

Yanze Li

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RESEARCH INTERESTS

I'm interested in the formal aspect of programming language, such as type systems, language semantics and design, in particular, how they can facilitate tasks like verification, synthesis, resource analysis, etc. I'm also interested in program verification and static analysis, especially their applications on real complex systems.

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
To appear In Proceedings of the International Conference for High Performance Computing, Networking, Storage and Analysis.
- ICSE'19 (Demo Track) "SWORD: A Scalable Whole Program Race Detector for Java"
Yanze Li, Bozhen Liu, Jeff Huang
In 2019 IEEE/ACM 41st International Conference on Software Engineering: Companion Proceedings (ICSE-Companion) (pp. 75-78). IEEE.

RESEARCH EXPERIENCE

- 2020.8- **Research Intern (Remote), Utrecht University, Netherland**
Working with Dr. Jurriaan Hage on a haskell compiler called Helium. 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.
- Coderrect** (Ongoing) An LLVM-based static analyzer, specialize in detecting concurrency related bugs and anti-patterns, found several previously unknown bugs in Linux kernel, Redis, memcached, and GraphBLAS.
- OMPRacer** An LLVM-based race detector for OpenMP programs, using inter-procedure value-flow analysis to reason about array accesses. Found several previously unknown bugs in ECP proxy applications and a major simulator 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

- 2020.8- Volunteer for International PL Mentorship Program

Sub-Reviewer

- 2020 OOPSLA
- 2019 PLDI, ICSE, FSE, OOPSLA
- 2018 TSE