# Gabin An

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## Education

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| Mar 2020 – Present | **PhD Candidate, Computer Science, KAIST**<br>○ Advisor: Prof. Shin Yoo |
| Mar 2018 – Feb 2020 | **MSc, Computer Science, KAIST**<br>○ Advisor: Prof. Shin Yoo<br>○ Thesis title: *Localising Software Faults by Learning Patterns of Failing Executions* |
| Feb 2012 – Feb 2018 | **BSc., Computer Science, KAIST**<br>○ Summa Cum Laude (Major GPA: 4.06/4.3)<br>○ 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

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| 2015 | **Developer**, Jobplanet, Seoul, Republic of Korea<br>○ Web development (Ruby on Rails)<br>○ API design |

## Selected Research Projects

### Industry-Funded Projects as Research Assistant

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| 2022 | 🔖 | **Identifying Test Flakiness and Predicting Actionable Test Failures**<br>w/ SAP and SAP Labs Korea |
| 2021 | 🔖 | **Identifying Shared Root Causes between Test Breakages**<br>w/ SAP Labs Korea |
| 2020 | 🔖 | **Assisting Bug Report Assignment using Automated Fault Localisation**<br>w/ SAP Labs Korea |
| 2019 | 🔖 | **Assessing the Quality of Test Suite using Mutation Testing**<br>w/ Samsung Research |

### Government-Funded Projects as Research Assistant

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| 2021 – Present | 🔖 | **Developing Automated Software Repair Techniques**<br>Funded by Institute for Information & Communication Technology Planning & Evaluation (IITP) |

## Miscellaneous Experience

### Adademic Services

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

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| 2019 | 🔖 | **Best Short Paper Award**, Korea Conference on Software Engineering (KCSE 2019)<br>○ Paper: **An, G.**, Yoo, S., "Search Space Reduction for Automated Program Repair Using Lexical Features" |
| 2018 | 🔖 | **2nd Place** (official track), CodRep'18: A machine learning competition on source code data<br>○ Organised by KTH Royal Institute of Technology, Stockholm, Sweden<br>○ Web: `https://github.com/KTH/CodRep-competition` |
| 2017 | 🔖 | **Best Presentation Award**, Korea Software Congress (KSC 2017)<br>○ Paper: **An, G.**, Kim, J., Lee, S. and Yoo, S., "PyGGI: Python General framework for Genetic Improvement" |

### Teaching & Counselling Experience

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|---|---|---|
| 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

Available on Request