

Abubakar Shaikh

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EDUCATION

University of Alberta

09/2023 – Present

Bachelor of Science in Computing Science (Major in A.I)

- Relevant Coursework: Algorithms, Computer Architecture, Reinforcement Learning, Machine Learning, Software Engineering, File & DBMS
- Expected Graduation: 2027

PROJECTS

Data-Driven Event Allocation Platform (AuroraChance)

09/2025 – 12/2025

Android | Firebase | Java | Google Maps SDK

- Built a **data-driven event allocation system** using probabilistic lottery sampling to ensure fair access to high-demand community events.
- Implemented **real-time data synchronization** with Firebase Firestore for entrants, organizers, and administrators.
- Modeled structured datasets for events, users, waitlists, and notifications with consistency under concurrent updates.
- Integrated geolocation data via Google Maps and Places APIs for **location-based validation**.
- Coordinated a 6-member team using GitHub workflows and delivered **45+ user stories** using Agile Kanban.
- Used UML, CRC cards, and automated tests to improve reliability.

Mini Compiler Back End: RISC-V to WebAssembly

10/2025 – 11/2025

RISC-V | WASM | LEB128

- Built a binary translator converting RISC-V program binaries into WASM bytecode while preserving program semantics.
- Parsed and mapped I-type, R-type, and branch instructions into structured WASM expressions, handling immediates and the zero register.
- Implemented LEB128 encoding for integer literals to generate compact WASM immediates and return correct byte counts.
- Supported structured control flow by computing forward/backward branch targets and inserting correct block/loop/end bytecodes using a target-count table.

Ray Tracing Renderer

09/2024 – 12/2024

C

- Developed a 3D ray tracing renderer in C from scratch, generating realistic images of spheres with >90% shading accuracy across test cases.
- Implemented ray-object intersection, lighting, shading, and color computation using dynamic memory management and low-level file I/O.
- Optimized the rendering pipeline with qsort-based acceleration and memory management, reducing computation time by ~20% while simulating realistic lighting and reflections.

LEADERSHIP AND AWARDS

Awards & Recognition

04/2023

- 3rd Place, World Robotics Olympiad Nationals UAE
- University of Alberta Regional Excellence Scholarship – \$5,000
- University of Alberta International Admission Scholarship - \$5,000

Good Will Ambassdor's Club, President

05/2022

- Held multiple charity drives and fundraising events as the president.
- Coordinated weekly leadership and project meetings, aligning teams, managing timelines, and supporting the club's long-term growth.

SKILLS

Programming languages

Python, Java, JavaScript, C, SQL, Bash, RISC-V Assembly, html/CSS

Software Development

OOP, DSA, Frontend & Backend, Version Control, Agile/Kanban

Data Science & ML

NumPy, Pandas, Matplotlib, Reinforcement Learning, Neural Networks (Foundations)

Tools and Frameworks

Git & GitHub, VS Code, Android Studio, Firebase, MongoDB, React, CI/CD