

Dr. Neerav Sharma

Programme Associate, Tech & AI | GeoAI Researcher | IoT & Remote Sensing Specialist

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

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PROFESSIONAL SUMMARY

Researcher and engineer with **8+ years of experience** at the intersection of **GeoAI, IoT, Tech and AI, Remote Sensing, and Sustainable Mobility**. Specialises in intelligent transportation systems, air quality management, geospatial intelligence, interactive data dashboarding, and data-driven climate analytics. Track record spanning Q1/Q2 peer-reviewed journals (IEEE, Elsevier, Springer, ASCE, Wiley, Emerald), one granted patent, and applied research translating directly into policy and practice at national and international levels.

EXPERIENCE

Programme Associate, Tech & AI

Nov 2024 - Present

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

- Research & development in **GeoAI, sustainable mobility, EV charging infrastructure**, and climate analytics.
- Assisted in the design and deployment of **cravis.ai** -- *Climate Resilience Analytics and Visualisation Intelligence System* -- an AI-powered geospatial climate intelligence platform for policymakers.
- Convened **three thematic panels** at the **India AI Impact Summit (2026)** in collaboration with **Google, LinkedIn, and UNICEF**, focused on AI applications for climate action, sustainable mobility, and development.
- Developing **interactive and dynamic dashboards** for urban mobility, EV charging network optimisation, and geospatial policy visualisation using **Python (Plotly/Dash, Folium), QGIS**, and cloud platforms.

Research & Liaison Officer

Feb 2024 - Oct 2024

Indian Institute of Technology (IIT) Roorkee

- Multi-disciplinary research coordination and project supervision across engineering and geomatics departments.
- Liaison between academic research groups and external funding agencies; grant writing and proposal preparation.

Post-Doctoral Researcher

Aug 2023 - Feb 2024

Purdue University, West Lafayette, Indiana, USA

- **FFAR-funded** project: Air Quality Management for Swine Farms using IoT, Smart Sensors, and AI.
- Deployed distributed IoT sensor networks across Chicago and Indianapolis metro areas for real-time $PM_{2.5}$ and NH_3 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

Purdue University, USA

2024

Ph.D., Geomatics Engineering & Transportation	<i>IIT Roorkee, India</i>	2023
M.E., Electronics & Communication Engineering	<i>BIT Mesra, Ranchi</i>	2018
B.E., Electronics & Communication Engineering	<i>SSIPMT Raipur (CSVTU)</i>	2015

SKILLS & EXPERTISE

Technical	IoT, GeoAI, ADAS, ITS, Computer Vision, Remote Sensing, Real-Time Intelligent Systems, GNSS, Air Quality Management
Programming	Python MATLAB Embedded-C
Data & Dashboards	Interactive & Dynamic Dashboarding (Plotly/Dash, Folium, Kepler.gl), Geospatial Data Analytics, Machine Learning, Deep Learning, Data Visualisation
GIS & RS Tools	ArcGIS, QGIS, ERDAS Imagine, ENVI, Pix4D
UAV & Hardware	UAV Pilot & Mapping (Leica/Aibotix Certified), LiDAR, RADAR, GPR, Smart Air Sensors, Microcontrollers (Arduino/Raspberry Pi), Oscilloscope, Multimeter
Cloud & Platforms	GitHub, MS Office Suite, PowerBI (basics), MS Azure (basics)
Research Skills	Grant Writing, Scientific Writing, Research Design, Peer Review, Project Management, Stakeholder Engagement, Public Outreach & Panel Convening

PATENT

55279 0	Sharma, N., & Garg, R. D. (2022). "An Enhanced Advanced Driver Assistance Systems (ADAS) based Real-Time Transportation Safety System and Method through IoT and Deep Learning." <i>Indian Patent Application No. 202211065321</i> . Granted: 21 October 2024 Patent No.: 552790
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PUBLICATIONS

Peer-Reviewed Journal Articles

- 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**
- 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**
- 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**
- Joshi U, Garg RD, **Sharma N**, Joshi VK, and Sharma K (2024). Hazardous Zone Identification by Spectral Analysis of Ground Penetrating Radar Response. *Electrica*, Istanbul, 24(2). doi:10.5152/electrica.2024.23186 **Q2**
- 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**
- 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**
- 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 Material 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 Material 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
- 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 PM_x and NO₂ for Sustainable Mobility in Tier-2 Cities. *Transport Policy* (Under Review).

ACHIEVEMENTS & CERTIFICATIONS

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

● BOG Member, Environment Protection & Awareness Club (EPAC), BIT Mesra

REVIEWER

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| ● IEEE Transactions on Intelligent Transportation Systems | ● IEEE Transactions on Intelligent Vehicles |
| ● IEEE Access | ● Journal of the Indian Society of Remote Sensing, Springer |
| ● Journal of Transportation Engineering, ASCE | ● Transportation Research Record, SAGE / TRB |
| ● Transportation Research Interdisciplinary Reviews, Elsevier | ● Journal of Cognitive Systems Research, Elsevier |
| ● Accident Analysis and Prevention, 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
ORCID	https://orcid.org/0000-0003-4214-4486
LinkedIn	https://www.linkedin.com/in/dr-neerav-sharma-154453129/
ResearchGate	https://www.researchgate.net/profile/Neerav-Sharma