Ruogu Yang

ruoguyang26@gmail.com · (+86) 139-8607-2378 ·

Education Background

Southern University of Science and Technology,ShenZhen, China Aug2022 – Jun2026

Department of Computer Science and Engineering
Bachelor of Engineering in Computer Science and Technology
GPA:3.78/4.0
Toefl:100 (Reading 28 listening 24 speaking 23 writing 25)
Core courses: Operating System, Data Structures and Algorithm Analysis, Computer Organization, Embedded System and Microcomputer Principle, Artificial Intelligence, Computer Network

University of California, Davis, CA, USA Jun2025 – Jan2026

Department of Computer Science and Engineering
Security Lab, Student Research Intern
Tutor: Prof. Hao Chen

Research Interests

AI-Driven Security, System Security

Publications

1. **Ruogu Yang***, et al. **LISA: Feedback-Guided Unit Test Generation for Detecting Real-World Functional Bugs**. Under submission (currently anonymized for double-blind review to a top-tier conference).

Research experiences

LISA: Feedback-Guided Unit Test Generation for Detecting Real-World Functional Bugs

Security Lab, UC Davis Tutor: Prof. Hao Chen Jun2025 – Present

- Designed and implemented **LISA**, a novel two-stage LLM-based framework for **deep API contract verification** and functional bug discovery in C/C++ libraries.
- Developed an **adaptive API sequence generation** module using **API N-gram feedback** to guide diverse test exploration across complex API interaction states.
- Implemented an **invariant injection module** with a **structured API contract knowledge base** and **closed-loop learning mechanism** for executable `assert(...)` generation and continuous refinement.
- Achieved a **51% end-to-end success rate** for `zlib` unit test generation (avg. 210s/test) and actively designed comprehensive evaluation against SOTA (e.g., `CITYWALK`).

ABIscope —Differential Analysis of Linux ABI Compatibility in Rust-based Kernels

Teecert Lab, ShenZhen Tutor: Prof. Yinqian Zhang Feb2025 – Present

- Engineered a specialized program dataset to evaluate the **Linux ABI compatibility of Rust-based kernels**. Leveraged **Syzkaller** for initial seed generation and developed automated tooling to extract and quantify **syscall coverage** and **syscall argument coverage**.
- Designed and implemented a **feedback-driven fuzzing system** guided by **multi-dimensional coverage metrics** (syscall, argument, and KCOV). This system applies **strategic mutations** (e.g., adding/removing syscalls, modifying arguments to boundary or illegal values) to high-value seeds to progressively enhance the dataset's ABI exploration capabilities.
- Incorporated a **Large Language Model (LLM)** into the test case generation and mutation pipeline. Through targeted prompt engineering, the LLM is utilized to **automatically augment and refine test cases** based on predefined mutation strategies, enabling the exploration of more complex ABI interaction scenarios.

Memory-Safe Driver Development Based on SafeOS Aug2024 – Dec2024

Teecerts lab, ShenZhen Tutor: Prof.Yinqian Zhang

- Implemented E1000 Network Card Device Driver.
- Based on Asterinas , available at `https://github.com/asterinas/asterinas`.
- Written in Rust, implemented sending and receiving packets and device mounting on PCI bus.

IT Skills

- Programming Languages: Rust, C, Python, C++, Bash
- Development Tools: GitHub, Docker, Visual Studio Code
- Databases: PostgreSQL
- Other Skills: Algorithm Design, Debugging, Fuzzing Coverage Analysis, Kernel Development, API Sequence Analysis, Prompt Engineering

Leadership Experience

- Captain, Rowing Team, Southern University of Science and Technology Sep2024 - Sep2025
- Vice President, Cycling Club, Southern University of Science and Technology Mar2024 - Aug2025

Honors and Awards

- Outstanding Research Performance Award, UC Davis GREAT Research Program 2025
- SUSTech outstanding student 2023,2024
- Outstanding Student prize 2023,2024
- Guangdong Undergraduate Mathematical Contest in Modeling, Third Prize 2024
- Guangdong Undergraduate Mathematical Contest in Modeling, Second Prize 2023
- China Undergraduate Mathematical Contest in Mathematics, Second Prize 2023

Interests

Outside of my academic work, I am passionate about **classical music**, which has cultivated my patience and attention to detail. I also enjoy **rowing**, **fitness training**, and **surfing**, activities that build resilience, discipline, and a strong sense of teamwork, while providing balance to my academic pursuits.