Yu Liu
Ph.D. Student

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○ sweetStreet
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Research Interests

Software Testing, Program Analysis, Compiler and Machine Learning.

Education

2019–present	**Ph.D.** (in progress), *The University of Texas at Austin* *Supervisor.* Prof. Milos Gligoric
2015–2019	**B.Eng.**, *Nanjing University*

Professional Experience

Jun–Sep 2023 — **Software Engineer Intern**, *Google*, Mountain View
- Identified input and output nodes of ML model layers in TensorFlow graphs using **C++**.
- Implemented a service module with frameworks based on **Scaffolding** and **Protocol Buffers** to populate important layers to front end.

May–Aug 2021 — **Research Intern**, *IBM*, remotely from Austin
- Generated summarization for UI tests with probabilistic context-free grammar(PCFG) based on clickable and its context.

May–Aug 2020 — **Software Engineer Intern**, *Google*, remotely from Austin
- Wrote integration tests for auto releases to validate data consistency among UI, database and external service.
- Implemented a service module with frameworks based on **Guice** and **Protocol Buffers** to make RPC from front end to stubby service.

Jul–Aug 2019 — **Software Engineer Intern**, *Huatai Securities*, Nanjing
- Analyzed public sentiment by model of **TextCNN** and **Bert**. Embedded sentences into vectors with **TF-IDF**. Compared **cosine similarity** of vectors to realize **word sense disambiguation**. Established a dictionary of companies and real controllers. Adjusted importance of words according to their locations and frequency of appearance.

Jun–Jul 2017 — **Intern in Vocational Training Program**, *SAP*, Nanjing
- Studied **ERP** service integration. Mastered operation of **ERP** software.
- Constructed a desktop application to extract useful messages based on images which are from users' screenshots during use of ERP software with **React** and **Spring Boot**. Deployed APP on **SAP Cloud Platform**.

Skills

Languages	Java, Python, Bash, JavaScript, SQL, C, C++, Dart, PHP.
Tools	JavaParser, ASM, JUnit, ANTLR, pytest, PyTorch, TensorFlow, Spring Boot, Guice, Hibernate, Node.js, jQuery, Angular, React, Scrapy, Laravel, MySQL, MongoDB, Sqlite, Neo4j, Docker, Jenkins, Git, Linux, SAP ERP.

Publications

[6] **Yu Liu**, Pengyu Nie, Anna Guo, Milos Gligoric, and Owolabi Legunsen. Extracting inline tests from unit tests. In *ISSTA*, 1–10. 2023.

[5] **Yu Liu**, Jiyang Zhang, Pengyu Nie, Milos Gligoric, and Owolabi Legunsen. More precise regression test selection via reasoning about semantics-modifying changes. In *ISSTA*, 1–10. 2023. This paper won an **ACM SIGSOFT Distinguished Paper Award**.

[4] **Yu Liu**, Zachary Thurston, Alan Han, Pengyu Nie, Milos Gligoric, and Owolabi Legunsen. pytest-inline: An inline testing tool for python. In *ICSE Demo*, 1–4. 2023.

[3] **Yu Liu**, Pengyu Nie, Owolabi Legunsen, and Milos Gligoric. Inline tests. In *ASE*, 1–11. 2022.

[2] **Yu Liu**, Rahulkrishna Yandrapally, Anup K. Kalia, Saurabh Sinha, Rachel Tzoref-Brill, and Ali Mesbah. Crawlabel: Computing natural-language labels for UI test cases. In *AST*, 103–114. 2022.

[1] Jiyang Zhang, **Yu Liu**, Milos Gligoric, Owolabi Legunsen, and August Shi. Comparing and combining analysis-based and learning-based regression test selection. In *AST*, 17–28. 2022.

Scholarships and Awards

2023	Graduate School Continuing Fellowship, The University of Texas at Austin
2020	Grace Hopper Scholarships, Google
2019	Outstanding Graduates, Nanjing University

Service

PLDI 2024	Artifact Evaluation Committee
ICSE 22,21	Sub-reviewer, International Conference on Software Engineering
2022	Volunteer, ISSS at UT Austin
PLDI 2022	Volunteer, Programming Language Design and Implementation Conference
2016	Vice President, College Youth Association

Open Source Contributions

2023	**Exli**, a tool for extracting inline tests from unit tests - `https://github.com/EngineeringSoftware/exli` (paper [6])
2023	**FineEkstazi**, an optimized regression testing selection tool based on Ekstazi - `https://github.com/EngineeringSoftware/fine-ekstazi`(paper [5])
2023	**FineSTARTS**, an optimized regression testing selection tool based on STARTS - `https://github.com/EngineeringSoftware/fine-starts`(paper [5])
2022	**pytest-inline**, a Pytest plugin for inline testing - `https://github.com/pytest-dev/pytest-inline` (paper [4])
2022	**I-Test**, a Java framework for writing inline tests - `https://github.com/EngineeringSoftware/inlinetest` (paper [3])