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, Data Mining and Statistical Learning, Applied Regression Analysis, Statistics and Artificial Intelligence, Discrete Mathematics, Computer Science Pragmatics, Linear Algebra
- Campus Involvement: Michigan Data Science Team, Michigan Hackers, Wolverine Sports Analytics

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

ShowCase | *MERN, JavaScript, TailwindCSS* **https://showcase-ndy3.onrender.com/**

- Developed and deployed a full-stack Movie/TV Show watchlist application using **MongoDB, Express.js, React, Node.js** to manage watchlists with seamless client-server communication facilitated by axios for asynchronous requests.
- Designed core **REST APIs** using **Express.js** and **Node.js** to implement **CRUD** functionality (Create, Read, Update, Delete), enabling seamless interactions with a **MongoDB** database hosted on **AWS** and managed using **Mongoose**.
- 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, Streamlit, Yahoo Finance, Plotly, Google Gemini* **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 **yfinance API** to fetch real-time and historical 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.

Bank Transaction Management System Simulator | *C++, File I/O*

- Designed and implemented a banking system to manage transactions, user authentication, and real-time balance updates, supporting over **1,000** users and **10,000** transactions.
- Built a fraud detection mechanism by **validating IP addresses** for each transaction, ensuring secure user sessions and preventing fraudulent activities across **500+ logged-in sessions**.
- Implemented a transaction scheduler using **Priority Queues**, processing transactions up to 3 days in advance.
- Accounts are initialized from an input file with passwords, usernames, balances, and initialization time while all other activities(login/out, placing transactions, checking balance, customer history, bank revenue, etc.) are done through a **filestream** during the execution of the simulator.

NBA MVP Predictor | *Python, Machine Learning, Jupyter, SciKit Learn, WebScraping*

- Used a **Ridge Regression Model** to rank the **40+ basketball metrics** and predict the future MVP Winner.
- Used **Mean Squared Error**, **Average Precision**, and a **Backtesting** function to calculate model accuracy, resulting in over **70 Percent accuracy** for placing players into the top **5 vote-recievers through the past 25+ years.**
- Web Scraped data from the past **30+ years** using **Selenium chromedriver** for **Dynamic Data Extraction** for around **16,000** players using over **40** data categories resulting in over **600,000** data points.
- Cleaned, formatted, and merged data from multiple **csv files** to use for the **Ridge Regression Algorithm**.

Technical Skills

Languages: C++, C, Python, JavaScript, TypeScript, HTML, CSS
Developer Tools: VSCode, Git/Github/Gitlab, MongoDB, AWS, Vite, MySQL, Jupyter, Python VENV, Selenium
Libraries/Frameworks: ReactJS, NodeJS, ExpressJS, MongooseJS, Tailwind CSS, Streamlit, Pandas, SciKit Learn