

SIYUAN ZHU

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RESEARCH INTEREST

I am a third year student at Zhejiang University. My research interests include **optimizing compilers** for modern architectures and applications, **runtime systems** and **formal verification**. Currently, I focus on IR design and corresponding static analysis. The final goal is to implement appealing language features and explore more optimization opportunities.

EDUCATION

Zhejiang University

Bachelor of Engineering, Computer Science and Technology

- GPA: 91.57/100.00 Rank: 7/82

Hangzhou, China

Sep. 2020 – Jun. 2024 (expected)

PROJECTS

SyOC | C++, *Compiler, Optimization*

August 2022

- Topic: compiler construction & optimization
- SysY (a subset of C) optimizing compiler targets at ARMv7-A backend.
- Developed part of middle-end optimization passes, e.g. DCE, Liveness and CFG Simplify
- Developed back-end code generation. The backend consists of macro-expansion instruction selection, linear scan register allocation, a stack lowering and limited peephole optimization.

GPU Kernel Generating | C++, *Python*

May 2022

- Topic: machine learning systems
- Develop a pipeline generate CUDA kernels by Ansor and packed with TVM runtime as operators in DeePMD network .
- We eliminate redundant GPU memory allocation.

DPC++ SVM | DPC++, *Optimization*

August 2022

- Topic: High Performance Computing
- PAC 2022 final round problem.
- Migrate and optimize SVM solver to Intel GPU. We refactor the code with Intel oneAPI toolkit. In this task, we mainly focus on GPU SpMM optimization.

TEACHING ASSISTANT

High Performance Computing Practice

Zhejiang University

July 2022 – August 2022

Hangzhou, China

- Topic: CUDA C/C++ programming, hardware features & optimization techniques.
- CUDA convolution 2D kernel optimization

SCHOLARSHIP AND AWARDS

- Second Class Prize in the ASC22 student supercomputer challenge 2022
- Excellence Award in Computer System Capability Competition, Compiler Track 2022
- Zhejiang University First Class Scholarship 2021, 2022