

# Hemant Pathak

Adm. No. 23JE0402  +91-9548741368

 [Hemantpathak1411@gmail.com](mailto:Hemantpathak1411@gmail.com)  [linkedin/hemant-pathak1411](https://linkedin/hemant-pathak1411)  [github/HEMANT2027](https://github/HEMANT2027)



## Education

### Indian Institute of Technology (ISM), Dhanbad

*Integrated Master of Technology in Mathematics and Computing*

**Expected May 2028**

GPA: 8.80 / 10.00

### St. Mary's Convent School, Gajraula

*Class XII / X (CBSE)*

**2023 – 2021**

Percentage: 95.6% / 98.8%

## Relevant Coursework

- Statistical Inference
- Linear Algebra
- Stanford CS231n (Vision)

- GPU Computing
- Operating Systems
- Object-Oriented Programming

- Data Structures & Algorithms
- Graph Algorithms
- Database Management Systems

## Experience

### Apparent Energy Solutions Pvt. Ltd.

**Jan 2026 – Present**

*Lead Software Engineer Intern*

Remote

- Spearheading the mapping of India's electrical grid infrastructure by integrating computer vision techniques on Google Street View and satellite imagery.
- Trained a custom **YOLOv11** model to detect electrical poles from satellite feeds and implemented hybrid **segmentation and detection** pipelines to identify overhead wires.
- Conducted spatial analysis to model pole-to-pole connectivity, establishing a comprehensive digital twin of the grid topology.

### Aeroqube Inc.

**August 2025 – December 2025**

*Software Engineering Intern*

Remote

- Developed an AI-assisted medical workflow to reduce diagnostic turnaround time with human-in-the-loop validation.
- Applied MED-SAM 2 for lesion segmentation on CT/X-ray images, achieving over 90% extraction accuracy for downstream diagnosis.
- Integrated OCR pipelines using Nanonets and **Google Cloud APIs** to standardize prescriptions and reports.
- Orchestrated multimodal reasoning pipelines using **LangChain** and **LangGraph** with **Med Gemma 27B** to generate diagnostic and treatment summaries.
- Deployed inference workflows on AWS SageMaker to enable low-latency, scalable production serving.
- Implemented an i-MedRAG-inspired retrieval pipeline to generate context-aware follow-up questions, improving clinical completeness.

### Technod8.ai

**July 2025**

*Generative AI Intern*

Remote

- Contributed to the NCIIPC Startup India AI Grand Challenge by developing a computer vision pipeline for document understanding.
- Trained and fine-tuned a **YOLOv10** model to detect multilingual document layout components and extract bounding box coordinates for downstream OCR and parsing tasks.

## Technical Skills

**Languages:** Python, C++, C, MySQL

**Libraries & Frameworks:** PyTorch, Open CV, Scikit-Learn, NumPy, Pandas, LangGraph, LangChain

**Developer Tools:** Docker, Git, GitHub, AWS Sagemaker

**Core Concepts:** Machine Learning, Deep Learning, Retrieval Augmented Generation (RAG)

## Achievements

- Secured a top 1% finish (rank 80) among 8,000+ participants in the **Shell.ai** Blend Fuel Price Prediction Challenge 2025.
- Achieved Runner-up in **Algoverse**, an algorithmic trading hackathon, by designing a profitable strategy based on statistical arbitrage that outperformed 50+ other teams.
- Earned Runner-up recognition at a high-stakes **Pitch-a-thon**, where 20+ teams competed, by articulating a clear business plan.

## Sports Programming

Platform	User Profile	Rating	Problems Solved
Codeforces	<a href="#">HemantPathak</a>	1274 (Pupil)	600+
LeetCode	<a href="#">Hemant1411</a>	1545	60+
CodeChef	<a href="#">devil_59</a>	1694 (3 Star)	60+

## Positions of Responsibility

---

- **Student Placement Coordinator**, Career Development Centre, IIT (ISM) Dhanbad
- **Member**, Fintech Club, IIT (ISM) Dhanbad