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, Data Mining, Big Data, Deep Learning, **ML Cloud (AWS)**, Network Optimization

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

SKILLS

Programming: **Python**, SQL, PostgreSQL**, Flask API**, Django, Docker, GitLab, Azure, AWS, GCP, NoSQL, **MongoDB**, Jenkins.
Data Science: Scikit-Learn, **PyTorch**, Pandas, NumPy, Prophet, **AWS Sagemaker**, Seaborn, Tableau, **PySpark**, Airflow, Databricks.
Other Skills: Web Scraping, Data Storage Systems, JIRA, Social Research, **Azure OpenAI Studio**, Lucid Charts, Agentic AI.

PROFESSIONAL EXPERIENCE

Cline Center for Advanced Social Research | Research Assistant **Sep 2023 - Present**
- Leveraged **LLMs** to extract structured data from unstructured text (news articles), specifically tracking police use of lethal force.
- Specialized in data cleaning, analysis, schema design, & DML. Built a national dashboard (Link) using SQL & Tableau.
- Implemented a vector database for article **clustering** and deduplication using embeddings, reducing manual efforts.

Seagate Technology | Data Analyst Intern **May 2024 – Aug 2024**
- Analyzed Volume Data using statistical tools and data visualization to help characterize emerging memories.
- Developed Python-based automation & reporting systems, utilizing **Jenkins**, GitLab, & other technologies to streamline operations.
- Developed predictive models for failure metrics to ensure memory systems met reliability thresholds using Python.

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 Python-based data visualizations to provide actionable insights, optimizing decision-making processes.

Sapiens International Corporation | SQL Developer **Mar 2021 - Nov 2022**
- Enhanced our Insurtech product using 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.
- Developed complex SQL scripts to process datasets, optimizing data-driven insights in an Agile environment.

ACADEMIC PROJECTS

Predictive Modeling for Failure Prevention in Scania Truck Air Pressure System (APS) | Tools: Python, GitHub, MICE
Goal: Develop a cost-based model to predict and minimize failures, considering the costs of unnecessary checks & breakdowns.
- Performed EDA, & data imputation to develop various ML models, including LR, KNN, DT, RF & used Grid Search CV to compare it.

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.

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.

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.

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,