Akshay Aravind

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EDUCATION

Cornell University, College of Engineering **Ithaca, NY**
***GPA*: 3.98/4.00** ~ Bachelor of Science in Computer Science ~ Dean's List (All Semesters) *Expected May 2025*
Relevant Courses: *Object-Oriented Programming & Data Structures, Functional Programming, Discrete Math, Statistics, Calc III*

Burlington High School: *GPA*: 4.46/4.00 ~ *Class Rank: Top 5% ~ High Honors List ~ June 2022* **Burlington, MA**

TECHNICAL SKILLS

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

EXPERIENCE

Abris **Andover, MA**
Software Engineer Intern *June 2023 - Aug 2023*
Tech Stack: React, Angular, FastAPI, LangChain, Python, OpenAI API, ChatGPT, Pinecone, Git
- Spearheaded the development of **3+** different projects at Abris, a tech startup focusing on novel applications of **AI technology**
- Integrated product retrieval on **Pinecone** databases for uprate.ai by interpreting **user chats** via chatbot to fetch product data
- Leveraged **React** and **LangChain** to develop interactive UIs with **AI functionality**, increasing user engagement by **30%**

Campbell Lab **Boston University**
Computational Biomedicine Research Intern *May 2023 - Present*
Tech Stack: R, Python, Shiny, Git
- Develops crucial software as a **paid intern** at **Dr. Joshua D. Campbell's** Computational Biomedicine Lab in Boston University
- Implements **plotting** and **data analysis** functions in R packages that handle large genomic datasets of over **500k** data points
- Contributes to **open-source** packages, actively working on **5+** package functionalities, expanding on source code by **over 15%**

Cornell Mars Rover **Cornell University**
Software Team Member *Oct 2022 - Present*
Tech Stack: C++, Python, OpenCV, Docker, Git
- Member of the **software team** on CMR, an engineering team that builds Cornell's rover for the **University Rover Challenge**
- Implements **autonomy** software for the rover with **OpenCV** and **C++**, improving self-driving functionality by **35%**
- Presents innovative software projects to **70+** peers during team meetings, focusing on major objectives split into **5+** subtasks

PROJECTS

FitnessAI ~ *fitness-ai.netlify.app/* **Personal Project**
Tech Stack: React, Python, LangChain, FastAPI, OpenAI API *June 2023 - July 2023*
- Created a full stack **AI app** from scratch, comprised of a responsive **fitness chatbot** and a **customized workout generator**
- Leveraged **ChatGPT 3.5** through **OpenAI's API** and **LangChain** so fitness-goers can receive personalized workout advice
- Utilized **React** for sophisticated **frontend** development, with seamless communication to the backend built using **FastAPI**

singleCellTK Package ~ *github.com/akshayarav/singleCellTK* **Campbell Lab**
Tech Stack: R, Shiny, Python, 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 interactive usability through **GUI development**

Autonomous ArUco Tag Detection **Cornell Mars Rover**
Tech Stack: C++, Python, OpenCV, Docker *Mar 2023 - Apr 2023*
- Implemented computer vision software for ArUco tag detection in the autonomous portion of rover competition using **OpenCV**
- Implemented a **3x3 camera distortion matrix** parameter, ensuring **adaptable** camera support for potential rover modifications
- Precise pose estimation enables autonomous navigation with **95% accuracy**, accurately identifying markers from **30+** feet away

IMC Trading Prosperity Challenge **Coding Competition**
Tech Stack: Python, Jupyter Notebook, Matplotlib, pandas, Git *Mar 2023*
- Placed in the **top 10%** of competitors through collaboration with a team of **4,** coding over a 10 day sprint of **5 rounds each**
- Developed and deployed a variety of trading algorithms in Python to **optimize** profit generation in a simulated stock market
- Analyzed simulated market data in large CSV files of **100k+ lines** with pandas, and effectively visualized data using Matplotlib

Interests: Lifting and Health, Rap and Hip Hop, Piano, Competitive Video Games, Traveling