

Viraj Acharya

732-507-8042 | va63@duke.edu | [linkedin.com/in/viraj-acharya/](https://www.linkedin.com/in/viraj-acharya/) | github.com/virajac0

EDUCATION

Duke University | Durham, NC

Graduating May 2026

B.S. in Computer Science & Mathematics | Minor in Statistical Science

GPA: 3.9/4.0

Relevant Coursework: Data Structures, Design & Analysis of Algorithms, Databases, Machine Learning, Computer Architecture, Linear Algebra, Multivariable Calculus, Probability, Regression Analysis, Bayesian Statistics, Mathematical Finance, Econometrics

EXPERIENCE

Wayfair | Data Science Intern | Boston, MA

June 2024 - August 2024

- Produced new and rewrote outdated **SQL** queries by leveraging Google Cloud's **BigQuery** to reference over **300M+** rows of data that led to a runtime improvement of **85%** and computing cost savings
- Created B2B dashboard in **Python** that stakeholders across company use as source of truth for business account segments
- Devised actionable strategies using data-driven **systems thinking** for **150+** sales agents to increase individual gross revenue

Acre Homes | Software Engineering Intern | Durham, NC (Hybrid)

March 2023 - May 2024

- Enhanced proptech startup's real estate approach by **web scraping** Multiple Listing Service websites to create property listing dashboard in **Python** with models of historical and current market data covering **1M+** properties
- Developed data models using machine learning techniques that grew investor activity by **33%** and real estate property evaluation algorithms to optimize Acre-approved homes available for customers
- Created a bot that integrates **Retool** software with **Python** scripts to streamline property data collection time by **95.83%**

Duke University Hydroclimatological Lab | ML Researcher Intern | Durham, NC

May 2023 - August 2023

- Built an app using **Shiny for Python** to upload daily wetland data of **10+** years from 11 AmeriFlux sites and display a map view of each site based on users' desired features from **25+** variables
- Engineered an ML pipeline using **support vector machine (SVM)**, **random forest**, and **ANN models** to estimate wetland carbon emissions across the Southeastern US region with an average **accuracy of 82%**

PROJECTS

FX Rate Time Series Forecasting with Arbitrage Detection

June 2024 - July 2024

Python, Requests, TensorFlow, Keras, Scikit-learn, NumPy, Matplotlib, RESTful API

- Constructed a **deep feedforward neural network** to predict foreign exchange currency rates between **28 currencies**
- Processed current & forecasted rates in modified Bellman-Ford **algorithm** to detect market inefficiencies for arbitrage chance
- Validated model success by **backtesting** on 4 years of historical exchange rate data and optimized **performance** through feature engineering to improve RMSE, forecast bias, and mean directional accuracy

FoodFlagger

September 2023 - January 2024

PostgreSQL, Express.js, Node.js, Next.js, Python, SQL, HTML, CSS, JavaScript

- Led a team in creating a **full-stack web app** for finding on-campus food events using **Next.js** frontend + **Node/Express** backend that utilizes **7+ API endpoints** to provide scalable features & **secure** user login that guards against injection attacks
- Integrated backend & web scraped data with **PostgreSQL** database following a design based on events, users, & preferences
- Executed features to boost user experience by integrating Google Calendar, live notification system, and website leaderboard which attracted activity from **200+** Duke University students

Options Pricing Model with Monte Carlo Simulation

May 2023 - June 2023

Python, Pandas, Matplotlib, NumPy, SciPy, Yahoo Finance API, Jupyter Notebook

- Implemented Binomial Options Pricing Models for non-dividend stocks using a **backward induction** algorithm
- Simulated **\$10K** Stock Portfolio based on Sharpe & Sortino Ratio, VaR, and CVaR to forecast growth of **5+** AI companies
- Evaluated model accuracy using Black-Scholes formula & mark prices to assess Long Straddle Strategy on random contracts

TECHNICAL SKILLS

Languages & Frameworks: Python, Java, SQL, JavaScript (ReactJS/NodeJS/NextJS), PostgreSQL, HTML/CSS (Tailwind), C, R

Data Analysis: Pandas, NumPy, Matplotlib, Seaborn, Keras, TensorFlow, XGBoost, Scikit-learn, OpenCV, Excel, Jupyter

Developer Tools: Git (GitHub/GitLab), CI/CD, Kubernetes, AWS, Firebase, Retool, Agile, Docker, Figma, Confluence, Jira