Yuxiang Wei

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Education

Bachelor of Science in Computer Science Sept. 2017 – July 2022 (expected)
Tongji University, Shanghai, China

- *Overall GPA:* 91.06/100.
- *Relevant Courses Scored A (95/100):* Software Engineering, Compilers, Operating Systems, Algorithms, etc.

Publications

Jiawei Liu, **Yuxiang Wei**, Sen Yang, Yinlin Deng, Lingming Zhang. Coverage-Guided Tensor Compiler Fuzzing with Joint IR-Pass Mutation. Accepted by *OOPSLA 2022* (Received **3 Accepts & 1 Weak Accept** during Author Response).

Honglong Li, Zizheng Zhong, Wei Guan, Chenghao Du, Yu Yang, **Yuxiang Wei**, Chen Ye. Generative character inpainting guided by structural information. *The Visual Computer 2021*.

Research Experience

Intern at Lingming's Lab, University of Illinois at Urbana-Champaign Apr. 2021 – Present
Advisor: Prof. Lingming Zhang *Topic: Fuzzing Deep Learning Compilers*

- Participated as a core member in a research project that presents the first coverage-guided fuzzing technique specifically targeting deep learning compilers.
- Proposed and developed a novel test case generation technique for TVM, one of the most popular deep learning compilers, with program analysis integrated to ensure syntax correctness and mitigate semantic errors.
- As the 2nd author, wrote an entire section for the proposed technique in a paper accepted by *OOPSLA 2022*.
- Led the implementation of the fuzzer of our project that has detected 40 previously unknown bugs for TVM.

Research Assistant at Font Generation Group, Tongji University Apr. 2020 – June 2021
Advisor: Dr. Chen Ye *Topic: Multi-Style Font Generation System*

- Researched the application of *generative adversarial networks* in the font style translation of Chinese characters.
- As the leader, administrated a national innovation project which was awarded the *Excellent Final Project*.
- Collaborated in the design and the experiments of a novel glyph-preserving StarGAN architecture that guarantees both the expressiveness and correctness of the generated characters.
- As the 2nd author, submitted an invention patent titled *A method for the style translation of Chinese fonts*.

Leader of Automated Robot Group, RoboMaster Team, Tongji University Sept. 2020 – July 2021
Advisor: Dr. Jiong Zhao *Topic: Automated Robot System*

- Performed research on the implementation of automated robot systems in ROS with SLAM techniques.
- Instructed group members in the basics of Linux, OpenCV, Git, and advanced C++ programming.
- Constructed a remote testing tool that aids in debugging the auto-aiming system of the robot.

Selected Projects

Tzer: Fuzzer for TVM, a popular deep learning compiler, implemented in Python.
Schema: Toy interpreter for Scheme implemented in Scala 3 based on the concept of denotational semantics.
NaiveCC: Compiler frontend for a subset of C with visualization support, implemented with C++ 17 features.
EightPuzzleJS: Automatic solver for the eight puzzle game implemented in JavaScript.

Notable Awards

National 2nd Prize (3.84%) and Province-Level 1st Prize of Chinese Mathematical Contest in Modeling	Nov. 2019
Province-Level 1st Prize of RoboMaster University Championship	Aug. 2021
1st Prize of "Challenge Cup" National Undergraduate Academic Works Competition, Tongji University	Mar. 2021

Skills

Programming Languages: Python, Swift, C++, Scala, LaTeX 2$_\varepsilon$, Java, Go, Rust, JavaScript, Haskell, Scheme.
Frameworks and Platforms: SwiftUI, TVM, QT, UIKit, OpenCV, PyTorch, Git, Linux, macOS, ROS.
Language: English: TOEFL 108 (Reading: 28, Listening: 29, Speaking: 25, Writing: 26), Chinese: Native.