Rounaq Goenka

Scientist, Indian Space Research Organisation (ISRO)

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SUMMARY

Dynamic Scientist and Project Manager adept with leading large-scale, data-driven initiatives in geospatial solutions, disaster risk management. Led projects that saved crores and influenced national policy. Skilled in managing cross-functional teams, stakeholder coordination, and full project lifecycles. Proficient in Generative AI, ML, and cloud-based MLOps, with a strong ability to translate complex insights into actionable business value.

KEY HIGHLIGHTS

- Gen AI based geospatial intelligence
- AI-based lightning alert system.
- Satellite-based pollutant monitoring system, saving ₹1.5 crore per mine across 100+ mines.
- Cricket analytics metrics, enhancing player scouting and performance.

SKILLS

AI/ML - Deep Learning - AWS - MLOps - Flask - MLFLow - Agentic AI - Large Language Models (LLMs) - LoRa - LangGraph - Data Science - ISO 9001:2015 - Generative AI - RAG

EDUCATION

- B.Tech in Physical Science from Indian Institute of Space Science and Technology, Trivandrum (2009-2013)
- Sri Chaitanya Junior College, Hyderabad (2007-2009)
- Kalpa School, Hyderabad (2007 passout)

EXPERIENCE

National Remote Sensing Centre, ISRO, Hyderabad (August 2015-present)

Next-gen geospatial solutions with Agentic AI (Project Lead) *(2025-present)*

- Built a geospatial data information system using **LangGraph** and **vector databases** useful for policy makers and stakeholders with RAG pipelines. Being deployed on **AWS** using **EC2** and **S3**.
- Implemented **LoRa** and **local LLMs** for improving efficiency.
- Developing **Vision Language Model** for Maps datasets and fine-tuning **Microsoft Aurora**.

Lightning Vulnerability Mapping over India (Project Lead) *(2024-2025)*

- Implemented an **3-hour advance** AI-driven satellite-based **lightning prediction** system for the Indian Meteorological Department (IMD) using **unsupervised ML**, which was covered by **media outlets**.
- Automatic lightning alerts which saves up to **1 crore per district** in disaster management.

ISRO Climate Awareness and Vulnerability Program (Program Lead) *(2018-present)*

- Managing **40+ geophysical products** at NRSC from inception to dissemination, ensuring quality products with **CI/CD**.
- Led development of multi-satellite blended products for flood monitoring leveraging **Prithvi (masked auto-encoder)** model improving climate model accuracy by **50%**.
- Developed SOPs for products, boosting data downloads by **5x** and user base by **3x**.
- Responsible for proposal development, review, and budget management for NRSC projects.

Air Quality over India (Team Member) *(2015-2018)*

- Developed satellite-based pollutant monitoring system using ML techniques for Central Mine Planning Institute, saving **₹2 crore** per mine across 100+ mines and deployed using **Plotly**, **Flask** and **AWS Sagemaker**.
- Delivered scalable solutions for emissions tracking by providing near real time pollution monitoring using satellites.
- Led negotiations for instruments procurement, program execution and site selection reducing execution time by **30%**.

National Atmospheric Research Laboratory, DOS, Tirupati (October 2013 - July 2015)

- Geospatial Data utilisation for weather prediction and disaster management.
- Development of satellite products using MATLAB.
- Proficient in applying statistical methods to extract insights from complex datasets.

INDEPENDENT PROJECTS

Reasoning Agents *(2025)*

Building reasoning agents that can pass the GAIA benchmark to solve real world problems

Cricket Analytics *(2019 -2021)*

- Used CNN-based YOLOv3 for player tracking to develop advanced metrics. Collaborated with coaches to refine models for performance enhancement.
- Developed innovative metrics like "Death over Specialists" and "Impact Factor" which showed applications in IPL player scouting. Predicted highest -bidded player for IPL 2021.

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