

# KANG HONG JIN

Ph.D Candidate  
School of Computing and Information Systems  
Singapore Management University

[hjkang.2018@phdcs.smu.edu.sg](mailto:hjkang.2018@phdcs.smu.edu.sg)  
[kanghj.github.io](https://kanghj.github.io)

## EDUCATION

### Ph.D

Jan 2019 – Jan 2023 (expected)  
School of Computing and Information Systems  
Singapore Management University

### BACHELOR OF COMPUTING

2012 – 2016  
School of Computing  
National University of Singapore  
First Class Honours/Highest Distinction

## RESEARCH INTERESTS

- Mining API Specifications
- Library Vulnerabilities
- Machine Learning for Software Engineering
- Fuzzing/Test Case Generation

## PUBLICATIONS

### Detecting False Alarms from Automatic Static Analysis Tools: How Far are We?

**Hong Jin Kang**, Khai Loong Aw, and David Lo.

IEEE/ACM International Conference on Software Engineering (ICSE) 2022

<https://arxiv.org/abs/2202.05982>

(Nominated for a **Distinguished Paper Award**)

### Test Mimicry to Assess the Exploitability of Library Vulnerabilities.

**Hong Jin Kang**, Truong Giang Nguyen, Bach Le, Corina Pasareanu, and David Lo.

at ACM SIGSOFT International Symposium on Software Testing and Analysis (ISSTA) 2022.

### HERMES: Using Commit-Issue Linking to Detect Vulnerability-Fixing Commits

Truong Giang Nguyen, **Hong Jin Kang**, David Lo, Sharma Abhishek, Santosa Andrew, Sharma Asankhaya, and Ming Yi Ang.

IEEE International Conference on Software Analysis, Evolution and Reengineering (SANER) 2022

[https://kanghj.github.io/publications/hermes\\_saner\\_2022.pdf](https://kanghj.github.io/publications/hermes_saner_2022.pdf)

**Active Learning of Discriminative Subgraph Patterns for API Misuse Detection**

**Hong Jin Kang;** David Lo.

IEEE Transactions on Software Engineering

<https://ieeexplore.ieee.org/document/9392340/>

**Adversarial Specification Mining**

**Hong Jin Kang;** David Lo.

ACM Transactions on Software Engineering and Methodology, Vol. 30, No. 2

<https://arxiv.org/abs/2103.15350>

**IoTBox: Sandbox Mining to Prevent Interaction Threats in IoT Systems**

**Hong Jin Kang;** David Lo; Sheng Qin Sim

IEEE International Conference on Software Testing, Verification and Validation (ICST 2021)

<https://kanghj.github.io/publications/iot-sandbox-camera-ready.pdf>

**AndroEvolve: Automated Android API Update with Data Flow Analysis and Variable Denormalization**

Stefanus A Haryono; Ferdian Thung; David Lo; Lingxiao Jiang; Julia Lawall; **Hong Jin Kang;** Lucas Serrano; Gilles Muller

Empirical Software Engineering

<http://www.mysmu.edu/faculty/lxjiang/papers/EMSE21AndroEvolve.pdf>

**AndroEvolve: Automated Update for Android Deprecated-API Usages**

by Stefanus Agus Haryono; Ferdian Thung; David Lo; Lingxiao Jiang; Julia Lawall; **Hong Jin Kang;** Lucas Serrano; Gilles Muller

ACM/IEEE International Conference on Software Engineering 2021 (ICSE 2021) – Demonstrations

<https://arxiv.org/abs/2012.07259>

**BiasFinder: Metamorphic test generation to uncover bias for sentiment analysis systems.**

Muhammad Hilmi Asyrofi, Zhou Yang, Imam Nur Bani Yusuf, **Hong Jin Kang,** Ferdian Thung, and David Lo

IEEE Transactions on Software Engineering

<https://arxiv.org/abs/2102.01859>

**BugsInPy: a database of existing bugs in Python programs to enable controlled testing and debugging studies**

Ratnadira Widyasari; Sheng Qin Sim; Camellia Lok; Haodi Qi; Jack Phan; Qijin Tay; Constance Tan; Fiona Wee; Jodie Ethelda Tan; Yuheng Yieh; Brian Goh; Ferdian Thung;

**Hong Jin Kang;** Thong Hoang; David Li; Eng Lieh Ouh

ACM Joint Meeting on European Software Engineering Conference and Symposium on the Foundations of Software Engineering (ESEC/FSE 2020)

[https://ink.library.smu.edu.sg/sis\\_research/5630/](https://ink.library.smu.edu.sg/sis_research/5630/)

**CC2Vec: Distributed representations of code changes,**

Thong Hoang; **Hong Jin Kang;** Julia Lawall; David Lo.

