

Akshay Aravind

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EDUCATION

Cornell University, College of Engineering

Bachelor of Science in Computer Science | **GPA:** 3.98/4.00

Courses: Object-Oriented Programming & Data Structures, Functional Programming, Discrete Math, Statistics, Calc III

Ithaca, NY

May 2025

Burlington High School: *GPA:* 4.46/4.00 ~ *Class Rank:* Top 5% ~ *High Honors List*

Burlington, MA

TECHNICAL SKILLS

- **Languages:** Python, Java, OCaml, JavaScript, TypeScript, HTML/CSS, C++, SQL
- **Technologies:** React, ChatGPT, Prompt Engineering, LangChain, Angular, Java Swing, FastAPI
- **Developer Tools:** Git, MySQL, MongoDB, VS Code, IntelliJ, Docker

EXPERIENCE

Abris

Software Engineer Intern

Tech Stack: React, Angular, FastAPI, LangChain, Python, OpenAI API, Pinecone, Git

- Spearhead the development of an AI sales representative chatbot in **Angular** and **LangChain**, increasing engagement by **30%**
- Engineered sophisticated retrieval system of **Pinecone** vector databases based on chatbot queries of product descriptions
- Prototyped **UI designs** in **React** for products such as [AIChefs](#) with functional **FastAPI** backends handling for communication

Andover, MA

June 2023 - Present

Campbell Lab

Data Analysis Research Intern

Tech Stack: R, Python, Shiny, Git

- Actively working as a **paid research intern** for Campbell Lab focusing on the application of novel and cutting edge computational methods to large genomic datasets of **500k+** columns, working to improve the **singleCellTK** R package
- Collaborating closely with bioinformatic graduate students, bolstering their research efforts through software in **R** and **Python**

Boston University

May 2023 - Present

Cornell Mars Rover

Software Team Member

Tech Stack: C++, Python, OpenCV, Docker, Git

- Selected to join the software team responsible for **controls software** on a **semi-autonomous rover** for the annual University Rover Competition, collaborating with **50+ peers** across engineering disciplines and subteams for synchronized development
- Implements and improves rover functionality through **C++**, leveraging **Python** scripts to develop comprehensive unit tests

Cornell University

Oct 2022 - Present

PROJECTS

FitnessAI ~ fitness-ai.netlify.app/

React, Python, LangChain, FastAPI | *June 2023 - Present*

- Developed a fully interactive fitness AI, incorporating a **chatbot** using LangChain that dynamically answers user queries
- Engineered a user-friendly interface for custom workout plan generation, leveraging **ChatGPT 3.5** through **OpenAI's API**
- Utilized React to deploy frontend through **Netlify**, communicating to a backend built with **FastAPI** deployed on **Deta Space**

SingleCellTK Package ~ github.com/akshayarav/singleCellTK

R, Python, Shiny, Git | *June 2023 - Present*

- Contributed to the open source singleCellTK R package produced by the Campbell Lab for analysis of single cell RNA-seq data
- Implemented a **bubble plot visualization tool** that aggregates and plots large RNA-seq data using the ggplot2 R package
- Expanded upon the interactive UI using Shiny, abstracting the bubble plot for simplified usability through **GUI development**

Autonomous ArUco Tag Detection

Python, OpenCV | *Mar 2023 - Apr 2023*

- Implemented computer vision software for ArUco tag detection in the autonomous portion of rover competition using **OpenCV**
- Utilized a **3x3 camera distortion matrix** parameter for detection compatibility with any camera, such as for use on drones
- Precise pose estimation in the function enables autonomous navigation with **95% accuracy**, dependent on camera resolution

IMC Trading Prosperity Challenge

Python, NumPy, Matplotlib | *Mar 2023*

- Placed in the **top 10% of 7000+** competitors in **team of 4**, coding over a 10 day sprint of **5 rounds each of 48 hours** in length
- Developed efficient trading algorithms in Python to optimize profit generation in a simulated volatile market
- Analyzed simulated market data given in CSV files of **100k+ lines** using pandas, NumPy, and visualized using Matplotlib

Aim Trainer Game

Java, Swing | *Jan 2023 - Mar 2023*

- Created an engaging Aim Trainer Game consisting of aiming at dynamically generated dots dispersed across the screen
- Engineered an interactive GUI with Java Swing to facilitate gameplay, enhanced with speed and size options through sliders

Interests: Working Out & Fitness, Basketball, Video Games, Piano, Rap