Ayan Bin Saif

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Technical Profile

Mathematics student at the University of Waterloo specializing in iOS development and Computer Vision. Experienced in building scalable mobile apps and HCI solutions using Swift, Python, and Java.

Education

University of Waterloo Honours Bachelors of Mathematics (Co-op) 2025 — Present
Expected Graduation: April 2030

Technical Skills

Languages:	Swift, Python, Java, JavaScript, Racket, HTML/CSS, SQL
Frameworks:	SwiftUI, UIKit, React, Tailwind CSS, MediaPipe, OpenCV, Node.js
Tools/Tech:	Git (Version Control), Firebase (Auth/Firestore), Xcode, Jira, RESTful APIs
Core Concepts:	Object-Oriented Programming (OOP), Data Structures, UI/UX Design, HCI

Work Experience

Apple — iOS App Developer (Mentorship) Feb 2024 — Jul 2024

- Engineered native iOS applications using **Swift** and **SwiftUI** within an exclusive Apple-sponsored technical mentorship program.
- Architected 'EduBuddy' following **Apple HIG**, resulting in a 25% increase in perceived user navigation efficiency during beta testing.
- Managed the full **SDLC** from low-fidelity wireframing to final high-performance deployment in **Xcode**.
- Delivered a high-stakes technical demo to industry executives, highlighting feature scalability and memory management optimizations.

Projects

Rate My Rez | React, Firebase, Tailwind CSS 2025

- Launched a full-stack housing platform utilizing **React** for the frontend and **Firebase** for real-time data persistence.
- Implemented secure **RESTful-style CRUD operations** allowing users to manage reviews via Firebase Auth verification.
- Designed responsive UI components that ensured 100% layout consistency across mobile and desktop devices.

Cheeto-Fingers | Python, OpenCV, MediaPipe 2025

- Developed a touch-free HCI mapping 21 hand-knuckle landmarks to OS mouse events using **Vector Calculus**.
- Engineered a **jitter-buffering algorithm** to stabilize cursor movement, reducing sensor noise by 90%.
- Built a custom gesture-recognition engine for media navigation, including precision scrolling and volume toggling.

Dice Duel Showdown | Java, Python, JavaScript, HTML/CSS, Tailwind CSS 2025

- Architected a strategic turn-based game featuring a **probability-driven AI** opponent using weighted decision trees.
- Refactored a legacy Python prototype into a robust **Java** backend using **OOP design patterns** like inheritance.
- Deployed a web-based frontend with dynamic state management to track and visualize real-time battle logs.