Davayan Sanyal

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Education

University of Maryland, College Park   Aug 2021 - May 2025(Expected)
Dual Degree - Bachelor of Sciences in Computer Science and Math, minor in Computational Finance   GPA: 3.79/4.00

Relevant Coursework: Probability Theory and Statistics, Computer Systems (C and Linux), Advanced Data Structures and Algorithms, Machine Learning, Database Design, Financial Markets and Datasets, Options Theory and Derivatives, AWS Cloud Practitioner Certification

Work Experience

Software Engineering Intern   June 2024 – Aug 2024
Capital One – Card Tech   New York City, NY

- Created feedback loop API on AWS Lambda for improving performance of merchant data cleansing ML model at Capital One which processes 30 billion transactions per year. Lowered misclassed data rate by 45% from 200+ feedback reports monthly.
- Deployed DynamoDB logging connected to Snowflake data analytic with resiliency which enables 1000 data stores per month.
- Implemented Route53 with multi-region failover and low latency routing for 99% resiliency and 100ms response time

Teaching Assistant, Financial Markets and Datasets   June 2024 – Present
Department of Finance, University of Maryland   College Park, MD

- Co-teaching 40 computer science students on introductory financial market concepts on assets, securities, and options, etc. Teaching how to optimization a portfolio of 1 million dollars over 30 years using linear regression in NumPy and scikit-learn.

Research Assistant   Dec 2023 – Present
Department of Finance, University of Maryland   College Park, MD

- Digitized historic newspaper financial data using various Optical Character Recognition open-source packages including Tesseract, docTr, and EasyOCR in Python within Conda environment. Digitized 4000 newspaper articles with heavy noise using Tensor.
- Cleansed noisy data by combining results from open-source machine learning models of 15, 40, and 70 billion parameter sizes such as Llama 3, Command-R, and Mixtral in LM studio. Building a 40B Large Language Model for further machine learning analysis.

Software Engineering Intern   Jun 2023 – Aug 2023
Capital One - Cyber   McLean, VA

- Developed an On-Duty status system with React and NodeJS with robust audit capabilities to support cyber teams new On Call feature for 25+ cyber analysts. Stored threats on MongoDB store in AWS which process up to 1200 new cyber alerts weekly.
- Automated assignment of new cases to cyber analysts to reduce overhead in tracking cyber threats 90% down to 10 minutes

Software Engineering Intern   Sep 2022 – Dec 2022
Capital One – Machine Learning Lab   College Park, MD

- Developed Slurp, an internal web app for finding acronyms, handling 60,000 searches per month. Enhanced frontend with a new Angular Component for accepting file submissions for new acronyms.
- Improved backend API to accept file submissions and parse data into PostgreSQL tables using NodeJS and Sequelize, capturing 1,300 terms. Doubled usability for 4,000 monthly users within nine weeks.

Projects

Eventure: AI Powered Social App   Apr 2024
Partial Owner, Team Member

- Developed a beautiful full stack webapp on Tailwind and shadcn/ui that utilized Gemini AI to generate events happening in a city based on the user's interest with 36 hours. User can then join a group to do the event with new people to make friends.
- Used nextJS display to 400 upcoming events read from Supabase storage that were sourced and categorized by prompting engineering Gemini API. As a demo, app was used by 90 students to find a group for the activity with 80% success

Public Square: Dining Hall Recommendation App   Mar 2023 – May 2023
Sole Owner, Developer

- Enabled users to leave and view reviews about the university dining halls to enable decision making by making a Swift App which refreshes every day to reflect daily changes in food quality and changes in opinion.
- Lowered food waste and increased information access to students. Used Flask backend in Python environment to store up to 500 food reviews and calculate overall 5-star score.

StockByte: Social Media Stock Perception Tracker   Apr 2023
Partial Owner, Team Member

- Scraped data from 1200 reddit posts and used Pandas NPL analysis to show users the overall sentiment of users on forums for 32 stocks compared with their real stock market performance. Tracked sentiment correlation of 67% with daily stock gain or loss.
- Created a webapp using Flask and MongoDB to store 1200 documents of NoSQL data, sentiment scores of 32 stocks, and calculate the reactions of 12 student from a survey about our findings. Won best use of MongoDB at Bitcamp UMD Hackathon.

Skills

Languages and Environments - Java, C/C++, Python, MATLAB, Ruby, Ocaml, JavaScript, TypeScript, HTML/CSS, Swift, Docker, Conda, Pipenv
Software and AI Engineering - IOS Development, Full Stack Development, LLM training, Prompt Engineering, LMStudio, Git and GitHub
Application Development Technology – React, Angular, NextJS, NodeJS, Express, Flask, Prisma, Sequelize, PostgreSQL, MongoDB Atlas, Supabase, DynamoDB, Jupyter Notebook, AWS Lambda
Interpersonal - Communication, Facilitation, Teamwork, Presentation, Negotiation