

Rohan Mehra

Graduate Student in Computer Science

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Education

- 2021 - 2025 **BS in Electrical Engineering and Computer Science, IISER Bhopal, India**
- Grade: 8.92/10
 - Selected Courses:** Data Science and Machine Learning, Multi-agent Reinforcement Learning, Algorithms, Operating System, Computer Organization, Theory of Computation, Probability and Statistics, Linear Algebra, Competitive Programming.
- 2019 - 2021 **Intermediate/+2 (Class XII), AMU Board, SHSSS, Aligarh Muslim University, India**
- Grade: 96.8/100
 - First Division with distinction in Physics, Chemistry, Mathematics, Biology, English (core).

Research Experience

- May - July (2025), (2024) **Institut Pascal, CNRS, Université Clermont Auvergne, France, Research Intern**
- Advised by Dr. Mathieu Labussière as part of ComSee team.
 - Demonstrated SWIR images' effectiveness with deep learning models in adverse weather conditions.
 - Worked with GAN-based and diffusion-based approaches for synthetic generation of SWIR images.
 - Models worked on include Grounded SAM, YOLO [Sem. Segmentation] and CUT, CycleGAN, Pix2Pix, BBDM [GANs & diffusion-based]
- Jan - April 2025 **IISER Bhopal, India, BS Project Student**
- Advised by Dr. Arpit Sharma at the Dept. of EECS.
 - Worked on using Zero-Shot Learning model for Sector Classification, utilizing the CrowdRE dataset.
 - Used models including Sentence-BERT, All-MiniLM-L12, Bert4RE and BERTOverflow
- May - July 2023 **Indian Institute of Space Science and Technology, Research Intern**
- Advised by Prof. Deepak Mishra as part of the CVVR Lab
 - Worked on robotics and implementation of SLAM through Kalman filter and EKF Methods.
 - Used Robot Operating System (ROS), RViz, and Gazebo.

Publications and Preprints

- [Upcoming] **Rohan Mehra, Alexandre Riffard, Mathieu Labussière, Pierre Duthon, Romuald Aufrère.** Would SWIR modality help for detection and segmentation in harsh weather conditions? An experimental study. *Accepted at ICCV Workshop on Multispectral Imaging for Robotics and Automation (MIRA), 2025.*

Teaching Experience

- 2024, 2023 **Basic Electronics, IISER Bhopal**
- Teaching Assistant for an undergraduate class of 180 students twice for 2024-25/2023-24 Semester I.
 - Conducted tutorial sessions, prepared assignment solutions, and provided one-to-one guidance.

Academic Projects

- 2025 **Risk-Aware Multi-Epoch Package Delivery Planning, IISER Bhopal**
- Used greedy algorithm to solve package delivery problems while balancing risk and reward.
 - Developed a GUI-based visualization tool using Tkinter and Matplotlib.
- 2024 **Training Multi-Robot Warehouse (RWARE) Environment, IISER Bhopal**
- Trained robots for optimized coordination in the RWARE environment.
 - Employed Deep Q-Network (DQN) for efficient learning.

2024 **Implementation of Grover's Algorithm**, IISER Bhopal

- Implemented Grover's Algorithm for the 3-SAT problem demonstrating quantum speedup.
- Utilized PennyLane for designing quantum circuits.

2023 **Prediction of Mortality Rate of Heart Failure Patients in ICU**, IISER Bhopal

- Built a classification model to predict ICU mortality in heart failure patients.
- Utilized Random Forest, Logistic Regression, and AdaBoost etc. for model development.

2022 **Extraction and Analysis of Social Media Posts**, IISER Bhopal

- Reviewed literature analyzing social media data to study behaviors linked to eating disorders.
- Performed web scraping using Twitter APIs for data collection and analysis

Technical Skills

Languages Python, C++, C, Java

Frameworks PyTorch, Tensorflow

Software ROS, Gazebo, MATLAB, Git, \LaTeX , Wolfram Mathematica

External/Online Courses

- Introduction to Deep Learning & Neural Networks with Keras – Coursera (Offered by IBM)
- Machine Learning with Python – Coursera (Offered by IBM)
- Image Processing Onramp, Simulink Onramp, MATLAB Onramp – MathWorks

Achievements/Fellowships

2025 **MIAI Cluster Excellence Scholarship**

Selected for Excellence Scholarship program offered by the Multidisciplinary Institute in Artificial Intelligence (MIAI) in France to pursue Masters at ISIMA, Clermont Auvergne INP.

2024 **IASc-INSa-NASi Summer Research Fellowship**

[Declined]

Selected for summer research fellowship jointly offered by the Indian Academy of Sciences, Indian National Science Academy, and National Academy of Sciences, awarded to the top ~5% of applicants.

2021 **Indian Maritime University (IMU) Undergraduate Admissions**

Secured All India Rank 9 out of 14,108 ranked candidates, placing in the top 0.1% nationwide.

Positions of Responsibility And Extra-Curriculars

2024 – 2025 **Student Placement Coordinator**, *Department of EECS, IISER Bhopal*, Bhopal, India

- Assisted the placement cell in all placement and internship activities.
- Acted as a link between students, the department, and the placement cell.

2023 – 2024 **Cultural Secretary**, *IISER Bhopal*, Bhopal, India

- Elected representative of the general student body for organizing all cultural events at IISER Bhopal.
- Led the team of 70 performers to the the Inter IISER Cultural Meet 2023 held at IISER Mohali.

2022 **NCC 'B' Certificate**, *National Cadet Corps, India*, Aligarh, India

- Passed NCC 'B' certificate training examination from 8 UP BN NCC, AMU Campus.
- *Achievement*: Part of a National Integration Camp, EBSB(VII) between UP and MPCG Directorate.

Languages

- **English** - Full Professional Proficiency
- **Hindi** - Native Proficiency
- **French** - Limited Working Proficiency