SHIN HONG Ph. D in Computer Science

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Education

- **Ph.D in Computer Science**, KAIST, Republic of Korea (Feb 2011—Aug 2015)
  - Dissertation: Effective and Efficient Test Generation for Multithreaded Programs Using Concurrency Coverage Metrics
  - Advisor: Prof. Moonzoo Kim at KAIST

- **M.S in Computer Science**, KAIST, Republic of Korea (Mar 2007—Jan 2010)

  - Thesis: Concurrency Bug Detection through Improved Bug Pattern Matching Using Semantic Information
  - Advisor: Prof. Moonzoo Kim at KAIST

- **B.S in Computer Science**, KAIST, Republic of Korea (Mar 2003—Feb 2007)

Experience

- **Associate professor** (Mar 2024—present)
  School of Computer Science, Chungbuk National University (CBNU), Republic of Korea

- **Associate professor** (Mar 2022—Feb 2024)
  School of Computer Science & Electrical Engineering, Handong Global University (HGU), Republic of Korea

- **Assistant professor** (Mar 2016—Feb 2022)
  School of Computer Science & Electrical Engineering, Handong Global University (HGU), Republic of Korea

- **Postdoc Researcher** (Aug 2015—Feb 2016)
  Information & Electronics Research Institute, KAIST

- **Parttime Researcher** (Feb 2010—Feb 2011)
  School of Computer Science, KAIST

Publications

- **International journal articles (referred)**

[1] A. Lee, Y. Choi, **S. Hong**, Y. Kim, K. Cho, M. Kim, ZigZagFuzz: Interleaved Fuzzing of Program Options and Files, ACM Transactions on Software Engineering and Methodology (TOSEM), accepted

[2] J. Kim and **S. Hong**, BugOss: A Benchmark of Real-world Regression Bugs for Empirical Investigation of Regression Fuzzing Techniques, Journal of Systems and Software (JSS), vol. 216, Oct 2024

[3] Y. Kim and **S. Hong**, Learning-based Mutant Reduction using Fine-grained Mutation Operators, Software Testing, Verification and Reliability (STVR), 32(7), Nov 2022

[4] J. Kim, J. Jeon, **S. Hong**, S. Yoo, Predictive Mutation Analysis via Natural Language Channel in Source Code, ACM Transactions on Software Engineering and Methodology (TOSEM), 31(4), Oct 2022

[5] Y. Kim and **S. Hong**, DeMiner: Test Generation for High Test Coverage through Mutant Exploration, Software Testing, Verification and Reliability (STVR), Volume 31, Issue 1-2, January-March 2021

[6] **S. Hong**, T. Kwak, B. Lee, Y. Jeon, B. Ko, Y. Kim, M. Kim, MUSEUM: Debugging Real-World Multilingual Programs Using Mutation Analysis, Information and Software Technology (IST), 82, pp. 80—95, Feb 2017

[7] **S. Hong**, M. Staats, J. Ahn, M. Kim, G. Rothermel, Are Concurrency Coverage Metrics Effective for Testing: A Comprehensive Empirical Investigation, Software Testing, Verification and Reliability (STVR), 25(4), pp.334-370, Jun 2015

[8] **S. Hong**, M. Kim, A Survey of Race Bug Detection Techniques for Multithreaded Programmes, Software Testing, Verification and Reliability (STVR), 25(3), pp.191—217, May 2015

[9] **S. Hong**, M. Kim, Effective Pattern-driven Concurrency Bug Detection for Operating Systems, Journal of Systems and Software (JSS), 86(2), pp. 377—388, Feb 2013

- **International conference papers (referred)**

[10] J. Kim and **S. Hong**, Poster: BugOss: A Regression Bug Benchmark for Empirical Study of Regression Fuzzing Techniques, IEEE International Conference on Software Testing, Verification and Validation (ICST), Poster Track, Apr 18, 2023 (poster presentation)

