Dr.

Neerav Sharma

Lead AI & Fellow | GeoAI Researcher | IoT & Remote Sensing Specialist

Observer Research Foundation (ORF), New Delhi, India

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Professional summary

Researcher and engineer with 8+ years at the intersection of GeoAI, IoT, remote sensing and sustainable mobility. His work spans intelligent transportation systems, air quality management, geospatial intelligence, interactive dashboards and data-driven climate analytics — published in peer-reviewed journals from IEEE, Elsevier, Springer, ASCE, Wiley and Emerald, protected by one granted patent, and carried into policy and practice in India and internationally.

Experience

Lead AI & Fellow
Oct 2026 – Present

Observer Research Foundation (ORF), New Delhi

- Leads AI at ORF, advancing AI-driven research capabilities, institutional intelligence and technology-enabled policy research.

Co Lead, Tech & AI
Nov 2024 – Sep 2026

Council on Energy, Environment and Water (CEEW), New Delhi

- Research and development in GeoAI, sustainable mobility, EV charging infrastructure and climate analytics.
- Helped design and deploy cravis.ai (Climate Resilience Analytics and Visualisation Intelligence System), an AI-powered geospatial climate intelligence platform for policymakers.
- Played a key role in developing MARG (Mobility Assessment and Route Guidance), an AI and geospatial tool for public bus planning, launched at Urban Mobility India 2026 in Bhubaneswar.
- Convened three thematic panels at the India AI Impact Summit 2026 with Google, LinkedIn and UNICEF on AI for climate action, sustainable mobility and development.
- Built interactive dashboards for urban mobility, EV charging network optimisation and geospatial policy visualisation (Python, Plotly/Dash, Folium, QGIS).

Research & Liaison Officer
Feb 2024 – Oct 2024

Indian Institute of Technology (IIT) Roorkee

- Coordinated multi-disciplinary research and supervised projects across engineering and geomatics departments.
- Liaised between research groups and external funding agencies; grant writing and proposal preparation.

Post-Doctoral Fellow
Aug 2023 – Feb 2024

Purdue University, West Lafayette, Indiana, USA

- FFAR-funded project on air quality management for swine farms using IoT, smart sensors and AI.
- Deployed distributed IoT sensor networks across the Chicago and Indianapolis metro areas for real-time PM2.5 and NH3 monitoring.
- Developed machine learning pipelines for multi-sensor data fusion, anomaly detection and predictive air quality modelling.

Education

Post-Doctoral Fellowship, IoT & Air Quality Management — 2024
Purdue University, USA

Ph.D., Geomatics Engineering & Transportation — 2023
Indian Institute of Technology Roorkee

M.E., Electronics & Communication Engineering — 2018
Birla Institute of Technology Mesra, Ranchi

B.E., Electronics & Communication Engineering — 2015
SSIPMT Raipur (CSVTU)

Skills & expertise

Core areas	GeoAI, IoT, ADAS, Intelligent Transportation Systems, Computer Vision, Remote Sensing, Real-time intelligent systems, GNSS, Air quality management
Data & dashboards	Interactive and dynamic dashboards (Plotly/Dash, Folium, Kepler.gl), Geospatial data analytics, Machine learning, Deep learning, Data visualisation
Programming	Python, MATLAB, Embedded C
GIS & remote sensing tools	ArcGIS, QGIS, ERDAS Imagine, ENVI, Pix4D
UAV & hardware	UAV pilot & mapping (Leica/Aibotix certified), LiDAR, RADAR, Ground Penetrating Radar, Smart air sensors, Arduino / Raspberry Pi, Oscilloscope & multimeter
Cloud & platforms	GitHub, MS Office, Power BI (basics), MS Azure (basics)
Research practice	Grant writing, Scientific writing, Research design, Peer review, Project management, Stakeholder engagement, Public outreach & panel convening

