Aakash Suryavanshi

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Education

Georgia Institute of Technology — Atlanta, GA
Master of Science in Computer Science — *2025 – 2027*

Georgia Institute of Technology — Atlanta, GA
Bachelor of Science in Computer Science — *2022 – 2025*

Technical Skills

Relevant Coursework: Artificial Intelligence, Machine Learning, Data Structures, Algorithms, Computer Vision, NLP
Languages: Java, Python, C/C++, SQL, JavaScript, HTML/CSS, Assembly, Swift, C#, R
Frameworks: React, Node.js, Flask, Django, Processing, OpenGL, FastAPI
Developer Tools: Git, Docker, VS Code, AWS, Conda, GitHub, Tableau, Agile
Libraries: Pandas, NumPy, PyTorch, Matplotlib, OpenCV, Beads, ControlP5, TensorFlow

Experience

Undergraduate Research | *Georgia Institute of Technology, Atlanta, GA* — January 2024 – Present

- Ranked Top 4 globally in the eleven million dollar XPRIZE Wildfire competition by developing an autonomous **Python** flight stack with DroneKit and MAVLink, featuring safety state machines, adaptive ground speed, and emergency return to launch
- Built a **neural network** fire detection pipeline with **PyTorch** and **OpenCV** and integrated an onboard camera to convert live video into geo coordinates in real time, enabling navigation toward hotspots at a controlled standoff
- Designed a latency-aware control loop that parses MAVLink telemetry and continually recomputes GPS waypoints as the fire moves, maintaining course accuracy under changing conditions
- Implemented **object-detection**-guided obstacle handling and automatic camera pitch control to preserve line of sight and reduce pilot workload during testing

Projects

Stock Market Investment Timing Analysis | *SQL, Excel, Tableau* — July 2025

- Analyzed 22 years of S&P 500 data with 5,700+ trading days to evaluate timing vs. time-in-market investment strategies
- Created **SQL** pipelines to detect rolling all-time highs and compute 1, 3, and 5-year forward returns
- Segmented trades into high vs. average entry points, comparing historical ROI across 1993–2020
- Validated findings using both **mean** and **median** statistics to account for market volatility and ensure robust conclusions across different market conditions
- Built **Tableau** dashboards to visualize patterns in investor outcomes and created **Excel** summaries for validation

Capital One Personal Finance Analysis | *SQL, Tableau, Excel* — June 2025

- Built end-to-end analytics pipeline processing 4 months of transaction data from PDF extraction through SQL analysis, creating meaningful insights from unstructured financial data
- Designed SQL queries using CTEs, window functions, and temporal analysis to analyze massive-scale spending patterns and identify optimization opportunities across multiple dimensions
- Developed interactive Tableau dashboards with dynamic filtering capabilities, translating raw transaction data into actionable budget recommendations that improved personal financial decision-making
- Applied data-driven approach to uncover spending behaviors and seasonal trends, making sense of complex financial patterns and explaining insights through clear visualizations

Sports NLP: Player-Style Postgame Answer Generation | *NLP, Python, PyTorch, Poetry* — January 2025 - May 2025

- Analyzed 119 NBA games with 1,190 player responses and 10 statistical features, normalizing metrics across seasons
- Engineered a **data pipeline** to parse box scores, normalize player stats, align responses by game and speaker, and split into train/validation/test sets for modeling
- Developed a **neural model** combining box score **embeddings** with pretrained **language models** to generate player-style answers
- Evaluated model outputs with 84% coherence accuracy based on human-labeled alignment between game stats and generated responses; maintained 50-token length and 200ms latency for real-time usability

Personalized Movie Recommender | *ML, Python, Pandas, PyTorch* — January 2025 – May 2024

- Analyzed user viewing patterns and preferences using the MovieLens dataset to build predictive models for content recommendation and user segmentation
- Cleaned and preprocessed 100,000+ user rating records, handling missing data and engineering features to structure datasets for predictive modeling and user behavior analysis
- Achieved 12% improvement in prediction accuracy (0.89 RMSE) through systematic model comparison, enabling more precise user targeting and content personalization strategies
- Built automated model evaluation and performance tracking workflows, generating comparative analysis reports and visualizations to identify optimal recommendation approaches