

# Gabin An

- 🏠 Assistant Professor, Department of Computer Science and Engineering, Korea University
- 📍 Location: Seoul, Republic of Korea
- ✉ Email: gabin\_an@korea.ac.kr / gabin.an@outlook.com (secondary)
- 🎓 Google Scholar: <https://scholar.google.com/citations?user=T-58s1oAAAAJ>
- 🌐 Website: <https://agb94.github.io/>
- 🕒 Last updated on Aug 19, 2025

## Employment History

- September 2025 – **Assistant Professor, Korea University**
  - Dept. of Computer Science and Engineering
  - Location: Seoul, Republic of Korea
- June 2024 – July 2025 **Software Engineer in Test, Roku**
  - Design, develop and maintain automation frameworks and tools
  - Location: Seoul, Republic of Korea

## Education

- Mar 2020 – Aug 2024 **Ph.D., Computer Science, KAIST**, Republic of Korea
  - Advisor: Prof. Shin Yoo
  - Thesis: *Synergizing Fault Localization and Continuous Integration to Streamline Bug Resolution in Large-Scale Software Systems* (Distinguished Dissertation Award)
  - GPA: 4.11/4.3
- Mar 2018 – Feb 2020 **MSc, Computer Science, KAIST**, Republic of Korea
  - Advisor: Prof. Shin Yoo
  - Thesis: *Localising Software Faults by Learning Patterns of Failing Executions*
  - GPA: 4.15/4.3
- Feb 2012 – Feb 2018 **BSc, Computer Science, KAIST**, Republic of Korea
  - Major GPA: 4.06/4.3
  - Minor: Business and Technology Management
  - Honor: Summa Cum Laude
- Mar 2016 — Aug 2016 **Exchange Student, Informatik, TUM**, Germany

## Selected Publications

\* indicates equal contributions



- [1] H. Cho, S. Kang, **G. An**, and S. Yoo, "COSMosFL: Ensemble of Small Language Models for Fault Localisation," in *2th International Workshop on Large Language Models for Code (LLM4Code@ICSE'25)*, May 2025, to appear.
- [2] N. Kim, S. Kang, **G. An**, and S. Yoo, "Lachesis: Predicting LLM Inference Accuracy using Structural Properties of Reasoning Paths," in *6th International Workshop on Deep Learning for Testing and Testing for Deep Learning (DeepTest@ICSE'25)*, May 2025, to appear.
- [3] H. Lee, **G. An**, and S. Yoo, "METAMON: Finding Inconsistencies between Program Documentation and Behavior using Metamorphic LLM Queries," in *2th International Workshop on Large Language Models for Code (LLM4Code@ICSE'25)*, May 2025, to appear.
- [4] J. Son, **G. An**, J. Hong, and S. Yoo, "Evaluating Machine Learning-Based Test Case Prioritization in the Real World: An Experiment with SAP HANA," in *18th IEEE International Conference on Software Testing, Verification and Validation (ICST'25)*, Mar. 2025, to appear.
- [5] **G. An**, J. Yoon, T. Bach, J. Hong, and S. Yoo, "Just-in-Time Flaky Test Detection via Abstracted Failure Symptom Matching," in *Proceedings of the 40th International Conference on Software Maintenance and Evolution (ICSME'24)*, Oct. 2024, Industry Track.

