LUOZHONG ZHOU

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Education

University of Wisconsin Madison **Sep 2020 – May 2024**
Bachelor of Science in Computer Science (GPA: 3.85/4.0) *Madison, WI*
Academic Honor: Dean's List

Area of Interest

Computer Security, System Reliability & Performance

Relevant Coursework

- Operating System
- Intro to AI
- Information Security
- Computer Network
- Big Data Systems
- Database Management
- Cryptography
- Algorithms

Research Experience

RA Software Tampering Detection, UW-Madison & LBNL **Jan 2023 – Present**
Advisor: Prof. Barton Miller & Prof. Sean Peisert

- Assess vulnerabilities in nuclear armament control software on the surrogate system platform
- Construct time-based attack model and co-develop primitive anomaly detection algorithm
- Evaluate software tampering detection ability using black-box fuzzing and referential testing
- Currently exploring more realistic attack models and applying intrusion detection techniques
- Future steps involve verifying effectiveness of black & grey-box fuzzing on tampering detection on COCIM device developed by SNL

Microkernel Filesystem Reliability, UW-Madison **May – Sep 2023**
Independent Study of Open Source Project

- Enhance the POSIX-compliance of uFS, a state-of-the-art high-performance filesystem microkernel, by implementing system call interception features
- Evaluate the applications' reaction to (semi)microkernel filesystem failure model
- Identify and fix programming bugs

Teaching Experience

Peer mentor of CS537 Operating System **June - Aug 2023**

∗ Hold weekly Q&A discussions and provide academic guidance to fellow students.
∗ Provide hands-on assistance on course material, projects, and debugging

Selected Open Source Projects

Research on FUSE **May - Jul 2023**

∗ Conducted an in-depth performance assessment and benchmark of application workloads on ext4 and FUSE filesystems using profiling tools to identify and analyze system behavior and bottleneck.
∗ Identified potential write amplification issues that cause performance penalty while further investigation may needed for future research.

Mini Distributed File System **Dec 2022**

∗ Developed a mini Unix distributed file server and client system based on UDP protocol
∗ Implemented client-side RPC calls, time-out policies, and retry mechanism features

Primitive Database System **Nov 2022**

∗ Build a primitive relational database system that can execute basic CRUD operations and parse user SQL queries
∗ Implement buffer manager, relational operators, and concurrency control that demonstrate more understanding than course requirement

Technical Skills

Languages: Python, Java, C/C++, SQL, Rust
Frameworks: HDFS, MapReduce, Apache Spark, Cassandra
Tools: Linux perf