

Sunho Kim

sunho@ucsd.edu ❖ (408) 640-9433 ❖ Campbell, CA ❖ github.com/sunho

EDUCATION

University of California San Diego

B.S., Computer Science

2025

La Jolla, CA

De Anza College

A.S., Computer Science for Transfer

2023

Cupertino, CA

EXPERIENCE

Google Summer of Code

2022

Software Engineer – LLVM Compiler Infrastructure

Online

- Contributed [50+ commits](#) to implement **linker backends** for aarch64 linux and x86_64 windows in the new JIT infrastructure of LLVM. (JITLink)
 - New JIT linker for aarch64 linux (ELF) [fixed major crashes in Julia programming language](#).
 - Enhanced JIT support in windows (COFF) is able to **JIT execute complicated c++ code** linked against the static **Microsoft STL library**.
- Contributed to LLVM's **c++ interpreter** (clang-repl) using my knowledge on JIT infrastructure.
 - Proposed and implemented a [RFC in the LLVM community](#) to extend Lexer of Clang to accept incremental input.

Devsh Graphics Programming Sp. z O.O.

2022 – Current

Software Engineer – Part Time

Poland

- Implemented various rendering techniques to render benchmark scenes **5 times faster** in **Vulkan ray-tracing** renderer used by dtt officemaker.

International Collegiate Programming Contest (ICPC)

2023

Contestant

United States

- Placed **Top 10** in ICPC pacific northwest regional division 1 and **advanced to the national round** ICPC North America Championship.

PROJECT

[Vita3K](#) Open Source Experimental Playstation Vita Emulator

- Worked on all parts of the emulator as a **core maintainer**, fixing bugs in **kernel, cpu, and gpu** emulations.
- Implemented **PowerVR** binary code to **spir-v** shader recompiler and **thumb 2** to **x86_64** recompiler.

[GPUSpectral](#) High Performance Vulkan Ray Tracing Renderer

- Written in **c++**; Implements monte-carlo path tracer with many common BSDFs such as **GGX** as well as uncommon ones like **internal scattering plastic BSDF**.
- Has its own **Vulkan abstraction library** that features automatic barrier placements.

[ShaderToy GLSL Shaders](#) 3D scenes created by only using math and code – no texture and model.

[AheuiJIT](#) JIT Compiler for Aheui Language

- Written from scratch by **c++**; Features IR optimizations such as constant folding and mem2reg and multiple backends targeting **x86_64**, **aarch64**, and **webassembly**.
- 10 times faster** than the previously fastest implementation of Aheui language.

[KatoML](#) Machine Learning Framework built from scratch

- Written from scratch by **c++**; Features dynamically typed **tensor math** library and **autograd** framework with multiple “IR combine” passes to improve numerical stability.

CONFERENCE TALKS

[Building PL Infrastructure With LLVM Components](#) • 2023 ACM SIGPLAN Conference on PLDI

[JITLink: Native Windows JITing in LLVM](#) • 2022 LLVM Developer's Meeting

SKILLS

c++, CUDA, python, typescript, go, assembly (x86_64, aarch64), LLVM IR, algorithms, advanced math, ida pro, ghidra, vulkan, spir-v, opengl, GLSL shaders, compute shaders, path tracing, reactjs