- [6] J. Choi, **G. An**, and S. Yoo, "Iterative Refactoring of Real-World Open-Source Programs with Large Language Models," in *16th International Symposium on Search-Based Software Engineering (SSBSE'24)*, Jul. 2024, Challenge Track.
- [7] S. Kang \*, **G. An** \*, and S. Yoo, "A Quantitative and Qualitative Evaluation of LLM-based Explainable Fault Localization," in *Proceedings of the ACM on Software Engineering and Volume 1, Number FSE (FSE'24)*, Jul. 2024, Research Track.
- [8] **G. An**, M. Kwon, K. Choi, J. Yi, and S. Yoo, "BUGSC++: A Highly Usable Real World Defect Benchmark for C/C++," in *Proceedings of the 38th IEEE/ACM International Conference on Automated Software Engineering (ASE'23)*, Sep. 2023, Tool Demos.
- [9] J. Kim, **G. An**, R. Feldt, and S. Yoo, "Learning Test-Mutant Relationship for Accurate Fault Localisation," in *Information and Software Technology*, Jun. 2023.
- [10] **G. An**, J. Hong, N. Kim, and S. Yoo, "Fonte: Finding Bug Inducing Commits from Failures," in *Proceedings of the 45th IEEE/ACM International Conference on Software Engineering (ICSE'23)*, May 2023, Technical Track.
- [11] **G. An** and S. Yoo, "FDG: A Precise Measurement of Fault Diagnosability Gain of Test Cases," in *Proceedings of the 31st ACM SIGSOFT International Symposium on Software Testing and Analysis (ISSTA'22)*, Jul. 2022, Technical Track.
- [12] **G. An** \*, J. Yoon \*, J. Sohn, J. Hong, D. Hwang, and S. Yoo, "Automatically Identifying Shared Root Causes of Test Breakages in SAP HANA," in *Proceedings of the 44th IEEE/ACM International Conference on Software Engineering (ICSE'22)*, May 2022, SEIP Track.
- [13] **G. An**, J. Yoon, and S. Yoo, "Searching for Multi-Fault Programs in Defects4J," in *Proceedings of the 13th International Symposium on Search Based Software Engineering (SSBSE'21)*, Oct. 2021, Challenge Track.
- [14] J. Kim, **G. An**, R. Feldt, and S. Yoo, "Ahead of Time Mutation Based Fault Localisation using Statistical Inference," in *Proceedings of the 32nd International Symposium on Software Reliability Engineering (ISSRE'21)*, Oct. 2021, Research Track.
- [15] **G. An** and S. Yoo, "Reducing the Search Space of Bug Inducing Commits using Failure Coverage," in *Proceedings of the ACM Joint European Software Engineering Conference and Symposium on the Foundations of Software Engineering (ESEC/FSE'21)*, Aug. 2021, Ideas, Visions, and Reflections Track.
- [16] J. Sohn \*, **G. An** \*, J. Hong, D. Hwang, and S. Yoo, "Assisting Bug Report Assignment Using Automated Fault Localisation: An Industrial Case Study," in *Proceedings of the 14th IEEE International Conference on Software Testing, Verification and Validation (ICST'21)*, Apr. 2021, Industry Track.
- [17] **G. An**, A. Blot, J. Petke, and S. Yoo, "PyGGI 2.0: Language Independent Genetic Improvement Framework," in *Proceedings of the 2019 27th ACM Joint Meeting on European Software Engineering Conference and Symposium on the Foundations of Software Engineering (ESEC/FSE'19)*, Aug. 2019, Tool Demos.
- [18] **G. An**, J. Kim, and S. Yoo, "Comparing Line and AST Granularity Level for Program Repair using PyGGI," in *Proceedings of the 4th Genetic Improvement Workshop (GI@ICSE'18)*, May 2018.

## Awards and Achievements






- 2025  **Distinguished Dissertation Award**, School of Computing, KAIST
- 2024  The 40th International Conference on Software Maintenance and Evolution (ICSME 2024)
  - **Best Industry Paper Award**
  - Paper: G. An, J. Yoon, T. Bach, J. Hong, and S. Yoo, "Just-in-Time Flaky Test Detection via Abstracted Failure" Symptom Matching,"
- 2022  Korea Software Congress (KSC 2022)
  - **Best Paper Award**
  - Paper: G. An, M. Kwon, K. Choi, and S. Yoo, "A Collection of Reproducible Bugs in C/C++ Programs" Microsoft Research Asia PhD Fellowship
  - **Nomination Award**
- 2019  Korea Conference on Software Engineering (KCSE 2019)
  - **Best Short Paper Award**
  - Paper: G. An, S. Yoo, "Search Space Reduction for Automated Program Repair Using Lexical Features"

## Awards and Achievements (continued)


- 2018  CodRep'18: A machine learning competition on source code data
  - **Rank: 2nd (official track)**
  - Organised by KTH Royal Institute of Technology, Stockholm, Sweden
  - Web: <https://github.com/KTH/CodRep-competition>
- 2017  Korea Software Congress (KSC 2017)
  - **Best Presentation Award**
  - Paper: G. An, J. Kim, S. Lee, and S. Yoo, "PyGGI: Python General framework for Genetic Improvement"

## Selected Research Experience as Research Assistant

### Industry-Funded Projects














- 2024 - Present  **LLM-based Fault Localization for Field Failures**  
w/ SAP Labs Korea
- 2022 – 2023  **Identifying Test Flakiness and Predicting Actionable Test Failures**  
w/ SAP and SAP Labs Korea
- 2021  **Identifying Shared Root Causes between Test Breakages**  
w/ SAP Labs Korea
- 2020  **Assisting Bug Report Assignment using Automated Fault Localisation**  
w/ SAP Labs Korea
- 2019  **Assessing the Quality of Test Suite using Mutation Testing**  
w/ Samsung Research