[11] J. Kim and **S. Hong**, Inferring Fine-grained Traceability Links between Javadoc Comment and JUnit Test Code, the 38th IEEE International Conference on Software Maintenance and Evolution (ICSME), New Ideas and Emerging Results Track (NIER), Oct 5, 2022

[12] J. Yoon, S. Chung, K. Shin, J. Kim, **S. Hong**, S. Yoo, Repairing Fragile GUI Test Cases Using Word and Layout Embedding, IEEE International Conference on Software Testing, Verification and Validation (ICST), Apr 7, 2022

[13] H. Yoo, J. Hong, B. Lucas, D. W. Hwang, **S. Hong**, Improving Configurability of Unit-level Continuous Fuzzing: An Industrial Case Study with SAP HANA, the 36th IEEE/ACM International Conference on Automated Software Engineering (ASE), Industry Showcase, Nov 16, 2021

[14] J. Jeon and **S. Hong**, Improving Mutation-Based Fault Localization with Plausible-code Generating Mutation Operators, IEEE/ACM International Conference on Automated Software Engineering (ASE), Late Breaking Results (LBR), 2021, Nov 18, 2021 (poster presentation)

[15] R. S. Herlim, **S. Hong**, Y. Kim, M. Kim, Empirical Study of Effectiveness of EvoSuite on the SBST 2020 Tool Competition Benchmark, the 13th Symposium on Search-Based Software Engineering (SSBSE), Replications and Negative Results (RENE), Oct 2021

[16] J. Jeon and **S. Hong**, Threats to Validity in Evaluating Mutation-based Fault Localization, International Conference on Software Engineering (ICSE), New Ideas and Emerging Results (NIER), Jul 6-11, 2020

[17] Y. Kim, **S. Hong**, M. Kim, Target-Driven Compositional Concolic Testing with Function Summary Refinement for Effective Bug Detection, ACM Joint European Software Engineering Conference and Symposium on the Foundations of Software Engineering (ESEC/FSE), Nov 26-30, 2019

[18] S. Lee, **S. Hong**, J. Yi, T. Kim, C. Kim, S. Yoo, Classifying False Positive Static Checker Alarms in Continuous Integration using Convolutional Neural Networks, International Conference on Software Testing, Verification and Validation (ICST), Industry Track, Apr 22-27, 2019

[19] Y. Kim, **S. Hong**, B. Ko, M. Kim, Invasive Software Testing: Mutating Target Programs to Achieve High Test Coverage, International Conference on Software Testing, Verification and Validation (ICST), Apr 9-11, 2018 **(Distinguished paper award)**

[20] **S. Hong**, B. Lee, T. Kwak, Y. Jeon, B. Ko, Y. Kim, M. Kim, Mutation Based Fault Localization for Real-World Multilingual Programs, 30th IEEE/ACM International Conference on Automated Software Engineering (ASE), Nov 9-13, 2015

[21] Y. Park, **S. Hong**, M. Kim, D. Lee, and J. Cho, Systematic Testing of Reactive Software with Non-deterministic Events: A Case Study on LG Electric Oven, 37th International Conference on Software Engineering (ICSE), Software Engineering in Practice (SEIP), May 2015

[22] **S. Hong**, Y. Park, M. Kim, Detecting Concurrency Errors in Client-side JavaScript Web Applications, 7th IEEE International Conference on Software Testing, Verification and Validation (ICST), Mar 31-Apr 4, 2014

[23] **S. Hong**, M. Staats, J. Ahn, M. Kim, G. Rothermel, Impact of Concurrent Coverage Metrics on Testing Effectiveness, 6th IEEE International Conference on Software Testing, Verification and Validation (ICST), Mar 13-22, 2013

[24] M. Staats, **S. Hong**, M. Kim, and G. Rothermel, Understanding User Understanding: Determining Correctness of Generated Program Invariants, International Symposium on Software Testing and Analysis (ISSTA), Jul 15-20, 2012

[25] **S. Hong**, J. Ahn, S. Park, M. Kim, and M. J. Harrold, Testing Concurrent Programs to Achieve High Synchronization Coverage, International Symposium on Software Testing and Analysis (ISSTA), Jul 15-20, 2012

