

Technical Skills

Languages: *C, C++, Rust, LaTeX*

Tools & Libraries: *CMake, Make, Cargo, Bash/Zsh, SDL2, Git, GDB/LLDB debugging*

Areas: Systems programming, Graphics, Game engines, Unix/Linux/POSIX, FPGAs, Verilog

Personal Projects

Wolfenstein 3D Re-implementation

github.com/e6quisitory/wolf3d-reimpl-rs

Jan 2023 - Present
Rust, SDL2, C++, CMake

- Wrote a custom game engine from scratch to re-implement the classic 1992 game, *Wolfenstein 3D*, initially in *C++*, before moving to Rust.
- Features implemented thus far: raycasting-powered renderer, texture mapping, doors, enemies, sprite animation, shooting, custom maps.
- Next features to implement: enemy AI, more weapons, parser for loading original game levels, minimap, and (*aspirationally*) networked multiplayer.

Raytracing in One Weekend++

github.com/e6quisitory/rt-weekend

July-Sept 2022
C++, SDL2, CMake

- Built a raytracer following *Raytracing in One Weekend* in *C++*.
- Added custom features on top such as multithreaded rendering, live rendering into a window, video frames rendering (moving camera), render time measurement.

Curricular Projects

Simple Shell

github.com/e6quisitory/simple-shell

CMPT 201: Systems Programming - Oct 2023
C, CMake

- Implemented a shell like bash or zsh for POSIX-complaint OS's that executes entered commands in a separate process by making system calls.
- Added support for internal commands such as `cd`, `pwd`, `help` and `exit`.
- `history` command displays up to last 10 entered commands and lets user run any one of them again.

Custom Memory Allocator

github.com/e6quisitory/mem-alloc

CMPT 201: Systems Programming - Nov 2023
C, CMake

- Wrote a custom implementation of `malloc()` and `free()`.
- Used the `sbrk()` system call to request heap memory from OS, then managed it using a heap-embedded linked-list of free blocks.
- Free block could be found using first fit, best fit or worst fit algorithms.

Hamza Qayyum

Extracurricular Experience

FIRST Robotics Competition - Team 6008

github.com/e6quisitory/FRC2017

Jan-Apr 2017

C++

- Programmed different parts of a robot that loaded and released wiffleballs and climbed on a rope, to be controlled through an Xbox controller.
- Theorized and implemented a correction algorithm that used live data from a gyroscope sensor to make the robot drive perfectly straight, despite mechanical imperfections, for the autonomous portion of the challenge.

Semiahmoo Electronics Club

Co-Founder

Sept-Dec 2017

South Surrey, BC

- Started a club where students could come after school to build cool electronics projects using provided parts, tools, instructions, and help.
- Designed and led instructional sessions to build a:
 - Bluetooth speaker in the body of a pop can, powered by salvaged 18650 Li-ion cells from retired laptop batteries, a USB charging IC, a BT receiver and an amplifier.
 - USB power bank powered by the same salvaged 18650 cells.

Work Experience

Dorigo Systems

Electro-Mechanical Assembler

May-Aug 2021

Burnaby, BC

- Assembled and prepared products involving PCB's and casings in accordance with industry standards.
- Regularly interacted with manufacturing engineers to troubleshoot production issues.

Staples Canada

Technology Sales Associate

May-Sept 2019

Coquitlam, BC

- Helped customers find and select tech. products and furniture to suit their needs.
- Diagnosed issues with computers, monitors, and printers, and informed customers of relevant repair services.

Education

Simon Fraser University

BSc Computing Science (2nd yr. standing)

May 2023 - Present

Burnaby, BC

Capilano University

First Year Engineering Certificate

Sept 2018 - April 2019

Coquitlam, BC