

PU YI

Peking University, China

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Education

Peking University

Sep. 2018 – June 2022 (expected)

Bachelor of Science in Computer Science (Turing Class)

Beijing, China

- GPA: 3.71/4 (87.6/100), ranking top 20% in the department
- 2020 [John Hopcroft Scholarship](#)
- 2021 Huirong Li Scholarship

Research Experience

Combating Flaky Tests. Advisors: Profs. [Darko Marinov \(UIUC\)](#) and [Tao Xie \(PKU\)](#)

July 2020 – Present

- Analyzed theoretically and improved flaky-test detection (resulted in publication 1)
- Extended Java PathFinder to detect polluter tests (resulted in publication 2)
- Counted test orders for order-dependent flaky tests using Alloy (resulted in publication 3)
- Proposed, detected, and fixed non-idempotent-outcome tests that contain latent flakiness (resulted in submission 5)

Regression Test Prioritization. Advisors: Profs. [Darko Marinov \(UIUC\)](#) and [Tao Xie \(PKU\)](#)

April 2021 – Present

- Analyzed theoretically random regression test prioritization (resulted in submission 6)
- Addressed important aspects overlooked by prior work and proposed a new metric (resulted in submission 7)

Bit-Flip Fault Injection. Advisors: Profs. [Cyrille Artho \(KTH\)](#) and [Pavel Parízek \(Cuni.cz\)](#)

July 2021 – Present

- Extended Java PathFinder to systematically inject and explore bit-flip faults using Java PathFinder
- Work done in Google Summer of Code (GSoC) 2021, in preparation for submission ([Project Website](#))

Data Stream Processing. Advisor: Prof. [Tong Yang \(PKU\)](#)

Oct 2019 – July 2020

- Designed efficient data structures that memorize recent events with higher accuracy (resulted in publication 4)

Publications

1. Anjiang Wei, **Pu Yi**, Tao Xie, Darko Marinov, and Wing Lam
[Probabilistic and Systematic Coverage of Consecutive Test-Method Pairs for Detecting Order-Dependent Flaky Tests](#)
27th International Conference on Tools and Algorithms for the Construction and Analysis of Systems
(TACAS 2021), pages 270-287, Virtual Conference, Mar. 2021
2. **Pu Yi**, Anjiang Wei, Wing Lam, Tao Xie, and Darko Marinov
[Finding Polluter Tests Using Java PathFinder](#)
ACM SIGSOFT Software Engineering Notes 46, 2021
(SEN 2021), 46(3), pages 37-41, July 2021
(Extended paper of abstract presented at Java PathFinder Online Day (JPF 2020), Virtual Workshop, November 2020)
3. Wenxi Wang, **Pu Yi**, Sarfraz Khurshid, and Darko Marinov
[Initial Results on Counting Test Orders for Order-Dependent Flaky Tests using Alloy](#)
33rd IFIP International Conference on Testing Software and Systems
(ICTSS 2021), pages to appear (short paper), Virtual Conference, November 2021
4. Yikai Zhao, Yubo Zhang, **Pu Yi**, Tong Yang, Bin Cui, and Uhlig Steve
[The Stair Sketch: Bringing more Clarity to Memorize Recent Events](#)
38th IEEE International Conference on Data Engineering
(ICDE 2022), pages to appear, Virtual Conference, May 2022

Submitted Papers

5. [Preempting Flaky Tests via Non-Idempotent-Outcome Tests](#)
Anjiang Wei, **Pu Yi**, Zhengxi Li, Tao Xie, Darko Marinov, and Wing Lam
Under review at ICSE 2022
6. [A Theoretical Analysis of Random Regression Test Prioritization](#)
Pu Yi, Hao Wang, Tao Xie, Darko Marinov, and Wing Lam
Under review at TACAS 2022
7. [Toward Proper Evaluation of Regression Test Prioritization](#)
Pu Yi, Jeremias Parladorio, Hao Wang, Tao Xie, Darko Marinov, and Wing Lam
Under review at ICSE 2022

Presentations

- *Finding Polluter Tests Using Java PathFinder*, Java PathFinder Online Day (JPF 2020)
- *Systematic Bit-Flip Fault Injection and Exploration using Java PathFinder*, Java PathFinder Online Day (JPF 2021)

Service

- Student Volunteer, ASE 2020, ASE 2021
- Co-reviewer, ISSTA 2021, ASE 2021

Skills

- **Extensive programming experience**
C, C++, Java, Python, Bash, JavaScript
2017 Second Award in National Olympiad in Informatics, China
2019 Second Award in Programming Contest at Peking University
Contributor of the Java PathFinder project - wrote two extensions PolDet and Bit-Flip injection engine that were merged to the master branch (the Bit-Flip injection engine is an accepted Google Summer of Code (GSoC) project)
- **Proficiency in English**
Ability to write papers and communicate with English-speaking collaborators fluently
TOEFL score: 108 (29 reading, 29 listening, 23 speaking, 27 writing); GRE score: 336 (162V, 170Q, 4A)