[26] M. Kim, **S. Hong**. C. Hong, T. Kim, Model-based Kernel Testing for Concurrency Bugs through Counter Example Replay, Model-based Testing (ENTCS volume 253, issue 2), York, UK, Mar 2009

- **Domestic journal articles (referred, written in Korean)**

[27] S. Park, J. Nam, **S. Hong**, An Empirical Study of MISRA-C Related Source Code Changes in Open-source Software Projects, Journal of KIISE, 51(8), Aug 2024

[28] H. Choe and **S. Hong**, Bounded Search Strategies of Concolic Testing for Effective and Efficient Structural Coverage Achievement, Journal of KIISE, 48(2), pp. 201-210, Feb 2021

[29] J. Jeon and **S. Hong**, Improving Mutation-Based Fault Localization for Better Locating Omission Faults Using Coverage Change Information, Journal of KIISE, 47 (9), pp. 863-872, Sep 2020

[30] H. Leem, H. Choe, H. Kim, **S. Hong**, CRESTIVE-DX: Design and Implementation of Distributed Concolic Testing Tool for Embedded Software, KIPS Transactions on Software and Data Engineering (KTSDE), 9 (8), pp. 229-234, Aug 2020

[31] J. Lee, H. Choe, **S. Hong**, Systematic and Comprehensive Comparisons of the MOIS Security Vulnerability Inspection Criteria and Open-Source Security Bug Detectors for Java Web Applications, Journal of Software Engineering Society, 28(1), 2019

[32] H. Choe and **S. Hong**, Categories and Patterns of Java Program Unit Test Code Bugs, Journal of KIISE, 46(4), 2019

[33] W. Kim, H. Choi, **S. Hong**, Application of M/G/c/c Queueing Models to Optimize Book Circulation Process in University Library, Journal of the Korea Management Engineering Society, Dec 2016

[34] Y. Jeon, Y. Kim, **S. Hong**, M. Kim, Mutagen4J: Effective Mutation Generation Tool for Java Programs, Journal of KIISE (JOK), 43(9), pp. 974—982, Sep 2016

[35] Y. Park, **S. Hong**, M. Kim, Performance Bug Detection in Web Applications through Cross-browser Profiling, Journal of KIISE: Computing Practices and Letters, Vol. 19(11), Nov 2013

[36] M. Kim and **S. Hong**, Model-based Kernel Testing (MOKERT) Framework, Journal of KIISE: Software and Applications, Vol. 36(7), pp. 523—530, Jul 2009

- **Domestic conference papers (referred, written in Korean)**

[37] S. Park, M. Kyun, **S. Hong**, A Study on Practices of MISRA-C Coding Guidelines in Open-source Projects, Korean Software Congress (KSC), Dec 2023 **(Best paper award)**

[38] S. Lim and **S. Hong**, Generating Dynamic Fuzzing Drivers of C/C++ Library Programs Using Unit Test Case Code, Korean Software Congress (KSC), Dec 2022

[39] K. Kim, E. Park, **S. Hong**, A Noise Injection-based Random Scheduling Technique for Testing Multithreaded Rust Programs, Korean Software Congress (KSC), Dec 2022

[40] J. Kim, S. Kim, **S. Hong**, How Does a Unit-level Test Case for Continuous Fuzzing Evolve: An Empirical Study of Code Changes in OSS-Fuzz Projects, Korean Congress of Computing (KCC), Jun 30-Jul 1, 2022

[41] H. Yoo and **S. Hong**, OSSFuzzBugs: A Collection of Open-source Real-world Fault Artifacts for Experimenting Unit-level Fuzzing Techniques, Korean Congress of Computing (KCC), Jun 23-25, 2021

[42] H. Choe and **S. Hong**, Multi-directional Concolic Testing Search Strategies for Mitigating Path-space Local Search Problem, Korean Software Engineering Conference (KCSE), Feb 1-2, 2021 (short paper)

