

YI WU

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EDUCATION

Southern University of Science and Technology Sep. 2017 - Jun. 2021 (Expected)
Bachelor of Computer Science and Technology Shenzhen, China
Overall GPA: 3.79/4.0, Rank: 10/139 (Top 7%)

University of California, Irvine Jul. 2020 – Present
Remote Research Internship in Information and Computer Sciences

National University of Singapore Jul. 2019
NUS, School Of Computing, Summer Workshop Singapore

RESEARCH INTERESTS

My research interests are in software engineering with a focus on program analysis, automated program repair and software testing.

PUBLICATION

- [\[ASE SRC 2020\]](#) **Yi Wu. Anti-patterns for Java Automated Program Repair Tools.**
To appear in 35th IEEE/ACM International Conference on Automated Software Engineering,
September 21–25, 2020, Virtual Event, Australia.

RESEARCH EXPERIENCE

Anti-patterns for Java Automated Program Repair Tools Sep. 2019 - Dec. 2019

Supervisor: [Shin Hwei Tan](#)

Accepted by ASE SRC 2020

Our implementation of anti-patterns and has been merged into Astor! 🌐 [Code](#)

- Performed a manual inspection on the plausible patches generated by Java automated repair tools.
- Implemented anti-patterns in jGenProg2(Astor) and evaluated on Defects4j benchmark.
- The average repair time is reduced by 22.6 % and the number of generated plausible patches is reduced from 67 to 29 for 14 bugs in total, which provides evidence about the effectiveness of applying anti-patterns in future Java automated repair tools.

Applying Graph Neural Network to Data-flow Analysis Jul. 2020 – Present

Supervisor: [Joshua Garcia](#)

- Explore the feasibility of using graph neural networks in solving data-flow analysis problems.
- Applied gated graph neural network to perform live variable analysis and reaching definition analysis.
- Further goal is to execute more precise tasks such as value range analysis.

Recommending Negative Google Play Review for Android Apps Feb. 2020 – Present

Supervisor: [Shin Hwei Tan](#)

- Build a recommendation system that automatically selects relevant Google Play reviews from other applications for the app under test to find potential bugs.
- Search for similar apps based on sharing common UI components with the app under test.
- Select and rank the Google Play negative reviews of the similar apps by quality and relevance.
- Current evaluation shows we find 18 bugs for 5 apps of different categories with analysis of top 40 reviews for each app.

NOTABLE COURSE PROJECT

GitHub FixIt

Mar. 2020 - May. 2020

- Contributed to GitHub open source project by fixing bug/feature related issues.
- Implemented the feature of separating project dependencies in a different layer for WAR projects for [Google Container Jib](#), to save time when rebuilding the container. [🔗Code](#)
- Specified error message in [AssertJ](#), a library providing rich typed assertions for Java. [🔗Code](#)

Online Algorithm Store [🔗Code](#)

Sep. 2019 - Jan. 2020

- Created a web platform as an online store, supporting functions such as purchasing, selling and running algorithms to solve practical problems, e.g. efficient dispatch in delivery.
- Utilized Sqlite, Django, BootStrap and Docker for the development of the platform.

Influential Maximization

Nov. 2019

- Implemented two stochastic diffusion models, the linear threshold model and the independent Cascade model, to estimate the max number of influenced nodes given a seed set.
- Implemented influence maximization via martingales (IMM) algorithm to find a subset of nodes of a certain size in a social network that could maximize the spread of influence.

SKILLS

Selected Core Course : Software Engineering, Operating System, Data Structures and Algorithm Analysis, Computer Organization Principle, Computer Networks, Artificial Intelligence

Programming Language : Java, Python, C++, SQL

AWARDS

Annual Outstanding Student *Second Prize*

Nov. 2019

Annual Outstanding Student *Third Prize*

Nov. 2018

Southern University of Science and Technology