Minseok Jeon

Postdoctoral Researcher
Korea University
+82-10-4139-4729 minseok_jeon@korea.ac.kr https://minseokjgit.github.io/

Research Interests

I am interested in static program analysis, with a focus on pointer analysis, which is a key component in compiler optimization and various other software engineering techniques. I am also interested in software testing to find bugs in system software.

- **Static Program Analysis**, focusing on pointer analysis, for compiler optimizations and automatic detection of software bugs and vulnerabilities.
- **Software testing** for automatically generating effective test inputs to detect bugs in system software.
- **Program Synthesis** for automatically generating programs from domain-specific programming languages.

To address the research problems, I have designed domain-specific programming languages (DSLs) tailored to the problems and developed program synthesis algorithms that automatically generate programs (solutions) in the DSLs.

Education Background

Integrated M.S. & Ph.D. in Computer Science and Engineering. Korea University — *Mar. 2017 – Feb 2023*

B.S. in Computer Science and Engineering. Korea University — *Mar. 2011 – Feb 2017*

Employment History

Postdoctoral Researcher. Korea University — *Mar. 2023 – Present*

Publications

Published papers on programming languages in premier conferences (POPL 2022, OOPSLA 2020, OOPSLA 2018, and OOPSLA 2017) and journal (TOPLAS 2019).

1. Minseok Jeon, Jihyeok Park, and Hakjoo Oh.
   PL4XGL: A Programming Language Approach to Explainable Graph Learning.
   November 2023 (Submitted)

2. Jinkook Kim, Minseok Jeon, Sejeong Jang, and Hakjoo Oh.
   Automating Endurance Test for Flash-based Storage Devices in Samsung Electronics.
   ICST 2023: IEEE International Conference on Software Testing, Verification and Validation (Industry Track). April 2023

3. Minseok Jeon and Hakjoo Oh.
   Return of CFA: Call-Site Sensitivity Can Be Superior to Object Sensitivity Even for Object-Oriented Programs.
   POPL 2022: The 49th ACM SIGPLAN Symposium on Principles of Programming Languages. January 2022

4. Donghoon Jeon, Minseok Jeon, and Hakjoo Oh.
   A Practical Algorithm for Learning Disjunctive Abstraction Heuristics in Static Program Analysis.
   IST: Information and Software Technology. July 2021

5. Minseok Jeon, Myungho Lee, and Hakjoo Oh.
   Learning Graph-based Heuristics for Pointer Analysis without Handcrafting ApplicationSpecific Features.
   OOPSLA 2020: ACM Conference on Object-Oriented Programming, Systems, Languages, and Applications. November 2020

6. Minseok Jeon*, Sehun Jeong*, Sungdeok Cha, and Hakjoo Oh (*co-first author).
   A Machine-Learning Algorithm with Disjunctive Model for Data-Driven Program Analysis.
   TOPLAS: ACM Transactions on Programming Languages and Systems. June 2019

7. Minseok Jeon, Sehun Jeong, and Hakjoo Oh.
   Precise and Scalable Points-to Analysis via Data-Driven Context Tunneling.
   OOPSLA 2018: ACM Conference on Object-Oriented Programming, Systems, Languages, and Applications.
   November 2018

8. Sehun Jeong*, Minseok Jeon*, Sungdeok Cha, and Hakjoo Oh (*co-first author).
   Data-Driven Context-Sensitivity for Points-to Analysis.
   OOPSLA 2017: ACM Conference on Object-Oriented Programming, Systems, Languages, and Applications.
   October 2017

Ongoing Projects

Ongoing research projects with students.

1. *Project-Aware Fault Localization via Synthesizing Suspiciousness Score Updating Rules*
   with Donguk Kim (undergraduate student)

2. *Programming Language-based Automated Feature Engineering for Graph Neural Networks*
   with Seunghyun Park (undergraduate student)

3. *Automatically Classifying Minor Revisions in Programming Assignments*
   with Seokhyun Lee (Ph.D. student)

My ongoing projects.

1. *Learning Tunneling Hueristics for JavaScript Static Analysis*

2. *Learning Cominations of Selective Context Sensitivity and Context Tunneling for Java Pointer Analysis*

3. *Understanding Context Tunneling in Java Pointer Analysis*

Service

Program committee (PC) members:

1. OOPSLA 2024: ACM Conference on Object-Oriented Programming, Systems, Languages, and Applications

Talks

1. Data-Driven Static Analysis. POSTECH. Pohang, Korea. Nov 15 2023.

2. Return of CFA: Call-Site Sensitivity Can Be Superior to Object Sensitivity Even for Object- Oriented Programs. STAAR Workshop. Jeju. Feb 11 2022.

3. Return of CFA: Call-Site Sensitivity Can Be Superior to Object Sensitivity Even for Object- Oriented Programs. Paper presentation at POPL 2022. Philadelphia, USA. Jan 19 2022.

4. Learning Graph-based Heuristics for Pointer Analysis without Handcrafting Application- Specific Features. KSC2020.

5. Learning Graph-based Heuristics for Pointer Analysis without Handcrafting Application- Specific Features. Paper presentation at OOPSLA 2020. Online. NOV 20 2020.

6. Precise and Scalable Points-to Analysis via Data-Driven Context Tunneling. Paper presen- tation at OOPSLA 2018. BOSTON, USA. NOV 8 2018.

7. Data-Driven Context-Sensitivity for Points-to Analysis, KCC 2018. JeJu, Korea.

8. Data-Driven Context-Sensitivity for Points-to Analysis, KCSE 2018. Pyeongchang, Korea.