[43] J. Cho and **S. Hong**, Improving Mutation-based Fuzzing by Input Keyword Extraction, Korean Software Engineering Conference (KCSE), Feb 1-2, 2021 **(Best short paper award)**

[44] D. Kim, S. Kim, **S. Hong**, Effective Continuous Testing with Automated Unit Test Generation Technique, Korean Software Congress (KSC), Dec 2020 **(Undergraduate student research competition award)**

[45] J. Jeon, **S. Hong**, Detecting Subtype Inconsistency Errors by Unit Test Cross-checking, Korean Congress of Computing (KCC), July 2020

[46] S. Kim, J. Park, S. Yoo, J. Cho, **S. Hong**, D-Angora: Extending Angora to Effective Distributed Fuzzing, Korean Congress of Computing (KCC), July 2020 **(Undergraduate student research competition award)**

[47] J. Kim, **S. Hong**, Evaluation of Test Requirement Extraction Techniques for Javadoc Description, Korean Software Engineering Conference (KCSE), 2020 (short paper)

[48] H. Choe, H. Leem, H. Kim, **S. Hong**, Design and Implementation of Distributed Concolic Testing Tool for Embedded Software, Korean Software Engineering Conference, 2020 **(Best short paper award)**

[49] J. Jeon and **S. Hong**, Improving Mutation-Based Fault Localization for Better Locating Omission Faults, Korean Software Congress (KSC), Dec 2019 **(Best paper award)**

[50] H. Choe and **S. Hong**, Bounded Search Strategies of Concolic Testing for Effective and Efficient Test Coverage Achievement, Korean Congress of Computing (KCC), Jun 26-28, 2019 **(Best paper award)**

[51] **S. Hong**, Y. Kim, M. Kim, S. Yoon, H. Jeong, S. Park, AtomicitySanitizer: Effective Runtime Atomicity Violation Detector for Multithreaded C Programs, Korean Software Congress (KSC), Dec 19-21, 2019 **(Best paper presentation award)**

[52] H. Choe and **S. Hong**, A Classification of Unit Test Bugs in Java Programs, Korean Congress of Computing (KCC), Jun 20-22, 2018 **(Best paper award)**

[53] J. Lee and **S. Hong**, Detecting Memory Bloats of Java Programs by Monitoring Repeated Unit Test Executions: A Case Study with Apache Commons VFS, Korean Software Engineering Conference (KCSE), Jan 19-21, 2018

[54] Y. Park, **S. Hong**, M. Kim, J. Cho, D. Lee, H. Jang, 이벤트 기반 임베디드 소프트웨어를 위한 자동화 테스팅 기법: LG전자 오븐 제어 소프트웨어 사례 연구, Korea Conference on Software Engineering (KCSE), Jan 28-30, 2015 **(Best paper award)**

[55] **S. Hong**, M. Kim, M. Staats, Validating Inferred Invariants using Symbolic Execution, Korea Conference on Software Engineering (KCSE), Feb 8—10, 2012

[56] J. Ahn, **S. Hong**, M. Kim, 동시성 프로그램 테스트를 위한 구조 커버리지 기법 조사, Korea Conference on Software Engineering (KCSE), Feb 8−10, 2012

[57] M. Kim, C. Hong and **S. Hong**, 검증 반례 재연을 통한 모델 기반 커널 테스팅, Korea Conference on Software Engineering (KCSE), Feb. 9-11, 2009 (**Best paper award**)

- **Papers with undergraduate student project advisees (referred, written in Korean)**

[58] B. La, H. Jun, H. Hong, **S. Hong**, Multi-sensor-based Collaborative Ventilation System for Preventing Respiratory Infections in Public Spaces, Korean Computer Congress (KCC), June 17-20, 2023 (**Bronze award at Undergraduate Student Research Competition**)

[59] E. Ahn, H. Yang, E. Jee, S. Hong, A Neural Language Model-based Text Editing Tool for OCR Result of Unstructured Childhood Education Materials, Korean Software Congress (KSC), Dec 2022 (**Undergraduate student research competition award**)

