PRADYUMNA BADA

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EDUCATION

University of Illinois, Urbana - Champaign | GPA 3.8/4   **May 2025**
Master of Science, Advanced Analytics
Coursework: Machine Learning, Deep Learning, ML Cloud, Data Mining, Big Data, Data Visualization

JSS Science and Technology University | GPA 8.5/10   **Nov 2020**
Bachelor of Engineering, Industrial Engineering
Coursework: Linear Algebra, Statistical Quality Control, Calculus, Operations Research, Python Programming, C Programming

SKILLS

Programming: Python, Azure, AWS, Flask API, Django, MongoDB, Docker, SQL, PostgreSQL, NoSQL, GITLAB, Jenkins, C Programming.
Data Science: LangChain, FAISS, Hugging Face, PyTorch, PySpark, Databricks, Data Lakehouse, Apache Airflow, Azure Synapse.
Other Skills: Azure OpenAI Studio, Web Scraping, Data Storage Systems, Scikit-Learn, Data Mapping, JIRA, Workflow Automation

PROFESSIONAL EXPERIENCE

Cline Center for Advanced Social Research | Research Assistant   **Sep 2023 - Present**
- Engineered data pipelines to extract & analyze information from unstructured news articles, tracking police use of lethal force.
- Implemented a vector database (FAISS) for ranking, deduplication, and clustering of articles using vector embeddings.
- Reduced manual processing time by 67% using AI workflows, aligning scalable ingestion pipelines with generative AI techniques.

Seagate Technology | Data Analyst Intern   **May 2024 – Aug 2024**
- Implemented data pipelines to process and analyze high-volume data for characterizing emerging memories (FeRAM).
- Designed a Python-based workflow to extract data from a Postgres DB, transform it using PySpark, & generate automated reports.
- Developed predictive models for failure metrics, including Bit Error Rates, to ensure memory systems met reliability thresholds.

RailTEC at Illinois | Summer Research Intern   **May 2023 - Aug 2023**
- Implemented an automated railway track inspection process by leveraging Big Data Analytics and LRAIL, an AI-based system.
- Utilized Databricks, Azure Synapse, & PySpark to analyze periodic data for tracking and forecasting rail component health.
- Developed Flask-based REST API endpoints for data transformation and retrieval, enabling secure real-time insights.

Sapiens International Corporation | SQL Developer   **Mar 2021 - Nov 2022**
- Enhanced our Insurtech product using Oracle SQL & ETL, which helped companies administer legacy Insurance products.
- Developed reporting interfaces using SQL and Shell Scripting, including 'ECASS', a cache facility designed for client's actuarial team.
- Analyzed client requirements to create tailored data solutions, ensuring seamless integration and rapid issue resolution.

ACADEMIC PROJECTS

Natural Language Processing with Disaster Tweets | Tools: Pytorch, Pandas, RoBERTa.
Goal: Predicting disaster-related tweets to automate Twitter monitoring for disaster relief organizations and news agencies.
- Implemented various ML models & encoders, including BOW, tf-idf, GloVe, BERT, and RoBERTa to achieve 81.1% accuracy.

Internal Stress Prediction in Shape Memory Alloys (SMAs) using DeepONet | Tools: Python, DeepXDE, SciPy
Goal: Predict internal stress in SMAs under deformation using data-driven and physics models.
- Hybrid DeepONet and PINN model predicts stress in SMAs from strain while enforcing elasticity physics constraints.

Stock Price Forecasting Using News Sentiment Analysis | Tools: Python, Streamlit, Prophet
Goal: Develop an interactive web app to forecast stock prices by integrating sentiment analysis of financial news.
- Used a pretrained model for sentiment analysis and Prophet for forecasting, delivering a dynamic dashboard with real-time plots.

Predictive Maintenance of Milling Machine | Tools: Python, Jupyter Notebook, Scikit-learn.
Goal: To predict milling machine failures using real-time performance measures and features to ensure continuous production.
- Developed and compared different ML algorithms using Grid Search CV to achieve an accuracy of 97%.

LEADERSHIP & INVOLVEMENT

- Ensured timely meal service for hundreds of students daily through food servicing, dish cleaning, and table sanitation.
- Led the development team in resolving high-priority production issue in the absence of senior team members.
- Completed certification courses like Applied Machine Learning, Applied Plotting & Data Representation in Python, and more.
- Organized multiple treks to the Great Himalayan Ranges for groups of more than 10.
- Collaborated on creative projects, including short films & travel vlogs. [Video1](#), [Video2](#), [Video3](#), [Video4](#),