

# Yicheng Ouyang

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## EDUCATION

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### University of Illinois Urbana-Champaign

*Ph.D. in Computer Science (GPA 3.57/4)*

Aug. 2021 – Present, Champaign, IL, USA

*Advisor: Prof. Lingming Zhang and Prof. Darko Marinov*

### The University of Texas at Dallas

*Ph.D. in Computer Science*

Aug. 2020 – July 2021, Dallas, TX, USA

*Advisor: Prof. Lingming Zhang*

### Southern University of Science and Technology

*B.S. in Computer Science and Technology (GPA: 3.46/4)*

Sept. 2016 – July 2020, Shenzhen, China

*Advisor: Prof. Yuqun Zhang*

## SKILLS

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**Programming Language:** Java, Python, Bash.

**Software and Framework:** ASM, Javaagent, JavaParser, Maven, Unity3D, Git

**Spoken Language:** Mandarin, English

## INDUSTRY EXPERIENCE

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### Kuaishou

*Research/Engineering intern in the Quality Assurance Team*

May 2021 – Aug. 2021

*Beijing, China*

- Refactoring-aware Developer Contribution Evaluation System | *Java, Eclipse JDT*
  - \* Assess developer efforts in commits by filtering out trivial refactoring alterations.
  - \* Implemented the system for internal use in Kuaishou, resulting in significant cost savings by eliminating the need to purchase external contribution evaluation services.
  - \* In charge of approach design and prototype implementation.

### Ant Group

*Research/Engineering intern in the Quality Assurance and Infrastructure Team*

June 2020 – May 2021

*Hangzhou, China*

- Non-intrusive Dynamic Taint Analysis | *Java, ASM*
  - \* The first practical non-intrusive dynamic taint analysis technique for extensively supporting microservice systems on JVMs.
  - \* Been deployed in pre-launch environments to examine source-to-sink data relationships and further validate data correctness.
  - \* In charge of the ideation, partial implementation, experiments, and paper writing.
- Regression Test Selection System | *Java, ASM*
  - \* The first regression test selection system in Alipay that can automatically exclude unnecessary test cases in regression testing.
  - \* Integrated as a plugin in the Alibaba continuous integration process.
  - \* Improved the efficiency in development and widely adopted by diverse levels of developers.
  - \* In charge of the ideation, implementation, and maintenance.
- Empirical Study of Industrial Record&Replay Testing Noises
  - \* Conducted the first comprehensive empirical study on industrial record&replay testing noises for microservice-based applications.
  - \* Reveal various practical guidelines for detecting and fixing replay noises.
  - \* In charge of the study's execution and the drafting of the paper.

### Suzhou Dayu Network Technology Co. Ltd.

*Engineering intern in the Game Development Department*

June 2018 – Sep. 2018

*Suzhou, China*

- [The Hook Man](#) | *JavaScript, Cocos Creator*
  - \* Led a small team consisting of three interns.
  - \* Built for multiple platforms: Android, Windows, Web, etc.
  - \* In charge of all the programming.

## TEACHING ASSISTANT EXPERIENCE

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### CS427: Software Engineering I

Fall 2023

Teaching Assistant at UIUC

Instructor: Prof. Lingming Zhang and Prof. Reyhaneh Jabbarvand

- Directed a team of 5 Teaching Assistants.
- Answering students' questions on Campuswire and during designated office hours.
- Developed automated grading systems for efficient assignment evaluation.

### CS309: Object-oriented Analysis and Design

Fall 2019

Teaching Assistant at SUSTech

Instructor: Prof. Yuqun Zhang

- Assisting students during lab sessions.
- Developed automated grading systems for efficient assignment evaluation.

## SELECTED PROJECTS

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### Automatic Repair Tool for CUDA Synchronization Bugs | *Python*

Feb. 2020 – June. 2020

- The first code-level automatic repair tool for CUDA synchronization bugs which transforms the CUDA source code into abstract syntax tree (AST), fix the AST by patterns and recover the source code.
- Able to fix 21 bugs among the 24 previously-unknown bugs found by Simulee.
- Won Distinguished Thesis Award in SUSTech.
- Finished independently, from ideation to implementation.

### SUSTech Monopoly | *C#, Unity*

Sep. 2018 – Jan. 2019

- A 3D multi-player monopoly game which uses our campus as the map and revolves around the campus life.
- Went viral across the entire university (1000+ DAU in the peak time).
- Covered by multiple nation-wide mass media.
- In charge of game design and all the client programming.

## PUBLICATIONS

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- **Yicheng Ouyang**, Kailai Shao, Kunqiu Chen, Ruobing Shen, Chao Chen, Mingze Xu, Yuqun Zhang, Lingming Zhang. **MirrorTaint: Practical Non-intrusive Dynamic Taint Tracking for JVM-based Microservice Systems**. In Proceedings of the 45nd IEEE/ACM International Conference on Software Engineering (ICSE 2023), 2023.
- Mingyuan Wu, **Yicheng Ouyang**, Minghai Lu, Junjie Chen, Yingquan Zhao, Heming Cui, Guowei Yang, Yuqun Zhang. **SJFuzz: Seed & Mutator Scheduling for JVM Fuzzing**. In Proceedings of the 31st ACM Joint European Software Engineering Conference and Symposium on the Foundations of Software Engineering (FSE 2023), 2023.
- Lingchao Chen, **Yicheng Ouyang**, Lingming Zhang. **Fast and Precise On-the-fly Patch Validation for All**. In Proceedings of the 43nd IEEE/ACM International Conference on Software Engineering (ICSE 2021), 2021.
- Mingyuan Wu, **Yicheng Ouyang**, Husheng Zhou, Lingming Zhang, Cong Liu, Yuqun Zhang. **Simulee: Detecting CUDA Synchronization Bugs via Memory-Access Modeling**. In Proceedings of the 42nd IEEE/ACM International Conference on Software Engineering (ICSE 2020), 2020.