Muhammad Shaaf Yousaf

shaaf.yousaf@mail.utoronto.ca
shaafyousaf.me ShaafPlayz shaafyousaf

EDUCATION

University of Toronto | HBSc, Computer Science - Software Engineering Co-op — Apr 2027 (Expected)

Relevant Courses: Software Design, Introduction to Databases and Web Applications, Intro to Software Engineering, Data Structures, Systems Programming, Human Computer Interaction

SKILLS

Languages: JavaScript, Python, Java, C, Assembly, HTML, CSS, TypeScript, SQL, Shell, Dart, R
Frameworks & Tools: React, Next.js, Angular, Node.js, Docker, Jira, MongoDB, PostgreSQL, Jupyter, Figma, Firebase
Concepts: API Design, Agile Methodologies (Scrum), Client-Server Protocol, Unit Testing, CI/CD

ACADEMIC PROJECTS

Halo | MIPS Platformer Game — Feb 2025 — Apr 2025 **(GitHub)**

- Designed and developed a game in Assembly, simulating bare-metal programming on constrained hardware with a 512×256 pixel bitmap display at 33 frames per second.
- Implemented core gameplay logic (movement, jumping, shooting, coin collection, win/loss conditions) using direct register-level control, finite-state machines, and custom animation loops.
- **Technology:** Assembly, Mars MIPS Simulator

Hawkeye | Unix System Monitoring — Mar 2025 — Apr 2025 **(GitHub)**

- Developed a real-time Unix-based CLI monitoring tool in C to track memory usage, CPU utilization, and core frequency using three concurrent child processes with inter-process communication (IPC) via pipes.
- Rendered ANSI-based ASCII graphs for real-time terminal output, maintaining runtime deviation under 1% of theoretical performance targets.
- **Technology:** Unix, C, Concurrency, Signal Handling, MAKEFILE

Planetze | Android Developer (Industry Project) — Sept 2024 — Dec 2024 **(GitHub)**

- Built a full featured Android application for the company Planetze (using Android Studio, Java) to track user carbon footprint and provide real-time data as feedback.
- Selected for final project presentation to Planetze out of 34 groups; led sprint planning using Agile Scrum with Jira and Git.
- **Technology:** Java, XML, Firebase, Android Studio, Figma

HACKATHON PROJECTS

imagEHR | Google Best HealthCare AI Award at GenAI Genesis (Top 5 out of 160) **(GitHub)**

- Created an automated pipeline combining YOLOv5 image inference and Cohere LLM-based CDISC mapping to reduce clinical data structuring time from 8–9 weeks to 30 seconds by creating.
- **Technology:** Flask, Cohere Models, YOLOv5, Python, JavaScript, HTML, CSS, Render, Figma

OpenAI to Z Challenge | Planetary AI Research **(GitHub)**

- Produced a geospatial analysis workflow integrating Google Earth Engine, GeoPandas, and OpenAI GPT-4.1 vision models to analyze satellite datasets and detect environmental changes in the Amazon Rainforest.
- **Technology:** Jupyter, Conda, OpenAI LLM, GitHub Models, Python, GeoPandas, Numpy, Google Earth Engine

SIDE PROJECTS

Parsea (GitHub)

- A desktop automation tool that fetches email inbox, anonymizes sensitive data, and categorizes emails to save users time.
- **Technology:** Electron.js, IMAP, Cohere Models, JavaScript, Html, CSS