

Chenyuan Yang

cy54@illinois.edu | yangchenyuan.github.io

RESEARCH INTEREST

My research aims to improve the *reliability* of software systems. I am interested in leveraging testing, analysis, and verification techniques to make software systems more *reliable* and *robust*, especially for machine learning systems. Besides, I enjoy contributing to the open-source community.

Currently, I focus on testing deep learning libraries, which are the central infrastructure for building, training, optimizing and deploying deep learning models. Until now, my work has totally detected **275** previously unknown bugs for widely-used deep learning libraries, including **PyTorch**, **TensorFlow**, **JAX**, and **OneFlow**.

Besides deep learning libraries, I also reported more than **30** bugs for other open-source projects, such as **NumPy**, **Moby**, and **VSCoDeVim**.

EDUCATION

University of Illinois at Urbana-Champaign

*Ph.D. Student in Computer Science, advised by Prof. **Lingming Zhang***

Aug. 2022 - Present

IL, US

Nanjing University

B.Sc. in Computer Science and Technology, graduated with honors

Sept. 2018 - Jul. 2022

Nanjing, China

- Enrolled in *Elite Class*, GPA 91.2/100, rank 1/24

PUBLICATION

Fuzzing Deep-Learning Libraries via Automated Relational API Inference

Yinlin Deng*, **Chenyuan Yang***, Anjiang Wei, Lingming Zhang. [\[paper\]](#) [\[code\]](#)

ESEC/FSE 2022

Free Lunch for Testing: Fuzzing Deep-Learning Libraries from Open Source

Anjiang Wei, Yinlin Deng, **Chenyuan Yang**, Lingming Zhang. [\[paper\]](#) [\[code\]](#)

ICSE 2022

* denotes joint first authors

PROFESSIONAL EXPERIENCE

Research Assistant at PL/FM/SE Group, UIUC

*Advised by Prof. **Lingming Zhang***

May. 2021 - Present

Topic: Fuzzing DL libraries

Research Assistant at SPAR Group, Nanjing University

*Advised by Prof. **Yanyan Jiang***

Aug. 2020 - Apr. 2021

Topic: Testing

Co-Reviewer for ASE 2022

AWARDS

SIGSOFT CAPS Travel Grant for ESEC/FSE 2022

Sept. 2022

China National Scholarship | Top 0.2%

Oct. 2020

Special Scholarship for Undergraduates in Basic Science, Nanjing University | 1/24

Nov. 2021

Elite Program First-class Scholarship, Nanjing University

Oct. 2019

Merit Student, Nanjing University

Oct. 2019

TALKS

Fuzzing Deep-Learning Libraries via Automated Relational API Inference

Sept. 2022

- Software Engineering Retreat, University of Illinois at Urbana-Champaign

Free Lunch for Testing: Fuzzing Deep-Learning Libraries from Open Source

May 2022

- iSE symposium, Nanjing University

TEACHING EXPERIENCE

Teaching Assistant at Nanjing University

Sept. 2021 - Jul. 2022

Problem Solving, a core course for the students in the elite program

SKILL STACK

- **Common:** Python, C, Shell, TypeScript, docker, git, Vim, SQL, L^AT_EX
- **Machine Learning:** PyTorch, TensorFlow, JAX
- **Testing:** libFuzzer, LLVM Sanitizers