

# Jinsheng Ba

Personal Website | [GitHub](#) | [Google Scholar](#)

National University of Singapore

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## EDUCATION

### National University of Singapore

Ph.D. Candidate in Computer Science

Advisor: Manuel Rigger

Singapore

Jan 2020 – Present

### Shandong University

B.Eng. in Computer Science

Shandong, China

Sep 2013 – Jun 2017

## PUBLICATIONS

### Finding Performance Issues in Database Systems Through the Lens of Cardinality Estimation

ICSE'24

Jinsheng Ba, Manuel Rigger

The 46th International Conference on Software Engineering, 2024

<https://github.com/sqlancer/sqlancer/issues/822>

### Detecting Logic Bugs in Graph Database Management Systems via Injective and Surjective Graph Pattern Transformation

ICSE'24

Yuancheng Jiang, Jiahao Liu, Jinsheng Ba, Roland H.C. Yap, Zhenkai Liang, Manuel Rigger

The 46th International Conference on Software Engineering, 2024

<https://github.com/YuanchengJiang/GraphGenie>

### Testing Database Engines via Query Plan Guidance

ICSE'23

Jinsheng Ba, Manuel Rigger

**ACM SIGSOFT Distinguished Paper Award**

The 45th International Conference on Software Engineering, 2023

<https://github.com/sqlancer/sqlancer/issues/641>

### Efficient Greybox Fuzzing to Detect Memory Errors

ASE'22

Jinsheng Ba, Gregory J Duck, and Abhik Roychoudhury

**ACM SIGSOFT Distinguished Paper Award**

The 37th IEEE/ACM International Conference on Automated Software Engineering, 2022

<https://github.com/bajinsheng/ReZZan>

### Stateful Greybox Fuzzing

SEC'22

Jinsheng Ba, Marcel Böhme, Zahra Mirzamomen, Abhik Roychoudhury

The 31st USENIX Security Symposium, 2022

<https://github.com/bajinsheng/SGFuzz>

## WORK EXPERIENCE

### Security Engineer

Jul 2017 – Dec 2019

Huawei

Beijing, China

- Analyze the security device log (IPS, WAF, Host-Guard, etc.) on the cloud to extract **threat intelligence** using Spark, Kafka, HBase.
- Optimize the machine learning algorithms to detect malware from dynamic execution traces and improve the recall by **13%**.
- Write virus analysis report and help customers to prevent attacks.

## TEACHING EXPERIENCE

- Teaching Assistant for BT2102 Data Management and Visualisation (2022-2023 Semester 2)
- Teaching Assistant for BT2102 Data Management and Visualisation (2022-2023 Semester 1)
- Teaching Assistant for CS2040 Data Structures and Algorithms (2022-2023 Semester 1)

## SERVICES

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- Program Committee for FSE'23 Artifact Evaluation.
- Program Committee for DEBT'23 Workshop at ISSTA'23.
- Program Committee for PLDI'23 Artifact Evaluation.
- Student Volunteer for FSE'22.

## AWARDS

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- Dean's Graduate Research Excellence Award. (Aug 2023, NUS)
- ACM SIGSOFT Distinguished Paper Award. 10 out of 797 submissions 1.2% (Feb 2023, ICSE)
- Research Achievement Award. (Jan 2023, NUS)
- ACM SIGSOFT Distinguished Paper Award. (Oct 2022, ASE)
- Outstanding Graduate of Shandong Province. (Jun 2017, China)
- Outstanding Undergraduate Research Assistant. (Dec 2016, SDU)
- Outstanding Leader of Association in Shandong Province, the only one in SDU (Sep 2016, China)
- First Prize Scholarship of Shandong University. (Sep 2016, SDU)
- Second Prize for Microsoft Imagine Cup Contest (Jun 2015, Microsoft)

## TALKS

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- Open day at School of Computing, National University of Singapore: Testing Database Engines via Query Plan Guidance. (Feb 2023, Singapore)
- Seminar at Tsinghua University: Testing Database Engines via Query Plan Guidance. (Dec 2022, China)
- Seminar at TiDB company: Testing Database Engines via Query Plan Guidance. (Nov 2022, China)
- Security workshop at School of Computing, National University of Singapore: Efficient Greybox Fuzzing to Detect Memory Errors (Nov 2022, Singapore)
- Software engineering workshop at School of Computing, National University of Singapore: Testing Database Engines via Query Plan Guidance. (Nov 2022, Singapore)
- 37th IEEE/ACM International Conference on Automated Software Engineering: Efficient Greybox Fuzzing to Detect Memory Errors. (Oct 2022, USA)
- 31st USENIX Security Symposium: Stateful Greybox Fuzzing. (Aug 2022, USA)
- Mayday workshop at School of Computing, National University of Singapore: Stateful Greybox Fuzzing. (May 2022, Singapore)

## RESEARCH PHILOSOPHY

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My research interests focus on software security. My vision is to make the software more reliable. I aim to research novel and practical methods to solve real-world problems of software security. My research has found around 100 bugs, of which 78 are public, in real-world systems. I commit to and have always made the code of my research public for purposes of reproducibility and real-world impact.