ROIFE

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Education

Beihang University (BUAA) 2019.09 – 2023.06
(Bachelor of *Computer Science and Technology*) GPA: 3.84/4.00

Nanjing University (NJU) 2023.06 – now
(Master of *Computer Science and Technology*) Pascal Research Group | major in PL, program analysis and EDA

Research Experience

A lightweight edge-side compiler for neural network operators (BUAA) 2022.06 – 2023.06

- Undergraduate thesis project, including independently implemented lightweight edge-side compiler and trimming work on the LLVM codegen module.
- Using shape information at the edge-side device to perform secondary optimization on offline compiled LLVM IR format neural network operators, to reduce the temporal and spatial overhead during operator runtime.

Projects

Ayame (Java, ARMv7 | co-developer, implemented register allocation and codegen related optimizations)

- A SSA-based compiler for a subset of C, can export LLVM IR/ARMv7 ASM.
- Implement optimizations such as GVN, graph coloring register allocation, etc.
- Ranking 2nd in the Huawei Bisheng Cup 2021, performance exceeds `clang -O3` on nearly 1/3 of testcases.

Racoon (Rust, LLVM IR)

- A SysY to LLVM IR compiler implemented in Rust.
- The reference implementation in Rust for labs of BUAA SE Compiler Design course.

Hanggai (SwiftUI, Vue, Rails | co-developer, participated in iOS app and web backend development)

- An app for the course *Introduction to Aeronautics and Astronautics* in BUAA, supporting the web and iOS.
- *Hanggai* can be downloaded from AppStore.

Honors & Awards

Outstanding Graduate of BUAA (Top 20%) 2023.06
National Scholarship (Top 1.5%) 2022.09
NSCSCC Compilation System Design Competition (Huawei Bisheng Cup) (the First Price, ranking 2nd) 2021.08

Skills

- **Programming Languages**: C, C++, Java, Rust, Swift, Python, JavaScript, Ruby, Verilog(SV), Haskell
- **Web Development**: Vue, Rails, Django, SwiftUI | Docker, PostgreSQL, Redis
- **Compilers**: Familiar with LLVM IR and LLVM; understand prevalent SSA-based optimization algorithms
- **PL Theory**: Familiar with functional programming languages; understand type theory;
- **Dev Tools**: macOS, Linux | Emacs, Xcode, JetBrains IDEs

Others

- **Teacher assistants**:
  - **Programming in Practice** (BUAA) 2020.09 - 2021.02
  - **Object oriented Design and Construction** (BUAA, S.T.A.R team) 2021.09 - 2022.06
- **Blog**: `https://roife.github.io`
- **Languages**: Mandarin Chinese (native), English (CET-6)