

# GOURAGOPAL MOHAPATRA

INDEPENDENT RESEARCHER - BIO-ASTRONAUTICS,  
REMOTE SENSING & SPATIAL AI

## CONTACT

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## EDUCATION

**B.Tech, Artificial Intelligence and Data Science**  
Third Year - Expected Graduation 2028  
C. V. Raman Global University, Odisha

## TECHNICAL SKILLS

- Languages: Python, C++, JavaScript / TypeScript
- ML & CV: Neural Networks, Deep Learning, Computer Vision, Predictive Analytics
- Remote Sensing: Optical & Radar, Hyperspectral & Multispectral Analysis
- GIS & Tools: QGIS, ArcGIS, Google Earth Engine, SNAP, EarthCode
- Cloud & DevOps: AWS / GCP, Docker, Microservices, Git, CI/CD
- Systems: Node.js, WebGL, Trajectory Dynamics, Embedded Real-Time Systems
- Platforms: Linux (Ubuntu/Debian), Windows, VS Code

## CERTIFICATIONS

- Advanced Remote Sensing & GIS - NASA ARSET
- Orbital Mechanics Fundamentals - ESA EO College
- Embedded Systems, C++/Python for Space Engineering - ISRO IIRS
- Satellite Data Processing, GIS & ML Applications - Coursera

## LANGUAGES

English, Hindi, Odia

## VISION

*The answers we seek are hidden in the infinite dark of space.*

## MISSION PROFILE

Third-year B.Tech student in Artificial Intelligence and Data Science, working as an independent researcher across bio-astronautics, satellite remote sensing, and spatial data analytics. Built and open-sourced AstroVital AI: VitalX Core V1, one of the world's first open-source implementations of a 2012 theoretical framework for deep-space human health, delivering real-time clinical decision support for astronauts operating beyond reliable Earth communication. Currently developing three further systems spanning subsurface soil estimation, infrastructure auditing, and aerospace safety. Long-term mission: building world-class space technology and software infrastructure to support humanity's multi-planetary expansion. Targeting a 2027 internship at an Indian aerospace or space-tech startup, with long-term ambitions at Pixxel, Skyroot Aerospace, Airbus, Boeing, ICEYE, ISRO, and NASA / Kennedy Space Center research partners.

## RESEARCH FOCUS

Topics: Bio-Astronautics, Autonomous Deep-Space Medical Diagnostics, Orbital Mechanics and GNC, Satellite Imagery and Geospatial Analytics. Published paper: Implementation and Architectural Modeling of Deep Space Clinical Decision Support Systems (CDSS). In development: Human Health Optimization in Deep Space Exploration, and Real-Time Geospatial and Remote Sensing Processing Pipelines for Orbital Assets.

## FLAGSHIP PROJECTS

### AstroVital AI: VitalX Core V1 **COMPLETED** - **OPEN SOURCE**

- Built and deployed one of the world's first open-source implementations of a 2012 theoretical research paper on deep-space human health, delivering real-time clinical decision support for astronauts facing medical contingencies where Earth communication delay is critical.
- Repository: [github.com/GOURGOPAL618/ASTROVITAL\\_AI\\_VITALX\\_CORE\\_V1](https://github.com/GOURGOPAL618/ASTROVITAL_AI_VITALX_CORE_V1)

### The Mridansh: Unified Soil State Estimation Platform **IN PROGRESS** - **TARGET OCT 2026**

- Developing a physics-guided, AI-driven platform to estimate dynamic subterranean variables by assimilating multispectral satellite imagery and climatic forcing variables into one unified state representation.

### Anvesana: Margavedha **PLANNED**

- Designing an autonomous infrastructure auditing architecture that fuses multi-temporal spaceborne radar interferometry (DInSAR) with geotechnical AI for subsurface pavement degradation forecasting.

### AstroVital AI: Aerexis Omega V1.5 **PLANNED** - **RESEARCH PHASE, JAN 2027**

- Designing a next-generation black-box flight recorder replacement for aircraft, combining remote sensing satellite data analysis, guidance/navigation/control (GNC), and deep-space human health modeling.

## OPEN SOURCE & INDEPENDENT RESEARCH

- Repositories: Deep Space CDSS (first-of-its-kind open-source repo for space clinical decision support) and a Remote Sensing & Spatial Analysis Tools library. Private Projects: Core Aerospace and Spatial Simulation Algorithms (2026-2027 releases). Next up: an open-source GNC toolkit for smallsat mission planning.

## EXPERIENCE & ACHIEVEMENTS

- Independent Researcher - Space Medicine Software Architecture, Remote Sensing, and Spatial Data Analytics; active open-source contributor and hackathon participant in the space-tech community.
- Recognized for pioneering open-source contributions to deep-space healthcare systems; competed in high-impact space-domain competitions; profile followed by members of IN-SPACe and engineers at ISRO and Pixxel.