Raghav Mittal

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PROFESSIONAL SUMMARY

Over four years of experience in data science and engineering, specializing in operations improvement, energy optimization, and geospatial analysis. Skilled in data modeling, inferential analysis, predictive modeling, and interactive data visualization.

EXPERIENCE

Trimble Maps, Commercial Routing, Scheduling, & Navigation Solutions — Sunnyvale, US
Data Engineer, Places Team — Mar 2023 - Present

- Designed and automated data validation pipelines to ensure data integrity, optimize API performance, and reduce testing time by **30%** for critical business functions, enhancing operational efficiency.
- Led comprehensive data integration and migration efforts for web services, collaborating with cross-functional teams to enable a seamless cloud platform transition for a major retail logistics operation.
- Built automated data quality frameworks to validate and monitor map data updates, enhancing ETL pipeline reliability.

Dastur Energy, Leading Engineering Consulting Firm for Heavy Industries — Kolkata, India
Data Scientist, Energy & Process Metallurgy Division — Jul 2018 - Jun 2021

- Spearheaded analytics efforts identifying 9 operations improvement initiatives - improving yield, reducing energy consumption & materials consumption - saving **$12 Mn annually** for a Mexico-based Steel Plant.
- Effectively communicated data-driven insights to customer executives through visualizations & technical presentations, successfully persuading them to adopt recommended revisions in SoPs, leading to improved operational efficiency.
- Developed dynamic predictive models monitoring desulphurization process in ladles, optimizing processing time & resource consumption, with a potential of saving **$6.5Mn** for a 4.5MTPA steel plant.

TECHNICAL SKILLS

- **Programming Languages & Frontend Frameworks:** Python (Flask, FastAPI), JavaScript, Streamlit, Gradio
- **Data & ML:** SQL, NoSQL, Spark, Python (Numpy, Pandas, Scikit-Learn, PyTorch), Tableau, Flink, Kafka
- **Cloud, ETL and DevOps:** AWS (S3, Lambda, EC2, ECS), dbt, Airflow, Git, Docker

PROJECTS AND LEADERSHIP

Estimating potential emissions reduction via Load Shifting for EV charging at home [app, medium, github]

- Developed and deployed a Streamlit-based interface on GCP to model and optimize EV charging times, minimizing carbon emissions using real-time data. Demonstrated a **24%** reduction in emissions through smarter charging behavior.

Deep learning-based image classification tool for automating reactor state monitoring [app, github]

- Engineered a PyTorch pipeline by applying transfer learning on a fine-tuned ResNet-18 model for foaming state detection.
- Improved model accuracy and robustness by augmenting the dataset with 1,000+ images and automating preprocessing (orientation correction, resizing, normalization), streamlining real-time inference for reactor image classification.

University of California, Berkeley — California, US
Graduate Student Instructor, Dept. of Data Science, Statistics, ESPM — Jan 2022 - Dec 2022

- Led 4 discussion sections, providing academic support, guidance & mentorship to >175 UG students.

Classification of war-destructed buildings in Syria using Satellite Imagery [pdf, github]
Mentor: Prof. Hany Farid — Oct 2022 - Dec 2022

- Designed, implemented & refined deep learning models (CNN, SiameseNet) to automate the monitoring of war-related building destruction using high-resolution satellite images.
- Enhanced image data using filtering and dimensionality reduction techniques to optimize model performance.

EDUCATION

University of California, Berkeley — August 2021 - December 2022
M.S., Development Engineering, Data Science Focus

- Leadership: Elected Representative, Resident Council, International House

Indian Institute of Technology, Kanpur — July 2014 - June 2018
B.S., Materials Science & Engineering

MISCELLANEOUS

- **Publications:** Published & presented 3 papers [1, 2, 3] at **AISTech** and **METEC** Conference Proceedings
- **Certifications:** Data Engineering bootcamp - DataExpert.io, Machine Learning, Deep Learning - Coursera
- **Sports:** State-level Basketball Player (U-19), endurance runner, cyclist & avid trekker.