Aidan Tiruvan

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Education

University of Colorado Boulder Boulder, CO

B.S. Computer Science, B.A. Mathematics (Dual Major) - GPA: 3.94/4.00 **Expected May. 2028**

Relevant Coursework | Data Structures and Algorithms, Linear Algebra, Discrete Mathematics, Probability and Statistics, Machine Learning, Differential Equations, Calc III, Real Analysis 1, Computer Systems, Abstract Algebra 1, Combinatorics

Honors & Awards

United States of America Computing Olympiad (USACO) - Platinum Contestant

- Competed at the highest level for 2 years, placing in the top 5% in the 2022 and 2023 competitions

Standardized Aptitude Testing (SAT) – 1590/1600 (800 Math, 790 Reading)

- Top 1% nationally on the November 2, 2024 examination, with a perfect 800 in math and 790 in reading

Experience

Data Science Researcher (Incoming) Starting Jan 2025

NASA L'SPACE *Tempe, AZ (Remote)*

Software Engineer Intern Sept 2024 – Present

TimeAlign Inc. *San Diego, CA (Remote)*

- Developed a React and Node.js user admin frontend with dynamic user management and subscription controls
- Maintained a clean code base using linting tools, static analysis and writing documentation for future reference
- Implemented secure user authentication, utilizing RESTful APIs for login and account management
- Developed backend API endpoints enabling database connection with Firebase for administrative functions

Undergraduate Research Assistant Sept 2024 – Dec 2024

Correll Lab, University of Colorado Boulder *Boulder, CO*

- Collaborated with Boulder PhD candidates on robotics automation for chemical synthesis under Prof. Correll
- Developed a user-friendly GUI using Node.js, Express, and React, improving interaction with the robotic system
- Connected the GUI to robot endpoints via Express, enhancing control over robotic automation and processes
- Migrated from a PyQt-based demo to a more scalable Node.js and React solution, improving user experience

Computer Science Teaching Assistant Aug 2023 – May 2024

Stargate Charter School *Thornton, CO*

- Taught 30 freshmen web development and Python programming, covering HTML, CSS, JavaScript, and Python
- Provided data science fundamentals through real world applications and libraries such as Pandas and Matplotlib

Projects

ModelBucket | *Python, Docker, AWS, Kubernetes, FastAPI, Prometheus, Grafana*

- Engineered an MLOps pipeline for retraining deployed ML models, ensuring continuous performance
- Built Tier 1 serverless inference with AWS Lambda and containerized FastAPI, enabling scalable predictions
- Architected a Tier 2 Kubernetes cluster with Prometheus and Grafana for distributed inference and retraining
- Authored packages for frictionless deployments, preprocessor management, and data handling via AWS S3
- Sold for over $10k to a competing company due to enhanced model retraining and commercial scalability

3D Raycasting Game Engine | *Assembly (MASM), BitBlt, DOS Graphics*

- Developed a 3D raycasting engine using trigonometry for distance and angle calculations within player view
- Utilized DOS Graphics and BitBlt for bitmap rendering and real-time graphics updates in a Windows environment
- Implemented geometric collision detection using vector math, ensuring accurate player-environment interactions
- Optimized performance with linear algebra and assembly-level memory management for fast spatial movement
- Enabled fluid real-time navigation by translating user input into angular and positional changes in the 3D space

Technical Skills

Programming Languages: Python, C/C++, C#, Assembly (MASM), Javascript, Typescript, LateX
Libraries/Frameworks: Express.js, Node.js, Next.js, React.js, Flask, PyTorch, Redux, Tailwind CSS, Vite.js
Tools: Git, VS Code, Visual Studio, PyCharm, Docker, Kubernetes, AWS, Google Colab, Postman, Figma
Databases: PostgreSQL, MongoDB, Firebase, Supabase, Redis