Sargam Goyal

B.Tech (Data Science & Artificial Intelligence), IIT Roorkee - 3rd Year
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Education

Indian Institute of Technology Roorkee 2023 – 2026
B.Tech - 3rd Year, Data Science and Artificial Intelligence
CGPA: **9.43/10**

Smt. Sridevi Awasiya Vidyapeeth, Agra, Uttar Pradesh (CBSE) 2022 – 2023
Senior Secondary (Class XII): **94.4%**

St. Anthony's Sr. Sec. School, Farrukhabad, Uttar Pradesh (CBSE) 2020 – 2021
Higher Secondary (Class X): **95%**

Internships

Science Academies' Summer Research Fellowship Program May 2025 – July 2025
Indian Institute of Science, Bengaluru

- Studied cryptography fundamentals and secure multi-party computation (MPC) protocols
- Presented research on privacy-preserving inference, confidential lookup table evaluation, and multiparty noise generation
- Explored intersections of MPC and machine learning through paper reviews and discussions

Publications

TransPatch: Learning a Universal Adversarial Patch for ViT–CNN Cross-Architecture Transfer in Semantic Segmentation (Student Abstract)
Sargam Goyal, Agam Pandey, Aarush Aggarwal*, Akshat Tomar*, Amritanshu Tiwari
Proceedings of the AAAI Conference on Artificial Intelligence (AAAI Press), 2026

Projects

LLM-Powered Neighbourhood Library Recommendation System Jan 2026

- Built a recommendation system that suggests books *specifically available in the neighbourhood library*, addressing the limitation of generic LLM-based recommendations that ignore local availability
- Used a GPT model API to extract relevant search keywords from user queries and employed BeautifulSoup to scrape candidate books from the library's HTML catalog
- Leveraged a separate GPT model to generate book recommendations based on the user query and the extracted candidate set
- Implemented a caching mechanism for recently searched keywords to reduce repeated requests to the library website, and added robust handling for empty or partial LLM outputs through defensive function wrappers

Efficient Image Inpainting using Gated Autoencoder–CNN Architecture Oct 2025 – Nov 2025

- Developed a framework for image inpainting with significantly reduced parameters and FLOPS compared to transformer-based approaches.
- Trained an autoencoder on complete images to learn latent representations.
- Designed a custom CNN to take intermediate AE encodings along with the masked input image, improving structural consistency and texture restoration.
- Outperformed previous works in cases where a smaller fraction of pixels (less than 50%) required restoration.

Multi-Source Satellite Imagery Analysis for Urban & Environmental Mapping
Mar 2025 – Apr 2025

- Conducted a comparative study using high-resolution PlanetScope (optical) and Sentinel-1 (SAR) satellite imagery over North Jakarta, Indonesia.
- Developed a reproducible Python pipeline for data preprocessing, statistical analysis, and edge detection.
- Evaluated the strengths of optical and radar data for urban, vegetation, and water feature mapping, and implemented deep learning (EfficientNet) models for land cover classification, achieving high accuracy and robust geospatial insights

Positions of Responsibility & Extracurriculars

Core Member, Data Science Group — IIT Roorkee Jan 2025 – Present

- Co-authored and collaborated on a student abstract accepted at AAAI 2026, working closely with peers
- Delivered technical lectures and onboarding sessions for fresh joiners, covering machine learning concepts
- Contributed to building the club website, coordinated inter-club collaborations, and co-managed the recruitment track *Beginner's Hypothesis 2026*

Editorial Member, Geek Gazette — IIT Roorkee Jan 2025 – Present

- Curated and edited articles on technology and science. Collaborated with a team of writers and designers to publish periodic issues

Student Mentor, Student Mentorship Program — IIT Roorkee Sep 2025 – Present

- Guiding first-year students in transition to college life and personal adjustment by creating a comfortable support system.
- Mentoring students in academics through regular meetings, offering guidance on coursework and study strategies.

Undergraduate Teaching Assistant Sep 2024 – May 2025

- Provided academic mentorship to first-year students, offering guidance on problem-solving, conceptual understanding, and exam preparation strategies.

Organizer, Autonomous Workshop — IIT Roorkee Motorsports Feb 2025

- Explained perception modules (object and lane detection), sensor fusion, and decision-making with deep learning, and engaged participants with demonstration

Relevant Coursework

Deep Learning, Applied Machine Learning, Earth-Based AI Imaging, Programming in Python and C++, Digital Electronics, Computer Organization and Architecture, Mathematics: Linear Algebra, Probability and Statistics

Academic Achievements

- JEE Advanced 2023: AIR 1324
- JEE Main 2023: AIR 1498 (99.88 percentile)

Skills

Programming: C++, Python, PyTorch, OpenCV
Domains: Artificial Intelligence, Data Science
Tools: Docker, Google Colab, Kaggle, QGIS, SNAP, labelImg