[60] J. Kim, Y. Jeon, S. Hong, Design and Implementation of Code-related Conversation Service for Online Programming Education, Korean Congress of Computing (KCC), July 2019

[61] C. Kim, J. Oh, H, Jeong, M. Ha, S. Hong, Design and Implementation of Automated Programming Assignment Assessment Systems for GitHub Repositories, Korean Software Congress (KSC), Dec 2019 (**Best paper award**)

[62] G. Park, S. Kim, H. Jang, **S. Hong**, Safe and Effective Password Management System Using Image Hints, Korean Computer Congress (KCC), Jun, 2018 (**Undergraduate student research competition award**)

[63] J. Lim and **S. Hong**, Effective Korean-English Parallel Sentence Extraction from Wikipedia by Consecutive Sentence Sequence Matching, Korean Congress of Computing (KCC), Jun 18-21, 2017

- **Miscellaneous**

[64] A. Bertolino, **S. Hong**, A. P. Mathur, Special Issue on Automation of Software Test and Test Code Quality, Journal of Software Evolution and Process, Apr 2022, Co-editor

[65] **S. Hong** and J. Kim, Special Issue on Software Evolution and Maintenance Techniques, Communications of the KIISE, 39(10), 2021, Co-invited editor

[66] A. Bertonlino, F. Belli, **S. Hong**, A. P. Mathur, AST '20: Proceedings of the IEEE/ACM 1st International Conference on Automation of Software Test, ACM, Oct. 2020, Co-editor

[67] **S. Hong**, Using SMT Solver and Logic Puzzles for Teaching Computational Logics in Discrete Mathematics Class, Poster, Technical Symposium on Computer Science Education (SIGCSE), 2020 (poster presentation)

[68] M. Kim, Y. Kim, **S. Hong**, 동적 심볼릭 테스팅(Concolic 테스팅): 효과적인 오류 검출을 위한 실용적인 Whitebox 테스트 입력 생성 기법, Communications of KIISE, April, 2019

Patents

1. Co-inventor, Patent No. 10-2567407 of South Korea, Method and System for Extracting Fine-grained Traceability Links between API Document Comments and Test Code Lines, Aug 10, 2023

2. Co-inventor, Patent No. 10-2114548 of South Korea, Testing Method and Apparatus of Target Program Using Mutated Program, May 18, 2020

3. Co-inventor, Patent No. 10-19783680000 of South Korea, Monitoring System and Method of the Handicap Parking Zone Using Visual Display, May 8, 2019

4. Co-inventor, Patent No. 10-16852990000 of South Korea, Automated Testing Method and Apparatus for Program Processable Non-deterministic Events, Dec 5, 2016

5. Co-inventor, Patent No. 1015194500000 of South Korea, Auto-Test Generation Device, Method and Recording Medium Using Test Coverage Information for Multi-Thread Program, Jul 12, 2015

Projects

- **Government funded projects (selected)**

1. Research Group Lead (Group 1) and Research Associate, Center for Software Disaster Research, Excellent Research Center (ERC), National Research Foundation of Korea, 2021-2028 (on going)

2. Project Manager, Development of automatic software error repair technology that combines code analysis and error mining, Software Technology Advanced Research, IITP, Apr 2021—Dec 2024 (on going)

3. Project Investigator, Fuzzing based Test Case Generation Techniques for Effective Continuous Testing of Software Projects, Young Researcher Program, National Research Foundation of Korea, Mar 2020--Feb 2023

4. Project Manager, Intelligent Automation Techniques for Fullstack Software Debugging, Next-Generation Information Computing Development Program, National Research Foundation (NRF), May 2017-Apr 2021

5. Project Investigator, Developing Automated Software Test Generation Techniques Using Data-driven Analyses, National Research Foundation of Korea (NRF), May 2017—Feb 2020

6. Project Investigator, Detecting Software Performance Bugs Using Automated Unit Test Generation Techniques, National Research Foundation of Korea (NRF), Nov 2015—Oct 2016

