

Uppucharla Venkata Rohith

*Ph.D. Research Scholar,
Department of Civil Engineering,
Specialization: Hydraulics and Water Resources Engineering
Indian Institute of Technology Hyderabad, India.*

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Nationality: Indian

Current Residence: Hyderabad, India

Professional Summary

Research Scholar in hydrology, remote sensing, and climate data analytics, with a focus on urban heat island–aerosol–precipitation interactions over Indian cities. Experienced in WRF modeling, satellite data analysis, GIS, and programming in Python and R, with applications in environmental and climate modeling.

Key Research Interests

Urban Climate & Atmospheric Interactions: Coupled dynamics of urban heat island effects, aerosols, and boundary layer processes, including their influence on rainfall and regional climate.

Hydroclimatic Extremes: Statistical analysis and attribution of heatwaves and flood events under changing climate conditions.

Geospatial & Data-Driven Environmental Analysis: Integration of remote sensing, GIS, and data-driven methods for environmental monitoring and modeling.

Education

2024 – Present – Ph.D. Research Scholar **CGPA:** 9.38/10

Indian Institute of Technology Hyderabad, India

Department: Civil Engineering

Dissertation: *Urban Surface – Aerosol – Atmosphere Interactions and Their Role in Modulating Rainfall*

2020 – 2024 – B. Tech (Bachelor of Technology) in Civil Engineering **CGPA:** 8.60/10

National Institute of Technology Goa, India

Dissertation: *Slope Stability Analysis of Embankments for Mine Tailings Disposal*

Key Research Interests

Urban Climate & Atmospheric Interactions: Coupled dynamics of urban heat island effects, aerosols, and boundary layer processes, including their influence on rainfall and

regional climate.

Hydroclimatic Extremes: Statistical analysis and attribution of extreme rainfall and flood events under changing climate conditions.

Geospatial & Data-Driven Environmental Analysis: Integration of remote sensing, GIS, and data-driven methods for environmental monitoring and modeling.

Publications

Conference Proceedings

1. **Rohith, U. V.,** Upadhyaya, S., & Satish, R. (2025). Spatio-temporal assessment of the urban heat island effect in Hyderabad. Accepted at the IEEE India Geoscience and Remote Sensing Symposium (InGARSS).

Other Publications/Posters/Presentations

1. Hasan, F., **Rohith, U. V.,** et al. (2024) Slope Stability Analysis of Embankment for Mine Tailings Disposal, Paper Presented at the 2nd National Conference on Structural and Geotechnical Engineering (NCSGE – 2024), NIT Jamshedpur, India.

Awards and Recognitions

1. **IEEE GRSS Travel Grant Recipient,** to attend IEEE India Geoscience and Remote Sensing Symposium (InGARSS'25) at IIIT Bhubaneswar **[2025]**
2. Awarded the **Junior Research Fellowship (JRF)** by the Ministry of Education, Government of India, to pursue Ph.D. at IIT Hyderabad. **[2024–Present]**
3. Achieved First place in the AutoCAD competition at Spectrum'24, organized by Goa Engineering College, representing the Dept. of Civil Engineering, NIT Goa. **[2024]**
4. Consolation in Interschool Team-wise quiz jointly organised by Regional Science Centre, Tirupati & Satish Dhawan Space Centre, ISRO, on occasion of World Space Week. **[2015]**

Professional Service

1. **Reviewer,** IEEE India Geoscience and Remote Sensing Symposium (InGARSS'25) **[2025]**

Professional Memberships

1. **Member,** IEEE Geoscience and Remote Sensing Society (GRSS) **[2025-26]**

Teaching Assistance

- **CE6610 – Remote Sensing & GIS (Master's, 3 Credits)** **[Spring 2026]**
Instructor: Dr. Shruti Upadhyaya
- **CE3420 – Remote Sensing & GIS (Undergraduate, 2 Credits)** **[Spring 2026]**
Instructor: Dr. Shruti Upadhyaya
- **CE6501 – Applied Computational Lab (Master's, 2 Credits)** **[Fall 2025]**
Instructor: Dr. Satish Regonda
- **CE2920 – Surveying Lab (Undergraduate, 3 Credits)** **[Fall 2024]**
Instructor: Dr. Shwetabh Yadav
- **CE2121 – Construction Materials Lab (Undergraduate, 2 Credits)** **[Fall 2024]**
Instructor: Dr. Meenakshi S

Positions of Responsibility

- Doctoral Representative Coordinator, Civil Engineering Department Day [2026]
- Organising Committee Member, Natrang [2023]
- Member, Volunteering Team, Ironman 70.3, Goa, India [2022]

