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 **Sep. 2019 - June 2023**
B. Eng. *Computer Science and Technology* *Hangzhou, Zhejiang, China*
GPA: 88/100 Major GPA: 90/100

COURSES

Data Structures and Algorithm Analysis (97)
Principle 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

Teaching Assistant **Autumn 2022 - Now**

- In the course *Principle of Programming Languages*.

Research Experience **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*.

SKILLS

English: GRE: 155 + 169 + 3.5
Programming Languages: C/C++, Rust, Coq, OCaml, Python