Patent

Sharma, N. & Garg, R. D. "An Enhanced Advanced Driver Assistance Systems (ADAS) based Real-Time Transportation Safety System and Method through IoT and Deep Learning." Indian Patent Application No. 202211065321 (2022). **Granted: 21 October 2024 | Patent No. 552790**

Publications

Peer-reviewed journal articles

1. Sharma N and Garg RD (2023). Real-Time IoT-Based Connected Vehicle Infrastructure for Intelligent Transportation Safety. *IEEE Transactions on Intelligent Transportation Systems*, 24(8). doi:10.1109/TITS.2023.3263271 — **Q1**
2. Sharma N and Garg RD (2021). Cost reduction for advanced driver assistance systems through hardware downscaling and deep learning. *Systems Engineering*, *Wiley*, 25(2). doi:10.1002/sys.21606 — **Q2**
3. Sharma N and Garg RD (2023). Advanced Transportation Safety Using Real-Time GIS-Based Alarming System for Animal-Prone Zones and Pothole Areas. *Journal of Transportation Engineering*, *Part* A, ASCE, 149(4). doi:10.1061/JTEPBS.TEENG-7567 — **Q2**
4. Joshi U, Garg RD, Sharma N, Joshi VK and Sharma K (2024). Hazardous Zone Identification by Spectral Analysis of Ground Penetrating Radar Response. *Electrica*, 24(2). doi:10.5152/electrica.2024.23186 — **Q2**

5. Sharma N, Bhattacharjee S, Garg RD, Sharma K and Salim M (2024). Sustainable management and agriculture resource technology using remote sensing descriptors and IoT. *Geomatica*, *Elsevier*, 76(2). doi:10.1016/j.geomat.2024.100040 **Q2**

6. Sharma N, Bhattacharjee S, Garg RD and Sharma K (2025). Satellite-driven assessment of urban pollution susceptibility in West Bengal, India. *Journal of Environmental Engineering and Science*, *Emerald*. doi:10.1680/jenes.25.00172 **Q2**

7. Bhattacharjee S, Sharma N, Salim M, Garg RD and Sharma K (2025). Predictive modeling of land cover changes in round-1 smart cities of India using cellular automata and GIS. *Discover Cities*, *Springer Nature*, 2(6). doi:10.1007/s44327-025-00041-x **Q2**

8. Upadhyay PK, Sharma N, Sharma S and Sharma R (2021). Photo and thermoluminescence of Eu doped ZnO nanophosphors. *Journal of Materials Science: Materials in Electronics*, *Springer Nature*, 32(1). doi:10.1007/s10854-021-06043-w **Q2**

9. Sharma N, Sharma S and Sharma R (2020). Dielectric and optical studies of CdSe nanoparticles: green synthesis. *Journal of Materials Science: Materials in Electronics*, *Springer Nature*, 31(1). doi:10.1007/s10854-020-04214-9 **Q2**

10. Sharma K and Sharma N (2020). Environmental Management Through the Assessment of Impact of Urban Growth Through Remote Sensing Techniques. *Journal of Applied Sciences*, *Science Alert*, 20(3). doi:10.3923/jas.2020.97.103 **Q3**

11. Sharma N, Garg RD and Sharma K (2024). Adaptive fuzzy logic for gap filling in UAV orthomosaics. *Journal of Geography and Cartography*, *EnPress*, 7(2). doi:10.24294/jgc9185 **WoS**

12. Salim M, Bhattacharjee S, Sharma N, Sharma K and Garg RD (2025). Spatial analysis and classification of land use patterns in Lucknow district using GIS and random forest approach. *Journal of Geography and Cartography*, *EnPress*, 8(1). doi:10.24294/jgc10230 **WoS**

Conference papers

C1. Sharma N and Garg RD (2022). Real-Time Computer Vision for Transportation Safety using Deep Learning and IoT. *IEEE ICEET 2022*. doi:10.1109/ICEET56468.2022.10007226 **Best Paper Award.**

