

Education

PhD - Geoinformatics

CGPA: 8.3/10

Indian Institute of Technology Kanpur

Aug 2021 – Present

M.Tech - Geoinformatics

CGPA: 8.2/10 (Gold Medalist)

Delhi Technological University

Aug 2019 – July 2021

B.Tech - Civil engineering

CGPA: 8.6/10

KiiT University

Aug 2015 – July 2019

Research Experience

GGE, University of New Brunswick

Mitacs GRA Visiting Doctoral Researcher

May 2023 – September 2024

NB, Canada

- Worked on simulating **LiDAR intensity for Autonomous Vehicles** using **Deep Learning**.
- Proposed a **novel approach** to LiDAR intensity simulation by incorporating **incidence angle** and **material reflectance** as a **contextual physics-based input modality**.
- Leveraged modified **CNN and GAN architectures** to learn the mapping between LiDAR modalities - depth, RGB, semantic labels, incidence angle, material reflectance, and the corresponding LiDAR intensity.

GI Group, Indian Institute of Technology Kanpur

Doctoral Candidate

Aug 2021 – Present

UP, India

- **Ph.D. Thesis** - *Physics-Informed Learning for LiDAR Intensity Simulation in Autonomous Vehicles*.
- Developed a **novel physics-informed deep learning model** for LiDAR intensity simulation.
- Advanced the **novel approach** to robustly simulate LiDAR intensity in **adverse weather conditions**.

MCG, Delhi Technological University

Graduate Student Researcher

Aug 2019 – July 2021

New Delhi, India

- **Master's Thesis** - *Geospatial Analysis-Based Agricultural Trade System*.
- Developed a **geospatial agricultural trade system** using **geolocation data of farmers and buyers**.
- Used **geospatial analysis** and **location intelligence** to facilitate **agricultural marketing in India**.

Urban Morph Consultants Pvt. Ltd

Research Intern

Aug 2020 – Nov 2020

Bengaluru, India

- Analyzed **Cycle-to-Work crowdsourced data** of **Bengaluru City**.
- Derived insights for **cycle track development**, identifying key areas using **location intelligence**.
- Used **machine learning algorithms** to predict **demand** for cycle tracks across the city.
- Created **maps** using **GIS** and developed a **PostGIS database** for data storage and accessibility.

Teaching Experience

NGP-DST Winter School on Geospatial Technologies

Guest Lecturer

Delhi Technological University

- Delivered theory and practical sessions during the **NGP-DST Winter School on Geospatial Technologies**, organized by the **National Geospatial Program**, DST, Government of India.

Indian Institute of Technology Kanpur

Teaching Assistant

Prof. Onkar Dikshit

Course - Adjustment Computation for Geoinformatics

Indian Institute of Technology Kanpur

Teaching Assistant

Prof. Onkar Dikshit

Position of Responsibility

PhD Overall Placement Coordinator

2024-25

Students' Placement Office, IIT Kanpur

- **Spearheaded** "Shodhspandan 2025", the dedicated PhD placement drive, successfully connecting candidates with top recruiters.
- **Led** a team of department placement coordinators, ensuring efficient execution of the placement process.
- **Cultivated and maintained relationships** with key recruiters, expanding opportunities across sectors.
- **Managed all logistical and strategic aspects** of the drive, from initial outreach to final offer negotiations.

Department Placement Coordinator

2024-25

Students' Placement Office, IIT Kanpur

- **Acted as the key liaison** between the Civil Engineering department and the Students' Placement Office.

Publications

- **Vivek Anand**, Bharat Lohani, Rakesh Mishra, Gaurav Pandey, "Advancing LiDAR Intensity Simulation Through Learning with Novel Physics-Based Modalities", *IEEE Transactions on Intelligent Transportation Systems*, 2025 (**Impact Factor: 8**). [DOI](#).
- **Vivek Anand**, Bharat Lohani, Gaurav Pandey, Rakesh Mishra, "Toward Physics-Aware Deep Learning Architectures for LiDAR Intensity Simulation", *Proceedings of SIMULTECH 2024*, Dijon, France. [DOI](#).
- **Vivek Anand**, Bharat Lohani, Rakesh Mishra, Vaibhav Kumar, Gaurav Pandey, "Towards Closing the Sim-to-Real Gap: A Physics-Guided Learning Approach for LiDAR Intensity Simulation", *IEEE Transactions on Intelligent Transportation Systems* [Under Review].
- **Vivek Anand**, Bharat Lohani, Rakesh Mishra, Gaurav Pandey, "Simulating Realistic LiDAR Intensity in Adverse Weather: A Physics-Informed Learning Approach", *IEEE Transactions on Intelligent Vehicles* [Under Review].
- **Vivek Anand**, Bharat Lohani, Rakesh Mishra, Gaurav Pandey, "Towards Realistic LiDAR Intensity Simulation in Snowy Weather Using Physics-Informed Learning", *IEEE Intelligent Vehicles Symposium* [Under Review].

Technical skills

Skills Python, Matlab, Git, Deep Learning, Machine Learning, PyTorch, TensorFlow

Awards and Achievements

Mitacs Globalink Research Award for Fully Funded Research in Canada - Mitacs

2023

Vice Chancellor's Gold Medal for Academic Excellence - Delhi Technological University

2021