Yanze Li

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RESEARCH INTERESTS

My research interest lies in program verification and static analysis, as well as their applications on real complex systems. I also enjoy the formal aspects of programming language, such as type system, language semantics and design, especially leveraging them to facilitate tasks like verification, synthesis, resource analysis, etc.

EDUCATION

M.S. Computer Science, Texas A&M University, 2020
Thesis: Efficient and Scalable Whole Program Race Detection for Java and Android Programs
Advisor: Jeff Huang
GPA: 4.0/4.0

B.Eng. Electrical Engineering, Huazhong University of Science and Technology, 2017
GPA: 3.67/4.0 Major GPA: 3.81/4.0

PUBLICATIONS

SC'20 *"OMPRacer: A Scalable and Precise Static Race Detector for OpenMP Programs"*
Bradley Swain, **Yanze Li**, Peiming Liu, Ignacio Laguna, Giorgis Georgakoudis, Jeff Huang

ICSE'19 (Demo Track) *"SWORD: A Scalable Whole Program Race Detector for Java"*
Yanze Li, Bozhen Liu, Jeff Huang

RESEARCH EXPERIENCE

2020.8- **Research Intern, Utrecht University, Netherland**
Working with Dr. Jurriaan Hage on Helium compiler. Implementing its LLVM backend and FFI.

2018.6- **Research Assistant, Texas A&M University, USA**
2020.6 Worked on static analysis for concurrent programs. Developed tools that scale to million lines of Java/C++/Android code and efficiently detect potential data races and deadlocks.

WORK EXPERIENCE

2019.7- **Software Engineer, Coderrect Inc., USA**
Working as the main developer of an LLVM-based program analysis tool for detecting concurrency bugs and anti-patterns in C/C++/Fortran/CUDA code. I've designed a highly efficient static happens-before graph, lock tracking algorithm and race detection algorithm which enable the tool to analyze million lines of code in minutes accurately.

2015-2017 **Software Engineer, Nightingale Technology, China**
Worked on a second-hand commodities trading platform for college students and an integrated web application for editing and publishing news articles as well as managing and visualizing their statistics.

PROJECTS

Helium (Ongoing) A compiler for a subset of Haskell that aims at delivering high quality type error messages particularly for beginner programmers. It also includes facilities for specializing type error diagnosis for embedded domain specific languages.

LLVMRace (Ongoing) An LLVM-based race detection framework, found several previously unkown bugs in Linux kernel, Redis, memcached, and GraphBLAS.

OMPRacer An LLVM-based race detector for OpenMP programs, using the SMT sovler and value-flow analysis to reason about interprocedure array accesses.
Found several previously unknown bug in ECP proxy applications and covid-sim (the simulation program for COVID-19).

Crappie An incremental race detection engine that scales to distributed systems and Android apps and has been implemented as an Intellij IDEA plugin.

SWORD A whole program race detector for Java (source code/bytecode) and has been implemented as a Eclipse plugin.

HONOR AND AWARDS

2019 ACM SIGSOFT CAPS Award

2017 Excellent Graduated Student at HUST

2015 Scientific Research Innovation Scholarship

2014 3rd place, China University Cloud Computing Innovation Competition

SERVICE

Sub-Reviewer

2020 OOPSLA

2019 PLDI, ICSE, FSE, OOPSLA

2018 TSE