

Yu Liu

Ph.D. Student

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🌐 [sweetStreet](https://sweetstreet.github.io)

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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*

Publications

- [7] **Yu Liu**, Aditya Thimmaiah, Owolabi Legunsen, and Milos Gligoric. Exli: An inline-test generation tool for java. In *The ACM International Conference on the Foundations of Software Engineering, Tool Demonstrations*, 1–5. 2024.
- [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. Crawlable: 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

Mentoring

Three undergraduate students.

- Undergrad Anna Guo (2023–present; co-authored [6])
- Undergrad Alan Han (2022; co-authored [4])
- Undergrad Zachary Thurston (2022; co-authored [4])

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

Teaching

- Fall 2022 Teaching Assistant, Engineering Dynamic Program Analysis
- Fall 2020 Teaching Assistant, Software Design and Implementation I

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**.

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])