

Hengchen Yuan

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[Github](#)
[Homepage](#)

EDUCATION

Southern University of Science and Technology (SUSTech)

Shenzhen, China

B.S. in Computer Science and Technology

Sep. 2019 - Present

- GPA (overall): **3.76/4.0 (90)**; GPA (major): **3.85/4.0 (92)**; GPA (junior): **3.91/4.0 (94)**
- Core courses: Operating System (**98/100**), Computer Security (**98/100**), Software Engineering (**97/100**)

PUBLICATION

ICSE' 2023 | Evaluating and Improving Hybrid Fuzzing [\[code\]](#)

Ling Jiang, **Hengchen Yuan**, Mingyuan Wu, Lingming Zhang, Yuqun Zhang

The 45th International Conference on Software Engineering, May 14-20, 2023, pages to appear, Australia

ESEC/FSE' 2023 | Third-party Library Dependency in Large-scale SCA: How Far Are We?

Ling Jiang, **Hengchen Yuan**, Qiyi Tang, Sen Nie, Shi Wu, Yuqun Zhang

Status: **submitted**

RESEARCH EXPERIENCE

Research Assistant at Laboratory of ARiSE, SUSTech

Sep. 2021 - Present

Topic: Evaluating and Improving Hybrid Fuzzing

Sep. 2021 - Aug. 2022

Advised by Prof: [Yuqun Zhang](#), [Lingming Zhang](#) (remote from UIUC)

- Proposed the idea of using seed scheduling strategy as an entry point to our Research Question
- Implemented the synchronization module, which can be adapted to a variety of sampling algorithms
- Studied and replicated the source code of some fuzzing papers
- Conducted extensive experiments on real-world programs and collected bugs for analysis

Topic: Large-scale Software Composition Analysis

Aug. 2022 - Jan. 2023

Advised by Prof: [Yuqun Zhang](#), Cooperated with [Tencent Keen Security Lab](#)

- Designed and implemented the centrality-based dependency patch algorithm
- Conducted extensive paper research
- Be responsible for a part of coding, paper writing and review

Topic: Unified Multi-Level Heterogeneous Computing Framework

Oct. 2022 - Present

Advised by Prof: [Yuqun Zhang](#)

- Designed a cost model for both static and dynamic scheduling
- Attempting to optimize the collaboration between threads running on the same device

HONORS & AWARDS

- Special Award of SUSTech Motto (Top 0.3%) Oct. 2022
- Candidate for the China National Scholarship (Top 0.6%, SUSTech) Oct. 2022
- First-class Merit Student Scholarship at SUSTech Oct. 2022
- Province-level 2nd Prize of Chinese Mathematical Modeling Contest Nov. 2022 & Oct. 2021
- Meritorious Winner (3~9%) in National College Interdisciplinary Contest in Modeling Mar. 2022
- Silver Award for 3rd SUSTech Programming Contest Jun. 2021
- Third-class Merit Student Scholarship in SUSTech Oct. 2021 & Oct. 2020

WORK EXPERIENCE

Teaching Assistant, SUSTech

Be responsible for maintaining Online Judging server, designing course projects and assignments, answering questions, and grading assignments.

- Operating System, Course#: **CS302**, Instructor: [Yinqian Zhang](#) (expected) Feb. 2023 - Jun. 2023
- Artificial Intelligence, Course#: **CS303**, Instructor: [Bo Yuan](#) Sep. 2022 - Jan. 2023
- Object-Oriented Analysis and Design, Course#: **CS307**, Instructor: [Yuqun Zhang](#) Sep. 2022 - Jan. 2023
- Introduction to Computer Programming, Course#: **CS102**, Instructor: [Jianqiao Yu](#) Sep. 2021 - Jan. 2022

Independent game studio member

Oct. 2020 - present

- [Zeros Game Studio](#), created by my college roommate and only has two members
- Built a single game server for simple interaction and recording players' data
- Released two games on TapTap and Steam, with a total of 300k+ downloads so far

OPEN-SOURCE CONTRIBUTIONS

- Contributed to [Halo](#), [AudioFile](#) and [SYMCC](#)
- Discovered **40+** previously unknown security bugs in more than 10 open-source famous command line tools ([Binutils](#), [Libtiff](#), [Bento4](#), etc.), of which 8 have been assigned CVE numbers and 1 has been released ([CVE-2022-38533](#)).

SELECTED PROJECTS

Pacman Online Game [\[code\]](#) [\[video\]](#)

Sep. 2021 - Dec. 2021

- Led and developed the project and got the highest score in whole class
- Implemented a game server for room-based networked matchmaking, gacha, character synthesis, props, chat, and other online game functions
- Achieved 2D-3D perspective conversion, created a number of characters and skills, and added a variety of game modes like PVP, PVE

SPL Compiler [\[code\]](#)

Sep. 2022 - Nov. 2022

- Designed a strongly typed C-like programming language that removes most advanced features in C standard, such as macros or pointers
- Implemented the parsing, lexical and syntax analysis, IR and MIPS assembly code generation
- Supported some advanced features like n-D array, Loop, Structural equivalence and scope checking

LEADERSHIP & ACTIVITIES

- Top 10 singer in the fifth Voice of SUSTech Jan. 2020
- Lead singer in two New Student Welcoming Ceremonies, SUSTech Oct. 2019 & Oct. 2020
- Co-hosted the 14th Shenzhen College Town Sports Meet Nov. 2019
- Joined the recording of anthems of SUSTech as lead singer Oct. 2019
- Campus Ambassador of SUSTech Sep. 2019 - Sep. 2021

SKILLS

Common: Java, Python, C/C++, Rust, Golang, TypeScript, Matlab, Latex, Docker, SQL, Shell, Git, etc.

Testing: LibFuzzer, Sanitizers, Z3, Intel Pin, etc.

High-Perf. Computing: LLVM, C++ Thread Library, CUDA, MILR, etc.

Machine Learning: PyTorch, TensorFlow, etc.