Shaun Loo

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EXPERIENCE

Member of Technical Staff
Jan 2026 - Present

Bold Software Inc
San Francisco, CA

- Implemented vital user-facing virtual-machine control mechanisms on the `exe.dev` virtual machine service
- Maintained custom kernels and Linux container images, focusing on process isolation and user experience in a high-volume startup product

Software Engineer
August 2025 - Present

Fyra Labs LLC
Minneapolis, MN

- Maintained packages on the Terra community package repository
- Assisted in maintaining a Fedora-based distribution, foucsing on user experience and GUI responsiveness
- Implemented a Nix installer for Ultramarine Linux ahead of the official FESCo Nix directory decision

FFmpeg Code Contributor
May 2023 - August 2023

Google Summer of Code
Mountain View, CA

- Implemented VVC (H.266) decoding in-loop filters in assembly with AVX2 SIMD to maximize parallelism
- Achieved a 3.6% speedup compared to compiler output, achieving smooth 4K playback on commodity hardware, preparing FFmpeg for next-generation video codecs
- Employed GitHub Actions and Test-Driven Development methods to write optimized `x86_64` assembly

System Administrator
May 2023 - May 2025

University of Minnesota ACM Student Chapter
Minneapolis, MN

- Administered and provisioned over 100 virtual machines for community use using `bhyve` and KVM
- Managed a diverse fleet of servers, from ZFS storage servers to multi-GPU systems for ML use
- Overhauled the ACM UMN network with symmetric 10 Gigabit and 256 publicly addressable IPv4 addresses with Cisco and Arista switches and OPNSense firewall
- Built community interest and skills in Unix system use by hosting high-turnout workshop events teaching the command line, Git, self-hosting, and using web development tools on Linux and FreeBSD

TECHNICAL SKILLS

Languages: C, C++, Rust, OCaml, JavaScript, TypeScript, Python, MATLAB, Haskell, Java, `x86_64` Assembly
Frameworks: Ember, Svelte, Flask, Zola, GCP (Firebase, Firestore)
Developer Tools: Git, Nix, Docker / Podman, OpenMPI, CUDA, Bash, KVM, `mdadm`, PostgreSQL, LaTeX
Libraries: PyTorch, pandas, NumPy, Matplotlib, D3, zlib, imgui
Operating Systems: Debian, NixOS, Fedora, RHEL and Rocky Linux, macOS

EDUCATION

University of Minnesota Twin Cities
Minneapolis, MN

Master of Science, Computer Science
Sep 2024 - May 2025

- Selected Coursework: **Programming Languages Theory**, **Real-Time and Embedded Operating Systems**, **Error Correcting Codes**, Advanced Computer Architecture, Computer Graphics

University of Minnesota Twin Cities
Minneapolis, MN

Bachelor of Science, Computer Science
Sep 2021 - May 2024

- Selected Coursework: **Operating Systems**, **Parallel Computing**, **Mathematical Cryptography**, Formal Languages and Automata Theory, Computer Networks

SELECTED PROJECTS

PICO-386 | *C, x86 Assembly, UART, Flex, Bison*
June 2025 – Present

- A PICO-8 emulator for 386 IBM PC compatible systems, exploring interrupt-driven programming
- Implemented a PNG decoder capable of decoding 8bpp images in C
- Developed a Lua interpreter in C using the Flex lexer and the Bison parser-generator
- Implemented RS-232 UART-interfacing debugging I/O and basic VGA draw calls in `x86` assembly for speed