

# Harshul Malik

Student, Indian Institute of Technology Delhi  
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## Research Interest

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My research interests encompass data science and machine learning, with a focus on developing advanced algorithms to address real-world challenges. I am dedicated to leveraging machine learning for predictive analytics, process automation, and innovations in natural disaster management and AI applications. My objective is to advance AI applications to create intelligent systems that enhance decision-making and benefit society.

## Education

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- **Indian Institute of Technology, Delhi (IITD)** November 2021 - August 2025  
Bachelor of Technology (B.Tech.) in Civil Engineering (Minor in Computer Science). Grade: 8.8/10  
(Till 6th Semester) – Rank: 4/105.
- **Indian Institute of Technology, Madras (IITM)** October 2023 - September 2024  
Diploma in Data Science. Grade: 8.91/10.

## Research Experience

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**B.Tech. Project (BTP), HydroSense Lab - IITD** May 2024 – Present

- Title: GNN based Postprocessor for Streamflow Data over Brahmaputra Basin.
- Developed a directional Graph Neural Network to model temporal and spatial dependencies in streamflow data, enabling efficient message passing between upstream and downstream stations for accurate flow predictions.

**Research Intern, HydroSense Lab - IITD** May 2024 – Present

- Digitalized India Flood Inventory and developed frequency maps, time series plots, etc., using various Python libraries.
- Developed a semi-automated framework for landslide identification using machine learning on Google Earth Engine and created an annotated open-source remote sensing landslide database with Sentinel-2 imagery.

## Publications

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- Nirdesh Sharma, **Harshul Malik**, Ria Joshi, and Manabendra Saharia. *Automated Landslide Extent Estimation from Sentinel 2 Data Using Computationally Efficient Deep Learning*. IEEE Xplore
- Manabendra Saharia, Sharad K Jain, Ved Prakash, **Harshul Malik**, and O P Sreejith. *A District level Flood Severity Index for India*. Semantic Scholar
- Nirdesh Sharma, **Harshul Malik**, Ria Joshi, and Manabendra Saharia. *ILCD-India Landslide Change Detection Dataset for Deep Learning Applications in Landslide Detection*.

## Conference Presentations

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- Nirdesh Sharma, **Harshul Malik**, Ria Joshi, Manabendra Saharia (July 2024). *Automated Landslide Extent Estimation from Sentinel 2 Data Using Computationally Efficient Deep Learning*. IGARSS 2024, Athens, Greece.

## Honors and Awards

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- **Department Rank 4**, Civil Engineering Department, IIT Delhi. Currently holding the 4th position among 100+ students in the department.
- **Endowment Merit Scholarship**, IIT Delhi, *November 2023*. Awarded a scholarship of 1,00,000 for being the top student in 2023-24.
- **IITD Semester Merit Award**, IIT Delhi, *Semester 3,4,5,6*. Conferred for being among the top 7% of students academically.
- **Best Researcher Undergraduate 2nd Prize**, IIT Delhi, *November 2023*. Won 2nd prize at the Institute Open House.
- **Qualified JEE Advanced**, *October 2021*. Ranked among the top 2% of students nationwide.
- **International Gold Medal**, Science Olympiad Foundation (SOF), *March 2020*. Secured first position (International Rank 1) among 20,000+ students.

## Teaching Experience

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- **Undergraduate Teaching Assistant**, IIT Delhi Fall 2024  
Course: Mechanics of Solids. Conducted tutorials, assisted in material preparation, cleared student doubts, and invigilated examinations.

## Professional Experience

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- **TeamWork Global Program**, Trip.com Group June 2024 – July 2024  
Selected to represent IIT Delhi, conducted market research and Data Analysis on campus recruitment for Trip.com Group, while collaborating with students from leading universities worldwide.

## Technical Skills

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- **Programming Languages:** Python, Java, C, C++, SQL, HTML, MATLAB.
- **Tools and Software:** Autodesk Inventor, Microsoft Excel.
- **Python Libraries:** Numpy, Pandas, Matplotlib, Seaborn, GeoPandas, Sklearn, XGBoost, TensorFlow, PyTorch.

## Volunteer Experience

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- **Technical Executive**, Physics and Astronomy Club, IIT Delhi July 2023 – November 2023
- **Publicity Executive**, RendezVous Fest, IIT Delhi February 2023 – March 2023