Yuyang(Peter) RONG

530 601 3646 ◇ PeterRong96@gmail.com ◇ Website ◇ GitHub

EDUCATION

UC Davis Sep 2019 - Jun 2024
Ph.D. candidate in Computer Science *Davis, CA*

- Research interests: **Fuzzing, Program Analysis, Software Security, Compiler Testing**
- Languages: **C/C++ (9/10), Rust (8/10), Python (8/10), Java**
- Tools: **LLVM (LLVM contributor w/ 30+ commits and 2k+ LoC), libFuzzer, AFL++, Docker**

ShanghaiTech University Sep 2015 - Jun 2019
B.E. Computer Science and Technology *Shanghai, China*

- GPA 3.79/4 (Rank: 5/124) Excellent Undergraduate of Shanghai (2019) Scholarship of Shanghai (2016)

WORKING AND RESEARCH EXPERIENCE

Bytedance Ltd. Jun 2020 - Sep 2020
Research Intern *Mountain View, CA*

- Focused on optimizing fuzzer Angora's gradient solver and alleviate its branch collision problem.
- Implemented a fuzzer Valkyrie with a runtime in ~2000 LoC in C++ and a gradient solver in ~3000 LoC in Rust.
- Found six bugs in open-source libraries, improved branch coverage by 41% compared to Angora.

Bytedance Ltd. Sep 2018 - Aug 2019
Research Intern *Beijing, China*

- Assigned to maintain Angora and use it to find integer bugs in Bytedance's codebase.
- Implemented a sanitizer as an LLVM pass w/ runtime library using ~1500 LoC in C++ and ~2000 LoC in Rust.
- Identified **8 crashing and 166 non-crashing bugs**. CVE-2020-18869 and CVE-2020-18871 assigned.

ShanghaiTech University Nov 2017 - Jan 2018
Lab Intern *Shanghai, China*

- Designed subproblem algorithm by combining line search and trust region.
- Implemented the algorithm using Python and did extensive experiments, open-sourced.
- Solved 113/126 problems, achieving a success rate of 89.7%.
- ***An inexact first-order method for constrained nonlinear optimization*** published on *Optimization Methods and Software*.

ABB Group Oct 2017 - Jun 2018
Research Intern *Shanghai, China*

- The goal was to combine ABB's desktop robot Yumi and Huskey UGV.
- Attached Yumi to an 4-wheel robot to make it autonomous and designed **navigation**, **mapping**, and **control** algorithms in around 5000 lines of C++.
- Demonstrated our prototype to the leader in ABB.

PROJECTS

RITOS Jan 2020 - Mar 2020
ECS240 Operating system course project *UC Davis*

- Designed Rust IoT Operating System (RITOS) on raspberry pi 3.
- Implemented booting code and barebone binary in 1500 lines of Rust.
- Open-sourced RITOS, also contributed to 100-star Cortex-A to Rust binding project.

Athernet Jan 2018 - Jun 2018
CS120 Computer networks course project *ShanghaiTech University*

- Designed computer networks from scratch, using sound as physical layer.
- Implemented Layer 1/2 in 3500 lines of JAVA and Layer 3/4 in 1500 lines of C++, open-sourced.
- Demonstrated prototype by downloading a 10kB file from an FPT server with only athernet access, achieving 16.4 kbps bit rate (Upper bound 22 kbps).

COOL Compiler Jan 2018 - Jun 2018
CS131 Compiler course project *ShanghaiTech University*

· Designed a new language COOL as part of the Compiler course project.
· Implemented end-to-end compiler including lexer, parser, semantic analysis, type analysis, and code generation.
· Implemented in using Flex, Bison, C++, open-sourced.

Screen++ Jun 2017 - Jun 2017
iLab Hackathon team leader *Shanghai, China*
· Proposed an application to connect all the screens in different platforms.
· Responsible for the software development & marketing model, constructed the prototype using Python & Apache.
· Won the **3rd prize** in iLab Hackathon.

SafeBox Jun 2017 - Jul 2017
CS230 Operating system course project *ShanghaiTech University*
· Designed an abstraction layer to run untrusted software by intercepting unsafe system calls.
· Implemented the prototype in 1200 lines of Rust, open-sourced.
· Successfully prevented untrusted submission from accessing Internet in online judge Gradebot.

TEACHING

ECS153: Computer Security 2023 Spring Quater
ECS032A: Introduction to Programming 2020 Fall Quater