Yahui Sun

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EDUCATION

Texas A&M University, College Station, TX — Aug 2018 – Dec 2020 (Expected)
M.S. in Computer Science. 4.0/4.0. — Advisor: Prof. Jeff Huang

Wuhan University, Wuhan, China — Sep 2014 – June 2018
B.Sc. in Computer Science. 3.7/4.0.

EXPERIENCE

▶ Research Intern, **Microsoft**, *Redmond, WA* — June 2020 - Sep 2020

Worked on the Azure Sphere team to develop and evaluate the Checked C compiler (based on LLVM Clang). Checked C is a language extension to C that adds *bounds safety* to prevent buffer overruns.

- Improved the compiler's static analysis for disproving invalid declared bounds. Detected 200+ invalid bounds in the test suites. Allowed more buffer overruns to be caught *at compile time* rather than runtime.
- Evaluated the usability of Checked C compiler on MUSL, a widely used Linux C runtime, by porting the network library to Checked C. Converted 2K LOC. Found 4 compiler bugs.
- Worked with Michael Hicks' team of researchers from University of Maryland to test and improve their porting tool that automatically translates C code to Checked C.

▶ Research Assistant, **Texas A&M University**, *College Station, TX* — Aug 2018 – Present

Focusing on developing program analysis tools to catch concurrency and security bugs in Go, C/C++.

- Leading a team of 5 students to develop novel static analysis algorithms to find data races and blocking bugs in Go programs in large Go programs such as Kubernetes.
- Developed a tool to find high-level race conditions in Go programs. The tool has found several new races (confirmed by developers) in industry-sized codebases such as Kubernetes, Docker and CockroachDB.
- Designed and implemented a tool to detect concurrent use-after-free bugs dynamically in the Chromium browser. The tool detected more concurrent use-after-free bugs in one run compared to ThreadSanitizer, a widely used race detector from Google, at a comparable performance cost.

▶ Software Engineering Intern, **RusselCloud**, *Shanghai, China* — Apr 2018 – June 2018

Developed the frontend and backend for RussellCloud, a deep learning platform for training and deploying deep learning models in the cloud. Technology stack: Docker, k8s, Django, MongoDB, VueJS.

▶ Software Engineering Intern, **Eyepetizer**, *Beijing, China* — Dec 2017 – Apr 2018

- Developed a web service (webpy, redis, Docker) for automatically generating and monitoring customizable WeChat mini-apps for third-party short video producers.
- Rewrote the official Eyepetizer WeChat mini app and developed the WeChat app templates for third-party video producers.

▶ Software Engineering Intern, **Baidu**, *Beijing, China* — July 2017 – Sep 2017

Worked on Baidu Search Recommendation team to develop interactive gadgets embedded in Baidu Search pages in JS & PHP to engage Baidu search users without leaving the search page.

- Developed interactive Search Page gadgets with millions of daily clicks.
- Improved the log parsing and aggregation infrastructure on Hadoop for the Search Recommendation team.

SPECIALTIES

Languages: Proficient in C++, Go, C, Python, Javascript, Bash, Java; Familiar with AWK, Ruby, PHP, Lisp.
Tools and Frameworks: Git, Docker, LLVM Clang, CMake, Z3, libFuzzer, CBMC.
Web Development: VueJS, AngularJS, Webpy, D3, Webpack, Redis, Java Spring, AWS.
Misc: Inter-thread Synchronization, Lock-free Algorithms, Weak Memory Models.

SERVICE AND TEACHING

ACM PLDI Artifact Evaluation Committee Member — 2019
Teaching Assistant for CSCE221 Data Structure and Algorithms, TAMU — Fall 2019
Conference Sub-reviewers: OOPSLA 2020, FSE 2020, PPoPP 2020, ICSE 2019, PLDI 2019, FSE 2019