Smayan Ranjan

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Education

University of Michigan **Ann Arbor, MI**

Bachelors of Science and Engineering in Data Science - ***GPA: 3.8/4.0*** *Expected May 2026*

- Coursework: Data Structures and Algorithms, Computer Organization, Web Systems, Machine Learning, Applied Regression Analysis, Computational Linguistics, Discrete Mathematics, Computer Science Pragmatics, Linear Algebra

Experience

Software Engineering Intern **May 2024 – August 2024**

Functional Food Center *Dallas, Texas*

- Used **Front-end Framworks** such as **HTML/CSS** and **Javascript** to develop the website for FFC's International Satellite Conference, set to host over **5,000 attendees** from **125+ countries**.
- Updated and maintained website content related to upcoming conferences using data managed on **Google Sheets**, including speaker profiles, abstract submission details, and conference program schedules.
- Enhanced the secondary website for FFC's journal publication services by constructing **React** components for publications, streamlining the management of scientific research articles in the field of Functional Foods.

Projects

Money Monitor | *MongoDB, ExpressJS, ReactJS, NodeJS, TypeScript, TailwindCSS*

- Designed a full-stack financial tracker application using the **MERN** stack that allows users to record their transactions with seamless client-server communication facilitated by axios for asynchronous requests.
- Developed core **REST APIs** using **Express.js** and **Node.js**, enabling seamless interactions with a **NoSQL, MongoDB** database managed using **Mongoose**.
- Implemented secure user authentication using **Clerk**, enabling users to only access and modify their own financial data.
- Created a **React Hook** and context provider for managing financial records by integrating with a Backend API.
- Designed a responsive UI using **React**, styled with **Tailwind CSS**, and ensured secure and efficient data exchange in **JSON** format, with **CORS** policy compliance to handle cross-origin requests between the frontend and backend.

Investing Aide | *Python, Google Gemini, Streamlit, Yahoo Finance, Plotly* **https://investing-aide.streamlit.app/**

- Developed an interactive stock dashboard using **Python** and **Streamlit** to help users perform technical analysis and track stock performance with real-time data and AI-driven insights for **SWOT** Analysis using **Google Gemini**.
- Integrated the **yfinance API** to fetch real-time stock data for analysis, allowing users to interactively select timeframes ranging from one year to several years of price history resulting in a dynamic buy/sell rating for the stock.
- Implemented **SMA** and **EMA** for visualizing stock trends and generating buy/sell signals based on crossover patterns.
- Created interactive visualizations with **Plotly**, calculating key financial metrics such as Annualized Return, RAR, etc.

Forum Post Classifier | *C++, Machine Learning, NLP*

- Developed a text classification model using **Natural Language Processing (NLP)** techniques, including **Log-Likelihood** and the **"Bag of Words"** model, achieving **87 Percent** accuracy in post subject prediction for a class discussion forum, validated with a labeled test dataset.
- Leveraged the **Naive Bayes Algorithm** to build a classifier that analyzed patterns in previous posts, effectively capturing complex language nuances and improving predictive text categorization results.
- Implemented an optimized data structure, storing over **3,000 forum posts** in a **Binary Search Tree**, improving data lookup speed and reducing memory usage for large-scale text processing.

Extracurricular Involvement

Wolverine Sports Analytics **January 2024 – May 2024**

March Madness Bracket Predictor *Ann Arbor, Michigan*

- Developed robust web-scraping algorithms to aggregate **80,000** data points from **27** years of March Madness tournaments, creating a comprehensive dataset for advanced predictive modeling.
- Leveraged **MySQL** to efficiently store, structure, and export data into CSV format, streamlining the data pipeline for analysis and machine learning phases.
- Employed Pandas, Numpy, and SciKit to analyze historical trends and utilize machine learning algorithms, resulting in an **86th percentile** finish in the 2024 NCAA March Madness Bracket Challenge.

Technical Skills

Languages: C++, C, Python, JavaScript, TypeScript, R, HTML, CSS, SQL
Technologies: Git/Github/Gitlab, MongoDB(NoSQL Databases), ExpressJS, ReactJS, NodeJS, MongooseJS, PowerBI, Yarn/Vite, AWS, Jupyter, MySQL, Clerk Authentication, Bootstrap/Tailwind, Pandas, Scikit Learn, Selenium