020

- › Feng Xiao, Jinquan Zhang, **Jianwei Huang**, Guofei Gu, Dinghao Wu, Peng Liu

### Abusing Hidden Properties to Attack the Node.js Ecosystem

USENIX Security 2021

- › Feng Xiao, **Jianwei Huang**, Yichang Xiong, Guangliang Yang, Hong Hu, Guofei Gu, Wenke Lee

### Practical Speech Reuse Prevention in Voice-driven Services

RAID 2021

- › Yangyong Zhang, Sunpreet Arora, Maliheh Shirvanian, **Jianwei Huang**, Guofei Gu

### SWAPP: A New Programmable Playground for Web Application Security

USENIX Security 2022

- › Phakpoom Chinprutthiwong, **Jianwei Huang**, and Guofei Gu

### SysFlow: Towards a Programmable Zero Trust Framework for System Security

IEEE TIFS 2023

- › Hong Sungmin, Lei Xu, **Jianwei Huang**, Hongda Li, Hongxin Hu, and Guofei Gu

### Beyond Visual Confusion: Understanding How Inconsistencies in ENS Normalization Facilitate Homoglyph Attacks

- › **Jianwei Huang**, Sridatta Raghavendra Chintapalli, Mengxiao Wang, Guofei Gu

## ⚙️ Skills

**Languages** C, Python, Java

**Program Analysis** Static(Soot, esprima), Dynamic(Jalangi, ExpoSE)

**GenAI** Agent Development