ACM/IEEE International Conference on Software Engineering 2020 (ICSE 2020)

<https://arxiv.org/abs/2003.05620>

### **Automatic Android Deprecated-API Usage Update by Learning from Single Updated Example**

Stefanus Agus Haryono; Ferdian Thung; **Hong Jin Kang**; Lucas Serrano; Gilles Muller; Julia Lawall; David Lo; Lingxiao Jiang.

International Conference on Program Comprehension 2020 - Early Research Achievements Track. 2020 (ICPC ERA 2020)

<https://arxiv.org/abs/2005.13220>

### **Towards Generating Transformation Rules without Examples for Android API Replacement**

Ferdian Thung; **Hong Jin Kang**; Lingxiao Jiang; David Lo.

IEEE International Conference on Software Maintenance and Evolution 2019 (ICSME 2019)

[https://ink.library.smu.edu.sg/sis\\_research/4824/](https://ink.library.smu.edu.sg/sis_research/4824/)

### **Assessing the Generalizability of code2vec Token Embeddings**

**Hong Jin Kang**; Tegawende F Bissyandé.; David Lo.

ACM/IEEE International Conference on Automated Software Engineering 2019 (ASE 2019)

<http://www.mysmu.edu/faculty/davidlo/papers/ase19-code2vec.pdf>

### **Semantic Patches for Java Program Transformation**

**Hong Jin Kang**; Ferdian Thung; Julia Lawall; Gilles Muller; Lingxiao Jiang; David Lo. European Conference on Object-Oriented Programming 2019 (ECOOP 2019)

[https://ink.library.smu.edu.sg/cgi/viewcontent.cgi?article=5488&context=sis\\_research](https://ink.library.smu.edu.sg/cgi/viewcontent.cgi?article=5488&context=sis_research)

### **A Comparison of Word Embeddings for English and Cross-Lingual Chinese Word Sense Disambiguation**

**Hong Jin Kang**; Tao Chen; Muthu Kumar Chandrasekaran; Min-Yen Kan.

The COLING Workshop on Natural Language Processing Techniques for Educational Applications Workshop (NLP-TEA-3 2016)

<https://arxiv.org/abs/1611.02956>

## **WORKING EXPERIENCE**

**AUG 2018 – DEC 2018**

**RESEARCH ENGINEER, SMU**

- Developed Coccinelle4J, a port of Coccinelle for the Java programming language. Coccinelle is a widely adopted program matching and transformation tool for C systems software, including the Linux kernel. Over 6000 commits have been in the Linux kernel with the help of Coccinelle in the past 10 years. We apply Coccinelle4J to the automatic migration of deprecated Android API usages.

**2018**

**BACKEND ENGINEER, GRAB**

- Worked with cutting-edge tools and managed cloud-based infrastructure.
- Owned a microservice on the critical path of all bookings. Improved testing to identify single points of failure, improving the resilience of the service to ensure uptime and SLAs are met.

**2016 –2018**

**SOFTWARE ENGINEER, WORKS APPLICATIONS CO. LTD**

- Worked on enterprise-grade HR Enterprise Resource Management software.
- Helped in mentoring junior engineers.
- Full-stack development from the back-end using Spring, management of Cassandra, Elasticsearch, to implementing a new user experience on the front-end with modern frameworks.

**AUG 2015 – MAY 2016**

**STUDENT SOFTWARE ENGINEER, TEAMMATES @ NUS**

- Involved in both planning and development of the project. Planned and managed weekly releases.
- Part of the team that introduced static analysis tools and CI to the project.

**MAY 2014 – AUG 2014**

**INTERN, TEAMIE**

- Developed several new features, including a feature that summarizes users' activity logs to identify highlights of their history on the platform.

## **SERVICE**

**JOURNAL REVIEWER:** EMSE, TOSEM, IST

**SUB-REVIEWER:** ICSME 2020, ASE 2021, ICST 2022, ICSE 2022

## **SKILLS**

- General Software Engineering (Git, various IDEs, bash, python, Java)
- Functional Programming (OCaml, Scala)
- Machine learning and Deep Learning Frameworks (scikit-learn, tensorflow)
- Web Programming (Javascript, Spring framework)
- Databases (MySQL, Cassandra, Elasticsearch)
- Logic programming (answer set programming, e.g., clingo)