

Ainesh Sabharwal

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EDUCATION

University of California, Berkeley | Berkeley, CA *Expected 2030*

Bachelor of Arts in Computer Science | *College of Computing, Data Science, and Society* | *Class of 2030*

Bridgeland High School | Cypress, TX *Class of 2026*

- No GPA yet | **Class rank 2 of 921**

RELEVANT COURSEWORK

Linear Algebra & Differential Equations (*Jun 23 - Aug 14, 2026*) · **Computer Science 61A** (*in progress*) · Data Structures & Algorithms (Java) · AP Physics C

TECHNICAL SKILLS

Languages: Java, TypeScript, Python

Web & Full-Stack: TypeScript, HTML/CSS, full-stack web apps, dashboards and analytics

AI / ML: Retrieval-Augmented Generation (RAG), on-device LLM inference, document summarization

CS Foundations: Stacks, queues, ring buffers, priority queues, trees, recursion, greedy algorithms

Tools: Git, GitHub, Eclipse

EXPERIENCE

iCode | Lead Instructor *Oct 2025 - Mar 2026*

- Led **coding and STEM classes** for **K-12 students**, teaching programming fundamentals through hands-on projects.
- Guided students through building and debugging their own software and hardware projects.

Algoverse AI Research Program | Student Researcher *Aug 2024 - May 2025*

- Conducted applied research on **Retrieval-Augmented Generation (RAG)** systems for grounded question answering.
- Explored **retrieval, embeddings, and prompting strategies** to improve answer accuracy over source documents.

PROJECTS

Drawly | Continuity-First Notes App for iPhone & Mac · Swift / SwiftUI *In Progress*

- Building a **native iPhone and Mac** note-taking app where typing and sketches mirror live between paired devices over a **direct peer-to-peer link (MultipeerConnectivity)**, with iCloud as backup.
- Runs OCR, speech transcription, and note summarization **fully on-device (Vision, Speech, Core ML)** and exports PencilKit sketches to **vector SVG**. Continuing project; a basic prototype is working so far.

ApathyAI | On-Device AI Copilot · Python · Contributor github.com/qurashisohaib/ApathyAI

- Contributed to a desktop AI assistant that runs **fully on-device** and works inside a user's existing workflow.
- Reads on-screen context to **auto-summarize long documents** and suggest spreadsheet and form fills.

HuddleHub | Full-Stack Local Business Platform · TypeScript *FBLA 2025-26 Coding & Programming*

- Built a **full-stack web app** to browse, search, review, and bookmark local businesses.
- Developed an **owner dashboard** to manage listings and track **engagement analytics**.

Bridgeland Arena Hub | Event Ticketing & Box Office Platform · TypeScript *3rd Place, FBLA Nationals*

- Created a ticketing and box office platform for a school event venue.
- Earned **3rd place in Website Design at the FBLA National Leadership Conference** (2025).

Data Structures & Algorithms Labs | Java github.com/sabharwalainesh

- **Greedy-Huffman:** Huffman file compression that builds a code tree with a **min-priority-queue** and bit-packs data to disk, then decompresses (greedy algorithm).
- **20 Questions:** Interactive guessing game backed by a **binary question tree** that learns new answers through recursive traversal and file I/O.
- **Guitar Hero:** Real-time plucked-string audio synthesis using the Karplus-Strong algorithm on a custom **ring buffer (circular queue)**.
- **Image Enhancer:** Java Swing image editor with filters and full Undo/Redo backed by a custom **array-based stack**.

HONORS & LEADERSHIP

- **Class Rank 2 of 921**, Bridgeland High School
- **3rd Place**, Website Design, **FBLA National Leadership Conference**
- **Eagle Scout**, Boy Scouts of America
- **Black Belt**, Taekwondo