VARUN SAI GANGAVARAPU

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EDUCATION

Rutgers the State University of New Jersey — New Brunswick, NJ
BS in Computer Science, Data Science, Economics — *September 2022 – May 2026*

- Data Structures, Design & Analysis of Algorithms, Computer Architecture, Discrete Mathamatics, Data 101

EXPERIENCE

Software Engineering Intern — June 2023 – August 2023
Amneal Pharmaceuticals — *Bridgewater , NJ*

- Migrated **100,000s** of data points from **AWS data lake** to modify a **visualization layer** of the **supply chain pipeline** to **optimize** inventory **efficiency**.
- Incorporated **statistical models** such as **ARIMA**, **Exponential Smoothing** and **Time Series Regression** using **API**'s like **Pandas** and **NumPy** in **Python** to improve **demand forecasting** by achieving an **accuracy** of **82%**.
- Designed an **automated script** in **Python** that identified and **terminated** unnecessary **AWS EC2 server** instances, leading to a substantial **reduction** in operational **AWS costs** by **12%**.
- Collaborated with cross-functional teams and executive management understanding business needs to facilitate meetings with **Google, Amazon, Microsoft,** and more to explore **AI and Cloud Computing solutions**.

Quantitative Developer — January 2023 – April 2023
Quantitative Finance Club — *New Brunswick, NJ*

- Developed a robust **trading algorithm** using **Python** on **QuantConnect**, focusing on SPY, incorporating **strategies** such as **mean reversion** and **momentum trading**.
- Performed extensive **back testing** to optimize parameters and validate the strategy on stock data from 2020-2021, **outperforming** the S&P 500 by **6%**.
- Utilized technical **indicators** including **SMA** and **EMA** for trend identification, **RSI** for momentum analysis, and **Bollinger Bands** for mean reversion, improving **predictive accuracy** and **trading efficiency.**
- Secured **2nd Place** in the Salhotra Quant Challenge, a competition with over **200 participants** sponsored by **Jane Street** and **Susquehanna International Group**.

PROJECTS

Dynamic Vector Based Spotify Recommendation Engine — March 2024
Python, Javascript, Flask, OAuth — *GitHub*

- Secured **1st place** in a hackathon with **500 entrants**, leading **full-stack** development of a Vector-Based Spotify Recommendation Engine.
- Conducted advanced **sentiment analysis** by integrating lingustic data from Spotify and MusixMatch APIs with a **HuggingFace transformer** to generate a "Sentiment Vector" in a 24-dimension space.
- Modeled a **vector database** in **PineCone** utilizing **KNN algorithms** for efficient Sentiment Vector retrieval, enhancing song recommendation accuracy and performance in a user-centric application.
- Independently built Front End with **JavaScript**, **HTML**, and **CSS** incorporating advanced animations with the use of the **GSAP** library along with Swiper CSS and Locomotive Scroll.

Course Reveal — January 2024
React/Next.js, TailWind CSS, Python, Flask — *GitHub*

- Deployed a feature-rich **full-stack** platform that allows **1,000**s of students to view their prospective classmates for upcoming semesters, fostering a sense of community and collaboration within the university.
- Worked with **Selenium** in **Python** to **Web Scrape** the university's scheduling portal to create a directory of information regarding **8,000+** classes.
- Implemented an efficient **back-end** in **Python** with **Flask** that quickly gives the user a list of all students on the platform who are also taking the same class and an intuitive **Front-End** made with **React** and **TailWind**.

TECHNICAL SKILLS

Languages: Java, JavaScript, TypeScript, Python, HTML, CSS, C++, C#, Go
Frameworks/Libraries: React, Pandas, NumPy, Node.js, Flask, Pinecone, SQL, Socket.io, Bootstrap, Express
API's/Tools: RESTful APIs, Spotify API, AWS S3 API, AWS EC2 API, Git, AWS, PostMan, Linux, Slack, Jira, PowerBI
Other: Artificial Intelligence, Machine Learning, Data Management, Statistical Modeling