Arnav Samal

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EDUCATION

National Institute of Technology, Rourkela, India	May 2026
B.Tech. in Computer Science and Engineering	*Current CGPA:* **9.12**
SAI International School, Bhubaneswar, India	July 2022
AISSCE (Science, PCM)	*Percentage:* **94.8%**

COURSEWORK

Courses: Deep Learning - NPTEL, Computer Vision, Natural Language Processing, Machine Learning, Probability & Statistics, Operating Systems, Data Structures & Algorithms, Database Engineering

SKILLS

Programming Languages: Python, C++, C, SQL
Libraries/Frameworks: PyTorch, HuggingFace, Sci-kit Learn, SciPy, NumPy, Matplotlib, Flask
Tools: Git, GitHub, Conda, Docker, Jupyter, LaTeX, Microsoft SQL Server
Languages: English, Hindi, Odia

EXPERIENCE

Machine Learning & Vision Lab, IITH | *Research Intern, On-site*   May 2025 – Present
- Under the guidance of **Prof. Vineeth Balasubramanian** (Dept. of CSE), working on **concept-based models (CBMs)** in vision & language.

Data-driven Intelligence & Learning Lab, IITH | *Research Intern, On-site*   May 2024 – Aug 2024
- Under the supervision of **Dr. Konda Reddy Mopuri** (Dept. of AI), worked on **Explainability in Vision Transformers**.
- Conducted an in-depth literature review and performed extensive experiments to measure patch importance and the overlay of top-k tokens between different blocks.
- Analyzed and proposed post-hoc explanation techniques and token pruning methods to improve interpretability.

PROJECTS

SketchWarp | 🔗 *Python, PyTorch*   Feb 2025 – May 2025
- Developing a self-supervised learning framework in PyTorch for dense photo-to-sketch correspondences, enabling automatic image-to-sketch warping.
- Designing and implementing training and inference pipelines, inspired by the paper *"Learning Dense Correspondences between Photos and Sketches."*

NeurIPS - Ariel | 🔗 *Python, SciPy, NumPy*   Aug 2024 - Oct 2024
- Developed a pipeline for exoplanet spectral prediction using calibrated multi-sensor time-series data, implementing spatial-temporal aggregation, phase detection via gradient analysis, and Nelder-Mead optimization.
- Ranked in the top 20% in the NeurIPS-Ariel Challenge, with an evaluation score of 0.5704.

ACHIEVEMENTS & CERTIFICATIONS

Ranked **9th** in the Department of Computer Science at NIT Rourkela (up to 6th semester)
Secured **5th** worldwide in the Capsule Vision Challenge 2024, organized by CVIP 2024
Selected among 170 from 20,000+ applicants for the SURE program at IIT Hyderabad
Achieved **2nd** position in HackFest, organized by ML4E for undergraduate students
Recognized as Kaggle Expert (Datasets & Notebook)

EXTRACURRICULAR ACTIVITIES

Core Team Member, Research Division of ML4E (Machine Learning Club) at NIT Rourkela
Quizzer for Inquizzitive (Quizzing Society) at NIT Rourkela