Courses and Workshops Attended

1. HPC Domain-Specific Workshop on “Weather Research and Forecasting”, organized by the National Supercomputing Mission and C-DAC, Pune. [Mar 2026]
2. One-day brainstorming session on “Next Generation Technologies for Climate and Water Sustainability”, BITS Pilani, Hyderabad Campus. [Feb 2026]
3. Workshops and Tutorials attended at IEEE International Geoscience and Remote Sensing Symposium 2025 hosted at IIT Bhubaneswar, including: [Dec 2025]
 - Hyperspectral Imaging and Data Analysis
 - Polarimetric SAR Analytics: Advances in Information Extraction for Earth Observation
 - TC Quantum Earth Science and Technology Workshop
4. One-month online course on “Numerical Weather Prediction: Hands-on Demonstration of WRF Model”, Center for Sustainable Environment & Education, Hyderabad. [Sep 2025]
5. “NOAA’s 7th AI Workshop on Generative AI for Earth and Space Sciences” (virtual), focused on AI applications in weather and environmental data. [Jul 2025]
6. 5-day STTP on “Sustainable Future in Water Resources and Climate Challenges”, National Institute of Technology Goa (attended and coordinated) [Mar 2024]
7. Workshop on “Concrete Mix Design”, Alcon Labs India LLP, Goa, including hands-on training. [Oct 2023]
8. Summer training workshop, Regional Science Center, Tirupati, covering fundamentals of space science and physics. [May 2017]

Academic Projects

1. **Ph.D.: Urban Surface – Aerosol – Atmosphere Interactions and Their Role in Modulating Rainfall** [2024 – Present]
Supervisor: Dr. Shruti Upadhyaya, IIT Hyderabad
 - To understand how urban heat island dynamics affect aerosol behavior and their subsequent influence on precipitation patterns over Indian cities.
 - The study integrates the WRF model and machine learning approaches to analyze complex land–atmosphere interactions, contributing to improved urban climate and precipitation modeling.
2. **B. Tech Major Project: Advanced Slope Stability Analysis of Embankments for Mine Tailings Disposal** [2023 – 2024]
Supervisors: Dr. Harikumar Mohanan and Dr. Dhanesh Sing Das, NIT Goa.
 - Conducted slope stability analysis for a mine tailings dam in Poriem, Goa using MIDAS GTS NX, identifying key failure factors and aiding in safer design and risk mitigation.

Coursework Projects (2023 – 2025)

1. **Spatio-temporal Assessment of Urban Heat Island Effect in Hyderabad City** (QGIS, Google Earth Engine, Python): Assessed spatial distribution and intensity of urban heat islands using satellite data and GIS tools.
2. **Rainfall Extremes Using Meta-Statistical Extreme Value Distribution in India** (R Studio): Fitted MEV distribution on 72 years of daily rainfall data; compared results with traditional GEV distribution.
3. **Empirical Orthogonal Function Analysis on Aerosol Optical Depth** (QGIS, Python): Performed EOF analysis to identify spatial-temporal variability in aerosol data.
4. **Estimation of Probable Maximum Precipitation (PMP) over Krishna River Basin** (Python): Estimated PMP for 24, 48, and 72-hour durations over the Krishna River Basin using statistical methods.
5. **Analysis of Precipitation Patterns in Telangana Districts** (R Studio): Analyzed 72 years of daily rainfall data across five districts using statistical methods.
6. **Flood Susceptibility Mapping of Visakhapatnam Using Remote Sensing and GIS - AHP Method** (QGIS, MS Power BI): Integrated spatial data using AHP method; developed interactive visualizations and reports for decision support.

Internship

Research cum site Intern at NTR Telugu Ganga Project, Department of Water Resources, Government of Andhra Pradesh **[May – Jul 2023]**

- Performed morphometric analysis of the Pennar River Basin using GIS by computing 32 parameters to assess drainage patterns, basin geometry, and hydrological behavior.

Technical Skills

Geospatial Tools: Weather Research and Forecasting Model (WRF), QGIS, Google Earth Engine, ArcGIS

Programming: Python, R (RStudio), JavaScript (GEE), Linux Bash

CAD & Other Software: AutoCAD 2D & 3D, Midas Gen, STAAD Pro, Midas GTS NX, SolidWorks

Mathematics & Statistics: Applied statistics and mathematical modeling for Climate data

Productivity Tools: Microsoft Office Suite, Microsoft Power BI

Core Areas: Climate Modelling, Remote Sensing & GIS, Climate Data Analysis, Machine Learning

Extra Curriculars

Technical

- Runner-up, Treasure Hunt – Civil Engineering Department Day, IIT Hyderabad, awarded cash prize **[2026]**
- Winner, AutoCAD Competition – Spectrum, Goa Engineering College; Runner-up, Pratikriya, Goa Engineering College; awarded cash prizes in both events **[2023-24]**

Cultural

- Member, Group Dance Team – Natrang Event, NIT Goa **[2023]**

Sports

- Winner, Badminton Singles and Doubles, Inter-MEGHA Group Badminton

- Competition, IIT Hyderabad. [2026]
- Achieved Yellow Belt in Taekwondo, certified by the Taekwondo Federation of India and World Taekwondo. [2010]

References

Dr. Shruti A. Upadhyaya

Assistant Professor, Department of Civil Engineering and Climate Change

Indian Institute of Technology Hyderabad

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