PRADYUMNA BADA

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EDUCATION

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

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

SKILLS

Programming: Python, Django, **Flask API**, SQL, **Jenkins**, GitLab, AWS, Docker, Apache Airflow**,** C Programming, Jenkins.
Data Analytics: Pandas, **Numpy**, Streamlit, Matplotlib, Seaborn, PySpark, Databricks, Data Lakehouse, Power BI.
Other Skills: JIRA, **Failure Analysis**, Characterization, Lucid Charts, Web Scraping, **Data Storage Systems**.

PROFESSIONAL EXPERIENCE

Seagate Technology | Engineering Data Analyst Intern **May 2024 – Aug 2024**
- Implemented ETL pipeline to process and analyze high-volume data for characterizing emerging memories (FeRAM).
- Calculated failure metrics, including Bit Error Rates (**BER**) across various address levels, and modeled failure rate (**CFR**) to determine how the error correction code (**ECC**) requirements relate to reliability thresholds.
- Designed a **Python**-based linter to automatically validate YAML configuration files by leveraging testers' domain expertise, reducing lengthy test re-runs.
- Developed unit tests using **Pytest** & integrated them into GitLab and **Jenkins** CI/CD pipelines, streamlining agile development.

Cline Center for Advanced Social Research | Research Assistant **Sep 2023 - Present**
- Engineered data pipelines to transform unstructured news articles into structured data, tracking police use of lethal force.
- Utilized **MongoDB** to ingest articles & developed automated pipelines to regularly convert them into structured **MySQL** databases
- Implemented scalable data ingestion workflows with Azure OpenAI Studio, optimizing analytics and automation processes.

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 to automate real-time data delivery, enhancing analytics infrastructure efficiency.

Sapiens International Corporation | Software 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 data fix scripts and supported Agile processes using Jira to manage evolving requirements.

ACADEMIC PROJECTS

Predictive Maintenance of Milling Machine | Tools: Python, Jupyter Notebook, Scikit-learn semiconductor**.**
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%.

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.

Improving Productivity and Energy Efficiency of a Packaging Industry | Tools: 5S, Optimization.
Goal: Implement 5S methodology to enhance production flow, safety, reduce cycle times, and operational costs.
- Led time study in a packaging industry, optimizing processes to eliminate bottlenecks, boosting daily output by 500 boxes.

Displacement and Strain Measurement using Computer Vision | Tools: Python, Pytorch, TorchVision.
Goal: To harness AI for the precise measurement of displacement and strain in objects under load, facilitating real-time monitoring
- Developing CNNs, and other DL models to detect displacement between pair of speckle images.

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](#),