- **Industry funded project and consulting (selected)**

1. Lead Consultant, Fuzzing Techniques for SAP HANA Unit Tests for Crash Bug Detection and Reliability Enhancement in Continuous Integration Process, SAP Labs Seoul, Jan-July 2021

2. Lead Consultant, On Fault Localization Techniques for SAP HANA Development Environment and Continuous Integration Process, SAP Labs Seoul, Aug-Dec 2020

3. Project Manager, Using Neural Embedding for Tracking Source Code Changes, Samsung Research through KAIST, Nov-Dec, 2020

4. Project Manager, Assessing Quality of Test Case Artifacts, Samsung Electronics through KAIST, Apr-Nov, 2019

5. Project Manager, Runtime Analysis of Embedded Multithreaded Programs, Samsung Electronics through KAIST, Apr-Oct, 2018

6. Project Manager, Automation of Static Analysis Warning Classification based on Developer's Warning Classification Records, Samsung Electronics through KAIST, May 2017—Nov 2017

Technical Presentations (selected)

1. Why Rust Matters, Invited Talk, SuresoftTech Inc., Jun 28, 2024

2. Concurrent Program Analysis and Testing, Hyundai NGV, Apr 28, 2023

3. Mutation-based Debugging, CSE Graduate School Seminar, Chungnam National University, Apr 10, 2023

4. Unit-level Greybox Fuzzing, Hyundai NGV, Feb 23, 2023

5. Mutation-based Fault Localization with Statistical Program Analysis, Winter Conference, KIISE Computer System Society, Feb 7, 2023

6. Mutation-based Fault Localization with Intelligent Code Mutation, SIGPL Summer School, SIGPL of KIISE, Aug 22, 2022

7. Greybox Fuzzing and Automated Testing Techniques, Software Engineering Summer School, Software Engineering Society of KIISE, July 25—July 27, 2022

8. Dynamic Test Generation: Greybox Fuzzing and Concolic Testing, SK Hynix, Nov 4, 2021

9. Concolic Testing with CRESTIVE-DX, The Affiliated Institute of ETRI, Feb 16, 2021

10. Unit-level Fuzzing for C/C++ Programs, Tutorial, Korean Software Engineering Conference (KCSE), Feb 2, 2021

11. Assessing and Ensuring Software Correctness: Code Analysis Approach, Korea Atomic Energy Research Institute (KAERI), July 31, 2019

12. Automated Test Input Generation Using Dynamic Symbolic Executions, STA Testing Consulting, Inc., Oct 29, 2018

13. Predicting Static Analysis False Positives by Learning from Alarm Review Data, Workshop on Formal Methods and Software Verification (collocated with International Conference on Formal Aspects of Component Software), Pohang, Oct 13, 2018

14. Go with the Mutants: Automated Debugging and Test Generation Using Software Mutation Analyses, New Faculty Session, Korean Software Engineering Conference (KCSE), Jan 19, 2018

15. Developing and Testing Multithreaded Programs Systematically, Software Center at Samsung Electronics, Nov 27 and Dec 11, 2017

16. Automated Software Debugging: A Mutation-based Approach, New Faculty Session, KIISE Annual Conference, Dec 22, 2016

17. Automated Software Debugging: A Mutation-based Approach, POSTECH CSE Seminars, Oct 26, 2016

Research Supervision

1. Jeewoong Kim, Ph. D Program, Chungbuk National University, Mar 2022—present

2. Kieun Kim, Master's degree program, Chungbuk National University, Mar 2023-present

3. Sungbin Lim, Master's degree program, Handong Global University, Mar 2022—present
     - co-advised with Prof. Jaechang Nam at Handong Global University

4. Suhyun Park, Master's degree program, Handong Global University
     - co-advised with Prof. Jaechang Nam at Handong Global University

5. Hanyoung Yoo, Master's degree program, Handong Global University, Mar 2020—Feb 2022
     - received BK21Plus Award, BK21 AI, Handong Global University

