ATHARV PATWARDHAN

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Education

Rutgers University New Jersey, USA
Bachelor of Science in Computer Science + Computational and Applied Mathematics May 2025

- Achievements: **3.83/4.0 GPA**, Recipient of Philadelphia Philanthropic Society for Information Management Foundation Inc. (PHISIM) Award for Academic Excellence, and Chancellor's Merit Scholarship. Dean's List in all Semesters.

Rutgers University New Jersey, USA
Master of Science in Data Science May 2026

Work Experience

Machine Learning Research Assistant **Dec 2024 - Present**
Rutgers University Camden, NJ

- Implemented a **Multiple Convolution Network (MulCNN)** for classification of Heat Shock Proteins into distinct protein families, achieving a **94% accuracy**.
- Processed and transformed **12,000+** records from **FASTA** files into **pandas dataframes**, optimizing data preprocessing for seamless model training.
- Developed a web-based tool integrating the model to provide real-time classification for users.

Software Developer Intern **Jun 2024 - Aug 2024**
Independence Education Philadelphia, PA

- Built a data analytics dashboard that links to the Canvas student software, leveraging technologies such as **TypeScript, React.js, Chart.js, PostgreSQL,** and **Node.js** to provide actionable insights.
- Used data visualization techniques to present complex datasets in an intuitive manner, enhancing user engagement and enabling data-driven decision-making, which improved learning outcomes for learners and educators.
- Developed a chatbot prototype using the **GPT-3.5-turbo model** and **langchain**, integrating a **Retrieval-Augmented Generation (RAG)** architecture for enhanced accuracy and contextual relevance, which increased user interaction and support efficiency.
- Improved application performance by implementing optimized code practices and modern development tools, achieving a **30% increase** in internal efficiency and development speed during peak feature development sprints, while ensuring seamless scalability across the platform.

Projects

Modalytics: Machine Learning Model Evaluation Platform

- Developed an automated **ML Model Evaluation Pipeline** integrating **AWS Lambda, S3, DynamoDB** for model evaluation.
- Reduced model evaluation time by automated testing and performance evaluation done by deploying python model evaluation scripts in **docker** containers to AWS Lambda.
- Computed metrics such as MSE, MAE, R^2 Score and stored them in DynamoDB.
- Built an interactive **streamlit** and **plotly** dashboard to present the metrics over time in an intuitive manner for easy visualization.

Wine Quality Prediction ETL Pipeline

- Engineered an end-to-end **ETL** machine learning pipeline for wine quality prediction by developing components for data ingestion, validation transformation and training an **ElasticNet Regression** model for improved prediction accuracy.
- Implemented **MLFlow** for experiment tracking and logging, and capturing key metrics such as MSE, R^2 score, and accuracy.
- Deployed a **Flask** web application for real-time model inference, enabling users to input wine properties and obtain instant predictions.

AI Job Board

- An AI-driven Job Board leveraging data from US Bureau of Labor Statistics to provide actionable career insights. Integrated a salary prediction model with over **85% accuracy** using **Random Forest Regression** and a **user-based collaborative filtering** recommendation system powered by cosine similarity, enhancing suggestions by **30%**.
- Implemented an interactive dashboard with the **streamlit** and **plotly** libraries, to visualize key trends such as salary projections, high-demand skills, growing and declining industry sectors, and much more, enabling users to make data-informed career decisions.

Clash Royale Analytics Dashboard

- Built an interactive analytics dashboard using python and the panel library to efficiently process and analyze over **13 GB** of player data from the popular strategy game Clash Royale.
- Leveraged algorithms like **K-Means Clustering** to uncover insights on metrics such as elixir usage, card usage and other gameplay trends across **20+ arenas**, assisting strategic decision making for players.

Skills

Languages: Python, Java, JavaScript, Typescript, C, C++, Next.js, React.js, Node.js
Database: SQL, MongoDB, SQLite, PostgreSQL, AWS Redshift, AWS DynamoDB, Microsoft SQL Server
Tools and Frameworks: Scikit-learn, Tensorflow, Keras, Numpy, Pandas, Pytorch, Matplotlib, Hvplot, Seaborn, Git, Streamlit, Spring Boot, Flask, JSON, REST API, Docker, Fast API, MLFlow, PySpark, AWS, Apache Kafka, Apache Airflow