C2. Sharma N and Garg RD (2021). Effective Utilization of a Low-Cost Solution for Remote Sensing of Vehicles and Pedestrians. *IEEE InGARSS 2021*. doi:10.1109/InGARSS51564.2021.9792059

C3. Sharma N and Garg RD (2022). Connected Vehicle Technology and its Extensibility to ITS: A Review. *Advances in Automobile Engineering*, *Longdom*, 11(1). doi:10.35248/2167-7670.1000178

C4. Sharma N, Dash PP and Saxena P (2018). GCD Based Blind Super-Resolution for Remote Sensing Applications. *ICEPE 2018*. doi:10.1109/EPETSG.2018.8658528

Under review / forthcoming

U1. Sharma N and Garg RD. Geo-AI Embedded Intelligence for Real-time Transport Safety in Tier-2 Cities of India. IEEE ITS Magazine (Major Revision).

U2. Sharma N, Bhattacharjee S, Singh P and Garg RD. ML Embedded Geospatial Integration for Delineating Urban Pollution Susceptibility in West Bengal. Transactions in GIS (Under Review).

U3. Sharma N, Raghavan S and Vaid S. Establishing EV Charging Locations Utilising Fuzzy Enhanced Multi-Criteria Decision Techniques. Transport Policy (Under Review).

U4. Sharma N and Raghavan S. Characterizing Urban and Mobility Trends for Pollution Decryption: City of Hyderabad. Transportation Research Part D (Under Review).

U5. Sharma N, Singh P and Nagesh KN. Optimizing Frame Rate and Suppressing False Positives for Real-time Computer Vision. Expert Systems with Applications (To be submitted).

U6. Sharma N, Bhattacharjee S and Garg RD. Forest Fire Analysis and Susceptible Zones: State of Sikkim. Remote Sensing Applications: Society and Environment (To be submitted).

U7. Sharma N and Raghavan S. Understanding the Nexus between PMx and NO2 for Sustainable Mobility in Tier-2 Cities. Transport Policy (Under Review).

Achievements & certifications

- Best Paper Award, 8th IEEE ICEET Conference, Malaysia, 2022
- AI and IoT, IIT Kanpur (iSMRITI), 2019
- Communication, Navigation & Surveillance, Airports Authority of India, 2014
- MATLAB Certification, DigiTech Solutions, 2013
- BOG Member, Environment Protection & Awareness Club (EPAC), BIT Mesra
- UAV Flying, Acquisition & Mapping Certification, Leica / Aibotix, Germany, 2019
- Deep Learning Applications, EICT, IIT Roorkee, 2019
- Zonal Winner, Haptic Science Project, IIT Bombay, 2014
- State Badminton Player, Chhattisgarh

Reviewer

- IEEE Transactions on Intelligent Transportation Systems
- IEEE Access
- Journal of Transportation Engineering, ASCE
- Transportation Research Interdisciplinary Reviews, Elsevier
- Accident Analysis and Prevention, Elsevier
- IEEE Transactions on Intelligent Vehicles
- Journal of the Indian Society of Remote Sensing, Springer
- Transportation Research Record, SAGE / TRB
- Journal of Cognitive Systems Research, Elsevier

Personal profile

Date of birth	03 December 1993
Nationality	Indian
Permanent address	B-21, Near Jagannath Temple, Gayatri Nagar, Raipur, Chhattisgarh - 492001
Father	Advo. Gopal Sharma, High Court, Bilaspur, Chhattisgarh
Mother	Prof. Kavita Sharma, HOD Botany, Govt. College, Raipur, Chhattisgarh

Research profiles

Google Scholar	https://scholar.google.com/citations?user=hSYgwOMAAAAJ&hl=en&oi=ao
ORCID	https://orcid.org/0000-0003-4214-4486
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ResearchGate	https://www.researchgate.net/profile/Neerav-Sharma