Zhuo Chen

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"Be the change that you want to see in the world."

Education

Nanjing University, Kuang Yaming Honors School — *Nanjing, China*

B.S. in Computer Science — *Sep. 2021 - Now*

- GPA 4.48/5.0 (89.6/100)
- Relevant Course: Linear Algebra (94), Game Theory (96), Introduction to Artificial Intelligence (97), Principles and Techniques of Compilers (96), Introduction to Computing Systems (94), Operating Systems (97), Computer Networks (92)

Honors & Awards

2021	**Outstanding Award**, Merit Based Scholarship for Outstanding Student	*Nanjing University*
2022	**Excellence Award**, Scholarship in Basic Subject	*Nanjing University*
2022	**2nd Prize**, People's Scholarship	*China*
2023	**Bronze Award** , 19th Programming Competition	*Nanjing University*

Research Experience

Hopter: *A Rust-based embedded operating system* — *New Haven, US*

Research Intern, Efficient Computing Lab, Yale University — *Jul. 2024 - Jan. 2025*

- Hopter is a Rust-based embedded operating system designed to provide memory-safe, efficient, reliable, and responsive applications for embedded systems. Co-developed with a custom compiler, it enforces additional invariants that extend beyond Rust's native capabilities, ensuring software-based safety without hardware protection.
- Advisor: **Prof. Lin Zhong**. You can also find our project ***here***.

HardRace: *A Dynamic Data Race Monitor for Production Use* — *Nanjing, China*

Research Intern, Software Engineering Group, Nanjing University — *Sep. 2023 - Sep. 2024*

- Developed HardRace, a data race monitor optimized for low-overhead, high-accuracy detection in production environments. By combining static analysis with Intel PTWRITE hardware tracing, HardRace targets essential memory accesses and synchronization events, achieving effective detection with under 2% runtime overhead. Testing shows HardRace surpasses tools like ProRace and Kard in both efficiency and comprehensive race detection across real-world applications.
- Advisor: **Prof. Zhiqiang Zuo**. You can also find our papar(submitted to OOPSLA'25) ***here***.

ProDroid: *Resource-based Android Application Repackaging Detection* — *Nanjing, China*

National Level Innovative Entrepreneurial Training Program — *Sep. 2022 - Nov. 2023*

- Designed and implemented ProDroid, an innovative approach to detecting Android application repackaging by capturing runtime resources dynamically. The system leverages randomized testing with Monkey and resource hooking via Xposed modules to generate unique fingerprints for each application. Employing techniques like LSH and dHash, ProDroid creates distinct software birthmarks, achieving 97% recall and 90.3% precision, with analysis time scaling efficiently with the number of APKs processed.
- Advisor: **Prof. Jun Ma**. You can also find our final project report ***here***.

Skills

Programming Rust, C, C++, Python, Java, Verilog

Languages English, Mandarin Chinese