Xinyu Lian

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Education

University of Illinois Urbana–Champaign Champaign, IL
Master of Science in Computer Science (Research-Oriented) | GPA:4.0/4.0 Aug. 2022 – May 2024
Advisor: Prof. Tianyin Xu and Prof. Darko Marinov

Zhejiang University Hangzhou, China
Bachelor of Computer Engineering | GPA:3.97/4.0 Sep. 2018 – Jun. 2022
- Selected Honors: Outstanding Graduate of Zhejiang Province (Top 4%, 2022)

Publications (Accepted)

- Wang S., **Lian X.**, Marinov D., Xu T. Test Selection for Unified Regression Testing. In *Proceedings of the 45th IEEE/ACM International Conference on Software Engineering* (**ICSE 2023**), pages 1691-1703, May 2023.
- Jiang F., Xiong N., **Lian X.**, González S., Schewe KD. Towards Refinement of Unbounded Parallelism in ASMs Using Concurrency and Reflection. In *Proceedings of the 8th International ABZ Conference on ASM* (**ABZ 2021**), pages 118–123, June 2021.

Publications (Submitted)

- **Lian X.**, Chen Y., Cheng S., Huang J., Thakkar P., Xu T. Large Language Models as Configuration Validators
  In submission to 32nd ACM SIGSOFT International Symposium on the Foundations of Software Engineering (**FSE 2024**).

Research Experience

Interests: Software Testing, Software Engineering, Software System

Cross-System Configuration Testing Feb. 2023 – May 2023
Advised by Prof. Indranil Gupta
- Lead the project to develop the cross-system configuration testing (CSCtest), which transforms the traditional software tests in an automated fashion that reuses well-engineered test logic and oracles to test the configuration changes in multiple systems.
- Have reproduced 12 historical issues and reported new configuration-related code bugs.
- Honored to be selected as the **Best Research Project of CS525**.

Exploring Large Language Models as Configuration Validators Jan. 2023 – Sep. 2023
Advised by Prof. Tianyin Xu
- Lead the project to undertake the exploration of employing pre-trained LLM for configuration validation, with an aim to comprehend its feasibility and effectiveness.
- Develop Ciri, an LLM-based configuration validation framework that integrates popular LLM models.
- We reveal open challenges such as ineffectiveness in detecting certain types of misconfigurations and biases to popular configuration parameters.
- Submitted to FSE 2024.

Test Selection for Unified Regression Testing Aug. 2021 – Aug. 2022
Advised by Prof. Darko Marinov and Prof. Tianyin Xu
- Developed a configuration-aware model to unify selection of regression test and configuration test, which can maintain the Software/System Reliability through much lower time/machine cost.
- Reduced the testing time by **3.64 times** on average compared to executing all tests.
- Produced *Illinois Dataset of Configuration Tests* that has been used in education (CS 527, CS 591 SE) and REU at UIUC.
- The work has been accepted by **ICSE 2023**.

Work/Volunteer Experience

Student Volunteer Melbourne, Australia
ICSE 2023 May 2023

Co-Organizer of CS591 SE (Software Engineering Seminar) IL, USA
University of Illinois Urbana–Champaign Jan. 2023 - May 2023

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

Teaching Experience

Teaching Assistant - CS527 (Topics in Software Engineering) Fall 2023
UIUC, with Prof. Darko Marinov

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UIUC, with Prof. Darko Marinov

Teaching Assistant - CS225 (Introduction to Data Structures and Algorithms) Spring 2022
ZJU, with Prof. Klaus-Dieter Schewe

Teaching Assistant - ECE428 (Distributed Systems) Spring 2022
ZJU, with Prof. Pavel Loskot

Teaching Assistant - CS101 (Introduction to Programming) Spring 2021
ZJU, with Prof. Wee-Liat ONG

Teaching Assistant - ECE120 (Introduction to Computing) Fall 2020
ZJU, with Prof. Volodymyr Kindratenko

Technical Skills

- **Languages**: Java, Python, C/C++, Assemble(x86), System Verilog, MATLAB
- **System & Cloud**: Kubernetes, Docker, Linux kernel, UNIX network programming, Qemu
- **Development Tools**: Git, CUDA, SQL, PyTorch, Maven, Spring Boot, CMake, Latex, MongoDB