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

Status: **accepted**

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

Status: **Done, waiting for submission as second author**

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 - Dec. 2022*

Advised by Prof: *Yuqun Zhang*

- 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
- Attempted to optimize the collaboration between threads running on the same device

HONORS & AWARDS

- Special Award of SUSTech Motto "Seek Truth" (Top 0.3%)   *Oct. 2022*
- Candidate for the China National Award (Top 0.6%, SUSTech)   *Oct. 2022*
- First-class Merit Student Award 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 Award 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.

- 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 3**00k+** 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 award 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 & Systems: PyTorch, TensorFlow, etc.