

RUQING YANG

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RESEARCH INTEREST

I'm interested in the **design** and **implementation** of programming languages and typing systems.

EDUCATION

Zhejiang University

B. Eng. *Computer Science and Technology*

GPA: 88/100 Major GPA: 90/100

Sep. 2019 - June 2023

Hangzhou, Zhejiang, China

COURSES

Data Structures and Algorithm Analysis (97)

Principles of Programming Languages (97)

Theory of Computation (90)

Operating Systems (98)

Compilation Principle (96)

Computer Architecture (93)

Computer Network (96)

Introduction to Computer System (95)

PROJECTS

Calocom | Rust, Compiler, Type system

Spring 2022

- This is a course project where I and my teammates designed and implemented a programming language with functional features like algebraic data type, closure, and pattern matching.
- I was involved in designing the type system, the typed AST, and the middle IR.
- I wrote the type checker, transformer from typed AST to middle IR, the code generator targeting LLVM IR, the run-time library, and the standard library.

SyOC | C++, Compiler, Optimization

Spring 2022 - Summer 2022

- An optimizing compiler for SysY (a subset of C) language.
- Used technique: Iterated domination frontier analysis for SSA -form IR construction, sparse conditional constant propagation, etc.

Rmatch | C++, JIT, Regex

Autumn 2021

- A simple regular expression matcher with JIT support.

Oeobia | C++, Meta-programming, λ Calculus

Autumn 2021

- Functional programming with C++ templates.

EXPERIENCE

Research Intern

Summer 2022 - Now

- On the topic of bidirectional tunneling algebraic effects.
- The research purpose is to implement an efficient compilation of tail-resumptive effect handlers and formalize the transformation process.
- Supervised by Prof. Zhang Yizhou.

Graduation Project

Autumn 2022 - Now

- Parallelize the SMT solver in a typical CDLT(T) architecture.
- Supervised by Prof. Yao Peisen.

Teaching Assistant

Autumn 2022 - Now

- In the course *Principles of Programming Languages*.

SKILLS

English: GRE: 155 + 169 + 3.5

Programming Languages: C/C++, Rust, Coq, OCaml, Python