Github
LinkedIn
Personal Site

Hamza Qayyum

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Surrey, BC, Canada

Technical Skills

Languages: *Python, C/C++, Rust, JavaScript, HTML, CSS, SQL*
Tools & Libraries: *PyTorch, CoreML, SDL, Svelte/SvelteKit, Flask, SQLite, Tauri*
Areas: Voice AI, Web frontend & backend, Graphics, Game engines, Unix/POSIX

Personal Projects

Senko May 2025 - Present
senko.sh *Python, C++, PyTorch, CoreML*

- A very fast, accurate speaker diarization pipeline.
- 1 hour of audio processed in 5 seconds on RTX 4090 + Ryzen 9 7950X, and in 7.7 seconds on Apple M3. 17x and 42x faster than Pyannote 3.1, respectively, while maintaining good accuracy.
- 13.5% DER on VoxConverse, 13.3% on AISHELL-4, 26.5% on AMI-IHM.
- A heavily optimized and slightly modified version of the diarization pipeline found in the 3D-Speaker project.

Zanshin Jun 2025 - Present
zanshin.sh *Svelte/SvelteKit, Python, Flask, Rust*

- A novel media player that allows you to navigate by speaker.
- Visualize who speaks when and for how long, jump/skip speaker segments, set different playback speeds for each speaker, auto-skip speakers.
- Svelte/SvelteKit frontend, Python backend using Flask with SQLite DB.
- Packaging done from scratch for macOS, with Tauri launcher.

Wolfenstein 3D Reimplementation Jan 2023 - Present
github.com/hamzaq2000/wolf3d-reimpl-rs *Rust, SDL2, C++, CMake*

- From-scratch reimplementation of the classic 1992 game, *Wolfenstein 3D*.
- 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.

Curricular Projects

Simple Shell CMPT 201: Systems Programming - Oct 2023
github.com/hamzaq2000/simple-shell *C, CMake*

Custom Memory Allocator CMPT 201: Systems Programming - Nov 2023
github.com/hamzaq2000/mem-alloc *C, CMake*

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Work Experience

Dorigo Systems May-Aug 2021
Electro-Mechanical Assembler *Burnaby, BC*

- Assembled and prepared products involving PCB's and casings.
- Interacted with manufacturing engineers to troubleshoot production issues.

Staples Canada May-Sept 2019
Technology Sales Associate *Coquitlam, BC*

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

Extracurricular Experience

FIRST Robotics Competition - Team 6008 Jan-Apr 2017
github.com/hamzaq2000/FRC2017 *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 Sept-Dec 2017
Co-Founder *South Surrey, BC*

- 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.

Education

Simon Fraser University May 2023 - Present
BSc Computing Science *Burnaby, BC*

Capilano University Sept 2018 - April 2019
First Year Engineering Certificate *Coquitlam, BC*