6. Jeewoong Kim, Master's degree Program, Handong Global University, Mar 2019—Aug 2021

7. Juyoung Jeon, Master's degree Program, Handong Global University, Mar 2019—Feb 2021
     - received BK21Plus Award, BK21 AI, Handong Global University

8. Hansol Choe, Master's degree Program, Handong Global University, Mar 2018—Feb 2021
     – received Best Thesis Award, Department of ICT, Handong Global University

Ph. D Dissertation Committee

1. Jia Lee, CSE Departement, POSTECH, on-going (advisor: Kyungmin Bae)

2. Jinhan Kim, School of Computing, KAIST, 2022 (advisor: Prof. Shin Yoo)

3. Joonyoung Park, School of Computing, KAIST, 2021 (advisor: Prof. Sukyoung Ryu)

Teaching Experience

- **Education Program Director**
1. Program Director, Computer Science and Engineering Track, Handong Global University, Mar 2020--Feb 2022
2. Major Program Sector Lead, Software Centered University: Handong Global University, Jul 2022-Dec 2023

- **Industrial Training Program**
1. Instructor, Software Engineering Intensive Training Program, Samsung Electronics DS, Jun—Jul 2024
2. Program Director and Instructor, Software Testing Intensive Course, Samsung Advanced Technology Training Institute, Samsung Research, Jul 2021—Aug 2023
3. Instructor, LG Software Development Engineering in Testing (SDET) Expert Training Program, Jun 28-29, 2017

- **Course Instructor (selected)**
1. Operating Systems (undergraduate level), 2019, 2020, 2021, 2023, 2024
2. Discrete Mathematics (undergraduate level), 2017, 2018, 2019, 2020, 2021
3. Software Engineering (undergraduate level), 2016, 2017, 2017, 2018, 2019
4. Computer Architecture (undergraduate level), 2024
5. Computational Problem Solving (undergraduate level), 2016, 2017, 2018, 2019, 2020, 2021, 2023

6. Software Testing (graduate level), 2024
7. Computational Logic (graduate level), 2022

Awards and Scholarships

- **Research Paper Award**

1. Best Paper Award, Korean Software Congress (KSC), KIISE, Dec 2023
2. Best Paper of Software Engineering Society Award, Korea Institute of Information Science and Engineering (KIISE), Dec 2021
3. Best Short Paper Award, Korean Software Engineering Conference (KCSE), Feb 2021
4. Distinguished Paper, Undergraduate Student Research Competition, Korean Computer Congress (KCC), Jul 2020
5. Best Short Paper Award, Korean Software Engineering Conference (KCSE), Feb 2020
6. Best Paper Awards (Software Engineering), Korean Software Congress (KSC), Dec 2019
7. Best Paper Awards (Computing Education System), Korean Software Congress (KSC), Dec 2019
8. Best Paper Award, Korean Computer Congress (KCC), Jun 2019
9. Best Paper Award (Undergraduate Student Track), Korean Software Engineering Conference (KCSE), Jan 2019
10. Best Paper Presentation Award, Korean Software Congress (KSC), Jun 2018
11. Distinguished Paper Award, 11th IEEE International Conference on Software Testing, Verification and Validation (ICST), Apr 11, 2018
12. Best Paper Award, Korea Management Engineers Society, Nov 2017
13. Best Paper Award, Korean Computer Congress (KCC), Jun 2018
14. Best paper award (short paper), Korea Conference on Software Engineering (KCSE), 2015
15. Best paper award, Korea Conference on Software Engineering (KCSE), 2009

- **Research Paper Award with Undergraduate Student Research Program**

1. Undergraduate Student Research Competition-Bronze Award (장려상), Korean Computer Congress (KCC), Jul 2023
2. Undergraduate Student Research Competition-Bronze Award (장려상), Korean Software Congress (KSC), KIISE, Feb 2023
3. Undergraduate Student Research Competition-Bronze Award (장려상), Korean Software Congress (KSC), KIISE, Dec 2020
4. Undergraduate Student Research Competition, Korean Computer Congress (KCC), Jun 2019
5. Undergraduate Student Research Competition, Bronze Award (장려상), Korea Computer Congress (KCC), KIISE, Jun 2018