### Government-Funded Projects






- 2021 – 2024  **Development of Automatic Software Error Repair Technology that Combines Code Analysis and Error Mining**  
Funded by Institute for Information & Communication Technology Planning & Evaluation (IITP)

## Miscellaneous Experience







### Academic Services

- 2025  **Publicity Co-Chair**, the 40th IEEE/ACM International Conference on Automated Software Engineering (ASE 2025)
-  **Program Committee Member**, Tool Demonstration Track, the 32nd Asia-Pacific Software Engineering Conference (APSEC 2025)
-  **Program Committee Member**, Research Track, the 40th IEEE/ACM International Conference on Automated Software Engineering (ASE 2025)
-  **Program Committee Member**, Journal-First Track, the 40th IEEE/ACM International Conference on Automated Software Engineering (ASE 2025)
-  **Program Committee Member**, the 14th Genetic Improvement Workshop @ ICSE 2025
-  **Program Committee Member**, Research Track, the 47th International Conference on Software Engineering (ICSE 2025)
- 2024  **Emergency Program Committee Member**, Research Track, the 39th IEEE/ACM International Conference on Automated Software Engineering (ASE 2024)
-  **Program Co-Chair**, RENE/NIER Track, the 16th Symposium on Search Based Software Engineering (SSBSE 2024)
-  **Organising Committee Member**, the 13th Genetic Improvement Workshop @ ICSE 2024
- 2023  **Program Committee Member**, RENE/NIER Track, the 15th Symposium on Search Based Software Engineering (SSBSE 2023)
-  **Program Committee Member**, Joint Artifact Evaluation Track and ROSE Festival, the 39th International Conference on Software Maintenance and Evolution (ICSME 2023)
-  **Organising Committee Member**, the 12th Genetic Improvement Workshop @ ICSE 2023
- 2022  **Web Chair**, the 14th Symposium on Search Based Software Engineering (SSBSE 2022)











## Miscellaneous Experience (continued)

- 2022  **Program Committee Member**, the 11th Genetic Improvement Workshop @ GECCO 2022
- 2022  **Program Committee Member**, Joint Artifact Evaluation Track and ROSE Festival, the 38th International Conference on Software Maintenance and Evolution (ICSME 2022)
- 2021  **Program Committee Member**, the 10th Genetic Improvement Workshop @ ICSE 2021
- 2021  **Program Committee Member**, Artifact Evaluation Track, the 37th International Conference on Software Maintenance and Evolution (ICSME 2021)
- 2020  **Web Chair**, the 8th Genetic Improvement Workshop @ ICSE 2020

## Invited Talks

- 2025  Stony Brook University (May)
  - *From Challenges to Innovation: Behind the Scenes of Testing Roku's ACR Technology*
- 2025  Software Disaster Research Center (STAAR) (Apr)
  - *LLMs for Software Reliability: Localizing Faults and Detecting Documentation Errors*
- 2025  Korea Conference on Software Engineering (Jan, KCSE 2025)
  - *Just-in-Time Flaky Test Detection via Abstracted Failure Symptom Matching*
- 2023  Korea Computer Congress (Jun, KCC 2023)
  - *Fonte: Finding Bug Inducing Commits from Failures*
- 2023  Korea Conference on Software Engineering (Feb, KCSE 2023)
  - *Fonte: Finding Bug Inducing Commits from Failures*
- 2022  Korea Software Congress (Dec, KSC 2022)
  - *FDG: A Precise Measurement of Fault Diagnosability Gain of Test Cases*

## Teaching & Counselling Experience

- 2025  Instructor, Algorithms (COSE214), Dept. of Computer Science and Engineering, Korea University, Fall 2025
- 2023  TA, Introduction to Software Engineering (CS350), School of Computing, KAIST, Spring 2023
- 2021  TA, Computer Ethics and Social Issues (CS489), School of Computing, KAIST, Fall 2021
- 2021  TA, Operating Systems and Lab (CS330), School of Computing, KAIST, Spring 2021
- 2020  TA, Computer Ethics and Social Issues (CS489), School of Computing, KAIST, Fall 2020
- 2020  TA, Automated Software Testing (CS453), School of Computing, KAIST, Spring 2020
- 2019  Head CA (Academic Counseling Assistant), School of Computing, KAIST, Spring 2019
- 2018  CA (Academic Counseling Assistant), School of Computing, KAIST, Fall 2018
- 2018  TA, Programming Practice (CS109), KAIST, Spring 2018
- 2017  Undergraduate TA, Programming Practice (CS109), KAIST, Spring 2017

## References

Available on Request