XINYU LIAN

615 S Wright St, Champaign, IL | alexlian.cs@gmail.com | xinyulian.tech | (+1) 217-200-0993

EDUCATION

University of Illinois Urbana–Champaign	Champaign, IL
Master of Science in Computer Science	Aug. 2022 – Present
Bachelor of Science in Computer Engineering · with honors	Aug. 2018 – May 2022
Zhejiang University	Hangzhou, China
Bachelor of Engineering in Electronic and Computer Engineering	GPA:3.97/4.0	Sep. 2018 – Jun. 2022

- Selected Honors: Outstanding Graduate of Zhejiang Province (4%, 2022), UIUC Dean's List (2020, 2021)
- Teaching Assistant: Topics in Software Engineering (graduate level, 2022), Data Structures (2022), Introduction to Programming (2021), Introduction to Computing (2020)

PUBLICATIONS

- Wang S., **Lian X.**, Marinov D., Xu T. Test Selection for Unified Regression Testing. *Submitted to* **ICSE 2023** .
- Jiang F., Xiong N., **Lian X.**, González S., Schewe KD. Towards Refinement of Unbounded Parallelism in ASMs Using Concurrency and Reflection. In *Rigorous State-Based Methods. ABZ 2021.* [**Paper**]

WORK EXPERIENCE

Software Engineer Intern	Jun. 2021 - Aug. 2021
Wooduan Technology Co., Ltd	Hangzhou, China

- Developed a code-change analysis tool based on **ASM** (a Java bytecode analysis framework) to show modules polluted by the code-change, which further helps to locate the code bug and grade the priority of the code-change.
- Implemented a visual interface to support code-change analysis tool using **PyQT**.

Research Intern	Aug. 2021 – Aug. 2022
Xlab@UIUC (work with Prof. Tianyin Xu and Prof. Darko Marinov)	Champaign, United States

- Proposed a configuration-aware model to include configurations to dependency that can unify selection of regression test and configuration test to cover both code change and configuration change.
- Reduce the end-to-end testing time by **3.64** compared to executing all tests.
- Paper has been submitted to premier software engineering conference **ICSE 2023**.

TECHNICAL SKILLS

- **Languages**: Java, Python, C/C++, X86 ASM, System Verilog, MATLAB, SQL
- **System & Cloud**: Kubernetes, Docker, Linux kernel, UNIX network programming, Qemu
- **Tools**: CUDA, Git, PyTorch, Maven, Spring Boot, CMake, Latex, MangoDB

SELECTED PROJECTS

HarmoniOS (Unix based Operating System)	*C, ASM(x86), Qemu*	**Repo**	Apr. 2021 – May 2021

- Built a Linux-like operating system by providing basic features including: memory paging, filesystem, context switch, round-robin scheduler, interrupt handlers and system calls.
- Developed advanced extra features: Graphical User Interface (GUI), PCI driver, Linux signal.

IDoCT (Illinois Dataset of Configuration Tests)	*Java, Python, Github Action*	**Repo**	Jan. 2022 – Present

- Configuration Testing is a new type of test for detecting failure-inducing configuration changes.
- **Led and developed** the project and has attracted more than 50 contributors.
- Used for Software Engineering education (CS 527, CS 591 SE) and REU programs at the University of Illinois Urbana-Champaign.

TCP Protocol from Scratch	*C, UNIX Network Programming*	Oct. 2021 – Nov. 2021

- Implemented the TCP protocol based on UDP's *sendto* and *recvfr* to transmit gigabyte data reliably.
- Realized congestion avoidance and fast recovery features of the TCP protocol.
- Utilized at least 70% of bandwidth in a steady state without traffic.

Raft Consensus Protocol	*Java, Raft, Distributed Consensus*	Apr. 2022 – May 2022

- Implemented Raft Consensus protocol to maintain log consistency between distributed servers, which also has the ability to tolerate process failures and network partition.
- Can tolerate up to $\lfloor n/2 \rfloor$ process failures, and the living servers and do failure detection and elect new leaders to maintain distributed Consensus.
- Realized robust log replication, such that the leader can commit and replicate logs on the majority of live servers.