

Roife

✉ roifewu@gmail.com | 🌐 [roife](#) | 🌐 [roife.github.io](#)

Education

Nanjing University

2023.09 - 2026.06 (expected)

Master of Computer Science and Technology

- Member of Pascal Research Group, focus on PL and program analysis.
- Teaching Assistant: *Principles and Techniques of Compilers* (Spring 2024)

Beihang University

2019.09 - 2023.06

Bachelor of Computer Science and Technology

- GPA 3.84/4.00. Awarded the **National Scholarship** 2022. **Outstanding Graduate** of BUAA.
- Won the **First Price** of NSCSCC Compilation System Design Competition 2021, ranking 2nd overall.
- Teaching Assistant: *Programming in Practice* (Fall 2020), *Object-oriented Design and Construction* (Fall 2021, Spring 2022).

Research

A lightweight edge-side compiler for neural network operators

🌐 [roife/llvm-lite](#)

Personal project for undergraduate thesis at BUAA. Funded by Huawei.

2022.06 - 2023.05

- Developed an lightweight compiler for LLVM-IR on edge devices, with trimming works to the LLVM codegen module.
- Utilizing shape information on edge device to perform secondary optimizations on offline-compiled LLVM IR format neural network operators, to reduce the temporal and spatial overhead during operator runtime.

Projects

Vizsla

(In developing, currently private)

Lab Project. An **incremental-computing** IDE for (System)Verilog.

#Rust #Verilog #IDE

- **Primary Developer.** Designed the architecture of IDE and implemented most of features.
- Aimed at equipping hardware development with modern IDE features, enhancing the both productivity and code quality.
- Based on LSP, enabling real-time and low-latency parsing and semantic analysis with incremental computation.

Ayame

🌐 [No-SF-Work/ayame](#)

Collaborative Project on a SSA-based compiler from C to LLVM-IR/ ARMv7.

#Java #ARM #Compiler

- **Collaborator.** Implemented register allocation via graph coloring and machine-dependent optimizations.
- Project for NSCSCC Compilation System Design Competition, ranking 1st on nearly 1/2 of testcases in the competition.

Hanggai

🌐 [Caniformia](#)

Collaborative Project on an educational app for the course *Introduction to Aeronautics and Astronautics*.

#Swift #Ruby

- **Collaborator.** Participated in iOS app and web backend development.

Open-source contributions

[rust-lang/rust-analyzer](#) (active), [rust-lang/rust-clippy](#), [yuin/goldmark](#), [doomemacs/doomemacs](#) and [more on GitHub](#)

Skills

- **Programming Languages:** Not limited to specific language. Especially proficient in C, C++, Java, Rust, Swift, Python, Javascript, Ruby, (System)Verilog.
- **PL Theory:** Familiar with type systems, formal semantics and formal verification.
- **Compiler & Program Analysis:** Proficient in compilation optimizations, parsers and interpreters development; knowledgeable about LLVM. Proficient in static analysis with a focus on Java.
- **IDE Tooling:** Knowledgeable in LSP-based IDE development, especially familiar with rust-analyzer; familiar with IDE architecture based on incremental computation.
- **Web & Mobile:** Full-stack. Skilled in Vue, Rails, Docker, PostgreSQL, Redis; familiar with SwiftUI.
- **Developing Environment:** Proficient in Emacs; comfortable working in macOS and Linux; skilled in leveraging AI.

Misc

- **Languages:** Chinese (native), English (fluent)