

Noopur Srivastava

Geospatial AI Researcher

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Profile

Geospatial AI researcher working on label-efficient change detection and multimodal image fusion using deep learning for Earth observation. Combines five years of doctoral research with five years of university teaching and four years of industry experience.

Educational Qualifications

Course	Institute	Major	Year
PhD	Indian Institute of Technology Roorkee (IIT Roorkee)	Geospatial Engineering	2021-2026
M.Tech	International Institute of Information Technology-Bangalore (IIIT-B)	Information Technology	2013
B.Tech	University Institute of Engineering and Technology, Kanpur (UIET-Kanpur)	Computer Science	2010

Work Experience

Institute of Engineering and Technology Lucknow - Assistant Professor, Lucknow

Sep 2026 – Current

- Exploring image fusion and multimodal methods for crop yield estimation under climate change-driven variations in crop phenology and LST using satellite imageries and remote sensing data.
- Working on label-efficient change detection architectures utilising self-supervised pretraining and exploring cross-domain applications.

Shri Ramswaroop Memorial University - Assistant Professor, Lucknow

Nov 2015 – Mar 2021

- Taught courses like C, Java, Machine Learning, Data Structures, Artificial Intelligence, Pattern Recognition, Design and Analysis of Algorithms, etc.
- Handled curriculum modification committee, exam moderation committee, academic quality assurance committee etc.

Goldman Sachs – Senior Engineer, Bangalore

Jul 2015 - Nov 2015

- Worked on developing prototypes of machine learning models that analyze historical patterns for fraud detection and risk forecasting.

Schneider Electric Research Centre – Senior Engineer (Embedded AI Systems), Bangalore

Jul 2013 - Jun 2015

- Developed device drivers for PME (Power Monitoring Expert) including design and development of state machines for data logging and event logging, supporting and controlling real time operations.
- Worked on developing prototype for home automation systems which monitors and controls power consumption using M2M concepts.

Heckyl Technologies – Software Engineer, Mumbai

Jul 2010 -Mar 2011

- Worked in developing analytical software for stocks analysis in financial market.
- Worked on scripts to improvise the accuracy in predictions using Market Analysis, Sentiment Analysis and Predictive data analysis.

Publications

Journal articles

1. **N. Srivastava**, K. Jain, S. K. Sharma, A. K. Shukla (2026). Towards scalable urban monitoring: Semi-supervised building change detection and the ICCD dataset for Indian cities. *Results in Engineering*, 29, 108880. [doi:10.1016/j.rineng.2025.108880](https://doi.org/10.1016/j.rineng.2025.108880) (**Q1, IF 9.4**)
2. **N. Srivastava**, K. Thakur, K. Jain (2025). Seeing without labels: A self-supervised approach for building segmentation in diverse Indian urban environments. *Remote Sensing Applications: Society and Environment*, 37, 101510. [doi:10.1016/j.rsase.2025.101510](https://doi.org/10.1016/j.rsase.2025.101510) (**Q1, IF 4.9**)
3. **N. Srivastava**, S. Rao (2015). Learning-based text classifiers using the Mahalanobis distance for correlated datasets. *International Journal of Big Data Intelligence*, 3(1), 18–27. [doi:10.1504/IJBDI.2016.073901](https://doi.org/10.1504/IJBDI.2016.073901)

