Vasanth Aggala

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Education

Georgia Institute of Technology **Atlanta, GA**

B.S. in Computer Engineering | GPA: 3.9 *Expected May 2027*

- **Concentrations**: Distributed Systems & Software Design and Systems & Architecture
- **Relevant Coursework**: Data Structures and Algorithms, Object Oriented Programming, Discrete Mathematics, Linear Algebra, Statistics/Probability, Data Input and Manipulation, Digital System and Design, Calculus I/II/III/IV
- **Affiliations**: iOS Club, RoboJackets, Student Government (CompE Rep.), Big Data Big Impact, DS @ GT

Experience

Medford Group Jan 2026 – Present

Undergraduate Research Assistant - Computational Research *Atlanta, GA*

- Automated **SPARC-based** DFT workflows using **Python & Bash**, reducing simulation setup time by 20% across the team
- Built **Python** workflows for DFT simulations of CO/Pt(111) on HPC systems, comparing LDA and GGA exchange-correlation functionals and analyzing adsorption energies across atop, bridge, and hollow surface sites
- Performed 500+ high-fidelity DFT calculations using **Atomic Simulation environments** to extract adsorption energies and charge density features for model analysis

Delta Air Lines Aug 2025 – Dec 2025

Data Science Intern - Flight Safety *Atlanta, GA*

- Developed and deployed ML models in **Python** on **200K+ flight records** to predict flight risk anomalies, improving detection accuracy by 23% and enabling proactive mitigation of delays and operational disruptions
- Optimized backend **SQL/Python** ETL pipelines supporting Tableau dashboards, reducing query load times by 87% (25 mins → 3.3 mins) and improving data availability for operational decision-making
- Conducted large-scale trend analysis across 15+ KPI using **SQL**, **Python**, and **FlightRadar24 API** to support 4 flight operations teams in identifying performance bottlenecks and delay patterns

Bhamla Lab Mar 2025 – Aug 2025

Undergraduate Research Assistant - QByte Subteam *Atlanta, GA*

- Developed software for a **low-cost qBYTE biotech device** for educational deployment through the Frugal Science Academy, expanding access to hands-on diagnostics in classrooms
- Engineered embedded temperature control for a qLAMP device in **C++** on **ESP32**, **reducing thermal overshoot by 80%** and improving reaction stability
- Built real-time data visualization tools, including **Python** dashboards and a **React/TypeScript** mobile app, enabling live monitoring and configuration of fluorescence sensor data during experiments

Projects

iOS Journal & Mood Tracking App | *Swift, SwiftUI, Firebase (Auth & Firestore)* Feb 2026 – Mar 2026

- Developed a **SwiftUI-based** iOS application using MVVM architecture to support journaling and mood tracking
- Integrated **Firebase Authentication** and **Firestore** to enable secure user login and persistent, user-specific storage of entries

Movie Revenue Predictor | GitHub Repository Jun 2025 – Jul 2025

- Built an ML pipeline (Pandas, PyTorch) to predict movie revenue using structured data and text embeddings from plot summaries
- Engineered features and trained a Random Forest model to learn relationships between movie attributes and revenue
- Evaluated performance with RMSE/MAE and used feature importance to identify key drivers and debug errors

Delta Flight Delay Data & Visualizations | GitHub Repository Feb 2025 – May 2025

- Built a data processing pipeline integrating 95K+ Delta flight records with weather and aircraft metadata by cleaning messy DOT data, normalizing schemas, and merging across multiple external sources
- Implemented UTC-based timestamp normalization to align flight schedules with hourly weather data from **Open-Meteo API** and built a **BeautifulSoup4-based web scraper** to enrich records with aircraft metadata by tail number
- Identified systemic delay propagation, finding evening departures averaged 58.97 minutes of delay, 34% longer than night flights

Skills

Languages: Python, Java, Swift, C/C++, SQL, Go, R, TypeScript, JavaScript (React), HTML/CSS, Bash
Frameworks/Libraries: Pandas, NumPy, OpenCV, Matplotlib, React, Spring Boot, Django
Tools/Platforms: Git, Firebase, Amazon Web Services, Docker, Kubernetes, Teradata, Linux
Concepts: Machine Learning, NLP, REST APIs, CI/CD, Agile