Haoyang MA

Ph.D. Candidate in Computer Science and Engineering

https://haoyang9804.github.io/

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github.com/haoyang9804

>_ Large-Scale Software Development and Maintenance, Fuzz Testing, AI framework/compiler, AIop-related Optimization, Algorithm / Data Structure Design.

Education

2021 - 2025 **Ph.D. in Computer Science and Engineering**
The Hong Kong University of Science and Technology

2016 - 2020 **B.Eng. in Software Engineering**
Tianjin University

Skills

Programming Language C++/C, Python, OCaml, Coq, Java, CUDA C
Tool LLVM, LibTooling, GCC, TVM, Docker, AFL++, Basic Linux Knowledge
Theory Basic Algorithms & Data Structures for OI, Statistical Learning, Fuzzing, Static Analysis

Languages

- Mandarin : Native
- English : Full professional proficiency (IELTS 7.0, GRE 331/4.0)

Publications

2024 **Toward Understanding Solidity Compiler Bugs**
Under Submission Haoyang Ma, Wuqi Zhang, Qingchao Shen, Yongqiang Tian, Junjie Chen, Shing-Chi Cheung
Smart Contract , Compiler , Fintech

2023 **A Survey of Modern Compiler Fuzzing**
Preprint Haoyang Ma
Literature Review , Compiler Fuzzing

2023 **Fuzzing Deep Learning Compilers with HirGen**
ISSTA Haoyang Ma, Qingchao Shen, Yongqiang Tian, Junjie Chen, Shing-Chi Cheung
Fuzz Testing , Deep Learning Compiler , Code Generation

2021 **A Comprehensive Study of Deep Learning Compiler Bugs**
FSE Qingchao Shen, Haoyang Ma, Junjie Chen, Yongqiang Tian, Shing-Chi Cheung, Xiang Chen
Statistical Analysis , Bug Study , Deep Compiler

2020 **Enhanced compiler bug isolation via memoized search**
ASE Junjie Chen, Haoyang Ma, Lingming Zhang
LLVM , GCC , Bug Isolation , Reinforcement Learning , MCMC

Awards

2021 - 2025 **Postgraduate studentship**
The Hong Kong University of Science and Technology
2018 **Bronze prize in ACMICPC Shenyang Division**
2018 **Bronze prize in ACMICPC Nanjing Division**
2018 **Bronze prize in CCPC Jilin Division**

Work Experience

Big Data
2019

Tianjin Unicloud Technology Co. LTD—Group of Big Data , Tianjin, China
Help the company complete the development of Kafka, and help maintain docker container pools.
› May 2019 - June 2019
Cloud | Big Data

AI Framework
2023

Oneflow, Beijing, China
Develop the optimization process of OneFlow for Stable Diffusion models.
› Dec 2023 - Mar 2024 (Expected)
AI Framework | Large Model

Projects

RecBi 2020 - 2021
https://github.com/haoyang9804/RecBi
RecBi can mutate C/C++ code to automatically generate oceans of valid C/C++ code
C | Python | Deep Learning Compiler | LibTooling | LibASTMatcher

DLCStudy 2021-2022
https://github.com/ShenQingchao/DLCstudy
DLCStudy is the first comprehensive study on more than 600 bugs from then-popular deep-learning compilers including TVM, Glow, and nGraph.
Statistical Analysis | Deep Learning Compiler

HirGen 2022-2023
https://github.com/haoyang9804/HirGen
HirGen can automatically generate valid computational graphs and convert them into the equivalent Relay IRs.
C++ | Deep Learning Compiler

TVM 2022-NOW
https://github.com/apache/tvm
TVM is one of the most famous AI compilers. I constantly contribute code patches to resolve bugs.
C++ | Python | AI Compiler

OneFlow 2023-NOW
https://docs.oneflow.org/en/master/index.html
OneFlow is one of the most widely-used and popular AI frameworks in China Mainland. I am working on the next-generation OneFlow (Enterprise)
C++ | Python | AI Inference