Conference papers

1. **N. Srivastava**, K. Jain (2023). Dual attention-based deep learning approach for building segmentation of remote sensing images. *Proc. SPIE 12735, Remote Sensing Technologies and Applications in Urban Environments VIII*, 127350Q, SPIE Sensors+Imaging, Amsterdam, Netherlands. [doi:10.1117/12.2684330](https://doi.org/10.1117/12.2684330) – (**Best Paper Award**)
2. **N. Srivastava**, S. Singh, Harshit, A. Rai, A. Pandey, K. Jain (2023). Towards robust building segmentation: Zero-shot cross-dataset transfer from structured open datasets to dense UAV imagery. *UASG 2023*, Kuala Lumpur, Malaysia (**Best Paper Award**)
3. **N. Srivastava**, K. Jain (2024). Optimizing multi-class change segmentation in high-resolution satellite imagery with a Siamese network for low-resource environments. *IEEE India Geoscience and Remote Sensing Symposium (InGARSS)*, Goa, India, pp. 1–4. [doi:10.1109/InGARSS61818.2024.10984419](https://doi.org/10.1109/InGARSS61818.2024.10984419)
4. **N. Srivastava**, A. Rai, S. K. P. Kushwaha, K. Jain (2024). Advancing multi-class semantic segmentation of high-resolution satellite imagery through enhanced ASPP and attention mechanisms. *IEEE International Geoscience and Remote Sensing Symposium (IGARSS)*, Athens, Greece, 8423. [doi:10.1109/IGARSS53475.2024.10640382](https://doi.org/10.1109/IGARSS53475.2024.10640382)
5. A. Rai, **N. Srivastava**, K. Khoshelham, K. Jain (2023). Semantic enrichment of 3D point clouds using 2D image segmentation. *Int. Arch. Photogramm. Remote Sens. Spatial Inf. Sci.*, XLVIII-1/W2-2023, 1659–1666, Cairo, Egypt. [doi:10.5194/isprs-archives-XLVIII-1-W2-2023-1659-2023](https://doi.org/10.5194/isprs-archives-XLVIII-1-W2-2023-1659-2023)

Under publication

1. **N. Srivastava**, K. Jain. Change-enhanced self-supervised pretraining and multi-level domain alignment for label-efficient semantic change detection. *ISPRS Journal of Photogrammetry and Remote Sensing* (**Q1, IF 12.9**).
2. **N. Srivastava**, K. Jain. Physics-Guided Machine Learning with Harmonised Multimodal Inputs for LST and SUHI Mapping in an Indo-Gangetic City. *Urban Climate* (**Q1, IF 7.5**).

Awards

- **Best Paper Award** for presenting research on ‘Dual attention based deep learning approach for building segmentation of remote sensing images’ in SPIE Sensors+Imaging 2023, Amsterdam, Netherlands.
- **Best Paper Award** for presenting research on ‘Towards Robust Building Segmentation: Zero-shot cross-dataset transfer from Structured Open Datasets to Dense UAV Imagery’ in UASG 2023, Kuala Lumpur, Malaysia.
- SPIE Society awarded **Travel Grant** of \$1000 to present research at SPIE Sensors+Imaging 2023 held in Amsterdam, Netherlands.
- IEEE GRSS 2024 awarded **Travel Grant** of \$1725 to present research at IGARSS 2024 held in Athens, Greece.
- IEEE GRSS 2026 awarded **Travel Grant** of INR 17000 to present research at GRSS SAR Summer School held in Hyderabad
- IEEE GRSS Society awarded **Professional Microgrant Award** of \$500 for research expense in 2024.
- Google India awarded **Travel Grant** of INR 30000 to participate in Google Research Week 2024, Bengaluru for doctoral thesis presentation.
- IEEE GRSS 2026 awarded **Travel Grant** to attend MIGARS 2026 held in Trivandrum.
- MHRD-funded PhD Fellowship and Schneider Corporate Scholarship for MTech.

PhD Thesis

Thesis titled “*Cross-Domain Semantic Change Detection with Limited Labels: Innovative Deep Learning Techniques for Military Intelligence*,” conducted under the supervision of Prof. Kamal Jain and Prof. Indrajit Ghosh. This work focuses on the development of advanced deep learning methods for semantic and building change detection in cross-domain settings with limited labeled data. The research proposes efficient learning frameworks, including synthetic data generation and augmentation, semi-supervised and self-supervised learning strategies, and introduces two curated datasets, ICCD and ICSCD, for building and semantic change detection across Indian urban environments. Additionally, the study designs and optimizes segmentation models for low-resource computational settings and evaluates their generalization capability across domains.

MTech Thesis

Thesis titled “*Monte Carlo Analysis of the Indian and U.S. Stock Markets*,” conducted under the supervision of Prof. G. N. S. Prasanna. The study investigates the behavior and dynamics of the Indian and U.S. stock markets using Monte Carlo-based simulation techniques. Price prediction is performed using the Black–Scholes and Heston stochastic models, with multiple Monte Carlo variants, including Multilevel Monte Carlo and Quasi Monte Carlo, employed to analyze and compare the resulting price distributions derived from the underlying stochastic differential equations.

Technical Skills

Programming Languages:	C, C++, C#, R, Matlab, Java, Python, Octave, Tensorflow, PyTorch
Research Orientation:	Computer Vision, Deep Learning, GeoAI, Remote Sensing, Multimodal Image Fusion