











# Gabin An

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## Education


- Mar 2020 – Present  **PhD Candidate, Computer Science, KAIST**
  - Advisor: Prof. Shin Yoo
- Mar 2018 – Feb 2020  **MSc, Computer Science, KAIST**
  - Advisor: Prof. Shin Yoo
  - Thesis title: *Localising Software Faults by Learning Patterns of Failing Executions*
- Feb 2012 – Feb 2018  **BSc., Computer Science, KAIST**
  - Summa Cum Laude (Major GPA: 4.06/4.3)
  - Minor: Business and Technology Management
- Mar 2016 — Aug 2016  **Exchange Student, Informatik, TUM**

## Publications

\* indicates equal contributions





- [1] **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*, ser. Technical Track, ISSTA, 2022, to appear.
- [2] **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*, ser. SEIP Track, ICSE, 2022.
- [3] **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*, ser. Ideas, Visions, and Reflections Track, ESEC/FSE, 2021.
- [4] **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*, ser. Challenge Track, SSBSE, 2021.
- [5] 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*, ser. Research Track, ISSRE, 2021.
- [6] 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*, ser. Industry Track, ICST 2021, 2021.
- [7] **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*, ser. Tool Demeos, ESEC/FSE, 2019.
- [8] **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*, ser. GI@ICSE, 2018.

## Employment History

- 2015  **Developer**, Jobplanet, Seoul, Republic of Korea
  - Web development (Ruby on Rails)
  - API design

## Research Experience as Research Assistant

### Industry-Funded Projects







- 2022     **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 – Present     **Developing Automated Software Repair Techniques**  
Funded by Institute for Information & Communication Technology Planning & Evaluation (IITP)

## Miscellaneous Experience









### Academic Services

- 2022     **Web Chair**, the 14th Symposium on Search Based Software Engineering (SSBSE 2022)  
 **Program Committee Member**, the 11th Genetic Improvement Workshop @ GECCO 2022  
 **Program Committee Member**, Artifact Evaluation Track, the 38th International Conference on Software Maintenance and Evolution (ICSME 2022)
- 2021     **Program Committee Member**, the 10th Genetic Improvement Workshop @ ICSE 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

### Awards and Achievements

- 2019     Korea Conference on Software Engineering (KCSE 2019)
  - **Best Short Paper Award**
  - Paper: **An, G.**, Yoo, S., “Search Space Reduction for Automated Program Repair Using Lexical Features”
- 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: **An, G.**, Kim, J., Lee, S. and Yoo, S., “PyGGI: Python General framework for Genetic Improvement”

### Teaching & Counselling Experience

- 2021     Teaching Assistant, Computer Ethics and Social Issues (CS489), School of Computing, KAIST, Autumn 2021  
 Teaching Assistant, Operating Systems and Lab (CS330), School of Computing, KAIST, Spring 2021
- 2020     Teaching Assistant, Computer Ethics and Social Issues (CS489), School of Computing, KAIST, Autumn 2020  
 Teaching Assistant, 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  
 Teaching Assistant, Programming Practice (CS109), KAIST, Spring 2018
- 2017     Undergraduate Teaching Assistant, Programming Practice (CS109), KAIST, Spring 2017

# References

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Available on Request