

Roife

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Education

Nanjing University

2023.09 - 2026.06 (expected)

Master's Degree in Computer Science and Technology

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

Beihang University

2019.09 - 2023.06

Bachelor's Degree in Computer Science and Technology

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

LLVM-Lite, 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 a 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.
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Projects

Vizsla, a modern Verilog/SV IDE for hardware development.

(In development)

- (*Lab Project*) **Primary Developer**, designed the architecture of the IDE and implemented semantic analysis on Verilog/SV.
- Enabling real-time low-latency parsing and semantic analysis through **incremental computation**.
- Based on language server protocol to provide features like code navigation, refactoring, code completion, etc..

Hanggai, an educational app for the course *Introduction to Aeronautics and Astronautics*.

🌐 Caniformia

- (*Collaborative Project*) **Collaborator**, participated in the development of iOS app using SwiftUI and web backend using RoR.

Open-source contributions

rust-lang/rust-analyzer (active), rust-lang/rust-clippy, moonbitlang/tree-sitter-moonbit, yuin/goldmark, doomemacs/doomemacs and more on GitHub

Skills

- **Programming Languages**: Not limited to specific language. Especially proficient in C, C++, Java, Rust, Python, Verilog/SV. Comfortable with Ruby, Swift, JavaScript, OCaml, Coq, Haskell, etc.
 - **PL Theory**: Familiar with type systems, formal semantics and formal verification.
 - **Compiler**: Proficient in compilation optimizations and various program representations such as SSA, etc. Familiar with parsers and interpreters development; knowledgeable about LLVM.
 - **IDE**: Knowledgeable in IDE based on incremental computation, especially familiar with rust-analyzer; proficient in LSP.
 - **Program Analysis**: Familiar with static analysis algorithm such as pointer analysis, IDFS, etc; proficient in analysis on Java.
 - **Web & Mobile**: Full-stack. Skilled in Vue, RoR, Docker, PostgreSQL, Redis; familiar with SwiftUI.
 - **Tools**: Proficient in Emacs; comfortable working in macOS and Linux; skilled in leveraging AI.
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Misc

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