- **Research Competition and Scholarship**

1. Best paper award, Korean Institute of Information Scientists and Engineers, 33rd Student Research Paper Competition (graduate student track), Jun 2014
2. Qualcomm Fellowship Award, Aug 2013
3. Bronze award, Samsung HumanTech Thesis Competition, 2012
4. Korea Presidential Science Scholarship, Mar 2003 to Feb 2007

- **Others**

1. First Rank (Winner), CodRep 2019: Machine Learning on Software Code Competition, Oct 2019
2. Excellent Teaching Assistant Award, CS, KAIST, Mar 2015
    -   CS453 Software Testing and Verification, 2014 Fall Semester

Professional Activities

- **Professional membership**
  - Vice president, KIISE Software Engineering Society, May 2024-present
  - Member of the Board of Directors, KIISE Software Engineering Society, 2022-2024
  - Member of the Editor Committee, KIISE Software Engineering Society, 2018-2020
- **Organizing committee**
  - General Chair, Symposium on Search-Based Software Engineering (SSBSE), 2025
  - Local Organizing Chair, IEEE/ACM International Conference on Automated Software Engineering (ASE), 2025
  - Workshops Co-chair, Asia-Pacific Software Engineering Conference (APSEC), 2023
  - Program Co-chair, International Conference on Automation of Software Test (AST), 2020
  - Web Co-chair, International Conference on Software Engineering (ICSE), 2020
- **International conferences/workshops program committee**
  - International Conference on Software Maintenance and Evolution (ICSME), Registered Report Track, 2024
  - International Conference on Software Testing, Verification and Validation (ICST), 2018, 2019, 2023, 2024
  - The ACM Joint European Software Engineering Conference and Symposium on the Foundations of Software Engineering (ESEC/FSE), Tutorials, 2023
  - The ACM Joint European Software Engineering Conference and Symposium on the Foundations of Software Engineering (ESEC/FSE), Student Research Competition (SRC), 2022
  - Asia-Pacific Software Engineering Conference (APSEC) 2016, 2021, 2022
  - Asia-Pacific Software Engineering Conference (APSEC), Student Research Competition (SRC), 2023
  - International Conference on Software Engineering (ICSE), Software Engineering in Practice Track, 2020
  - International Workshop on Intelligent Bug Fixing (IBF), 2020, 2021
  - International Workshop on Realizing Artificial Intelligence Synergies in Software Engineering (RAISE), 2020
  - International Symposium on Software Testing and Analysis (ISSTA), Artifact Evaluation Committee, 2015, 2018
  - International Workshop on Empirical Software Engineering in Practice (IWSEP) 2017, 2018
- **Editor board**
  - Associate Editor, Software and Data Engineering, Korea Information Processing Society (KIPS) Transaction Journal, 2024-present
- **Reviewer of international journals**
  - Empirical Software Engineering (ESEM), 2017, 2022, 2024
  - IEEE Transactions on Software Engineering (TSE), 2016, 2017, 2019, 2021, 2022, 2023
  - Software Testing, Verification and Reliability (STVR), 2020, 2023
  - Software: Practice and Experience (SPE), 2020
  - IEEE Transactions on Reliability, 2020
  - IEEE Transactions on Dependable and Secure Computing. 2020
  - Journal of Systems and Software (JSS), 2017
  - Journal of Computing Science and Engineering, 2017
  - IEEE Transactions on Parallel and Distributed Systems (TPDS), 2016
- **Industry advisory committee**
  - Technical Advisory Committee, TrinitySoft Inc., 2018-2020

Other Activities

1. Executive Secretary of Handong Faculty Council, Mar 2018—Feb 2019
2. President of CS Undergraduate Students, Mar 2005—Feb 2006
3. Vice-president of CS Undergraduate Students, Mar 2004—Feb 2005

(last update: Sep 21, 2024)