

Shaun Loo

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EXPERIENCE

Google Summer of Code

Minneapolis, MN

FFmpeg Code Contributor

May 2023 - August 2023

- Contributed to the FFmpeg native H.266 (VVC) decoder project, preparing FFmpeg for next-generation codecs
- Utilized AVX2 SIMD extensions in x86_64 assembly to accelerate H.266 (VVC) decoding by up to 3.6%
- Details can be found at <https://zackertthescar.com/avx2/>

University of Minnesota Twin Cities

Minneapolis, MN

Undergraduate Teaching Assistant

Sep 2022 - Present

- Supervised the smooth operation of programming laboratory sections of over 30 students
- Stimulated student interest in CS fundamentals by providing one-on-one or group guidance to over 50 students
- Expedited grading throughput and provided students with valuable feedback

SKILLS

Languages: C, C++, Rust, Java, Python, OCaml, TypeScript, x86_64 Assembly (NASM, with x86inc.asm)

Operating Systems: macOS, Linux (Debian, Ubuntu, Fedora, Arch, NixOS), Windows 10/11

Tools: Git, Docker, FFmpeg, Bash, Hyper-V, VMWare Workstation, QEMU, Ghidra, Xilinx Vivado

PROJECTS

CompQual: Utility to assess the output quality of different codecs at different bitrates. Command-line application in Python, utilizing FFmpeg and Netflix's VMAF library.

Self-Hosting: Maintained useful services including NGINX, Gitea, and Plex. Explored networking principles and studied administrating CI/CD tasks with Jenkins and Drone.

Interpreter: Implemented an interpreter of a small language in OCaml. Researched concepts in Programming Languages including type checking and exceptions.

EDUCATION

University of Minnesota Twin Cities

Minneapolis, MN

B.S Computer Science, GPA 3.87

Expected Graduation: Spring 2024

M.S Computer Science (Integrated Program)

Expected Graduation: TBD

- Relevant Coursework: Machine Architecture (C, x86_64 Assembly), Adv. Programming Principles (OCaml), Operating Systems (C, Linux Syscalls), Interactive Graphics and Games (WebGL, TypeScript)
- Awards and Honors: Dean's List (Fall 2021, Spring 2022, Fall 2022, Spring 2023)

LEADERSHIP AND ACTIVITIES

University of Minnesota ACM Student Chapter

Minneapolis, MN

Website Manager

May 2023 - Present

Systems Administrator

May 2022 - May 2023

Vice President

Jan 2022 - May 2022

- Provisioned over 40 charter members with virtual machines for server hosting and general computing studies
- Administered a public-facing IP block of 64 IPs, coordinating with University OIT on policy enforcement
- Demystified the Linux terminal and Git to over 70 students by teaching UNIX Classes

Free Geek Twin Cities

Minneapolis, MN

Modern Build Lab Volunteer

Dec 2021 - Present

- Provided crucial access to computers for low-income people by refurbishing and assembling over 40 computers
- Increased computer refurbishment throughput by up to 4 computers per day by optimizing refurbishment routines
- Assisted in onboarding volunteers by coaching new volunteers on refurbishment procedures