Xiangxi Guo (Ryan)

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EDUCATION

University of Illinois Urbana-Champaign Champaign, IL
Candidate for a Master in Computer Science Expected: Dec. 2022

Northeastern University Boston, MA
Bachelor of Science in Computer Science and Mathematics 2017 - 2021

Tsinghua University Beijing, China
One-semester study abroad program Fall 2019

PROFESSIONAL EXPERIENCES

Meta FAIR Lab Menlo Park, CA
Software Engineering Intern May. – Aug. 2022

- Built runtime abstractions and a OneDNN tensor backend in Flashlight, a ML library.
- **Designed and implemented** a Tensor JIT prototype in Flashlight.

Facebook Menlo Park, CA
Software Engineering Intern June. – Aug. 2021

- **Designed and implemented** a tool to give Presto users query improvement suggestions via post-execution analysis.

Facebook Menlo Park, CA
Software Engineering Intern May. – Aug. 2020

- Developed generic model inference validation tools for verifying model updates and optimization.

TEACHING EXPERIENCES

University of Illinois Urbana-Champaign Champaign, IL
Teaching Assistant for Intro to CS II Sept. – Dec. 2022
Teaching Assistant for Intro to CS II Jan. – Apr. 2022

Northeastern University Boston, MA
Teaching Assistant for Algorithm Jan. – Apr. 2020
*Teaching Assistant for Algorithm, Computer System (**graduate level**)* Jan. – Apr. 2019
Course Assistant for Fundamentals of Computer Science I Sept. – Dec. 2018

SKILLS

Programming Languages:	C/C++, Java, Python, OCaml, Javascript, Rust, Haskell, Racket
Tools:	Git, GDB, LLVM
Natural Languages:	Chinese – native, English – fluent, Japanese – conversational, Spanish – beginner.

PROJECTS

SLP Vectorizer *UIUC Advanced Compiler Class Project*

- With a teammate, researched and implemented an SLP-based vectorization Pass in **LLVM**.
- Independently developed searching heuristics on seed instructions to **outperform** LLVM 13's built-in SLP pass by up to **30%** on standard benchmarks.

SoC *Independent Project written in OCaml and C*

- **Designed and implemented** a compiler for a subset of OCaml, using OCaml with **no external dependencies**.
- Implemented lexer, parser, type inference, register allocation, codegen (for arm64 and x86), and a runtime.

Decaf Compiler *Tsinghua University Compiler Class Project written in Java*

- Added abstract methods, type inference, and first class functions to a given compiler framework for a subset of Java.
- Implemented backend optimizations such as Common Subexpression Elimination and Dead Code Elimination.
- Identified and fixed several bugs in the provided framework via GitHub pull requests.