

# AMISHA PATEL

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## Education

**National Institute of Technology, Rourkela**

*Integrated MSc Mathematics (CGPA: 8.2)*

**Nov 2022 – May 2027**

*Rourkela, Odisha*

**Maa Bharti Sr. Secondary School, Kota**

*AISCCE CBSE, Science (PCM) – 93.8%*

**July 2021**

*Kota, Rajasthan*

**Banasthali Vidyapith**

*Banasthali Board – 96.6%*

**May 2019**

*Tonk, Rajasthan*

## Relevant Coursework

- Data Structures and Algorithms
- Object Oriented Programming
- Operating Systems
- Database Management
- Design and Analysis of Algorithms
- Computer Networks

## Experience

**Summer Research Intern**

*Wireless Sensor Network Research Lab, NIT Rourkela*

**May 2025 – Jul 2025**

*GitHub*

**Core Tech Stack:** Python, FastAPI, REST APIs, TensorFlow (U-Net), React.js (Vite), Google Earth Engine

- Engineered and deployed a **scalable inference service** using U-Net, integrating model execution with **backend APIs** and **data pipelines**.
- Designed and implemented a **scalable geospatial ETL pipeline** processing **30M+ satellite samples** into structured GeoTIFF inputs for **production-grade inference**.
- Trained and productionized a **U-Net segmentation model**, achieving **93% pixel-level accuracy** through calibrated thresholding.
- Implemented a **FastAPI backend** with **REST endpoints** and a **React (Vite) dashboard** for tiled inference and interactive risk visualization.

## Projects

**Lung Sound Disease Classifier**

*Python, Librosa, FFT, Random Forest, FastAPI*

**Oct 2025 – Dec 2025**

*GitHub*

- Built an **end-to-end audio ML pipeline** to segment and classify clinical lung sounds from WAV + JSON annotations.
- Designed **FFT band energy features (100–2000 Hz)** to capture wheeze and crackle patterns with medical interpretability.
- Trained a **Random Forest model** achieving **91% test accuracy** under class imbalance.
- Deployed the model via a **FastAPI service** for real-time audio inference and integration.

## Achievements/Certifications

- **Amazon ML Challenge – Smart Product Pricing**  
Ranked in **Top 300 out of 82,787 participants** in a machine learning price prediction challenge.  
October 2025  
*GitHub*
- **Google Developer Groups (GDG) On Campus**  
Recognized for proposing an **AI-driven solution**.  
July 2025  
*Certificate*
- **March Cohort Hackathon (BookingJini)**  
Winner among **50+ teams** at T&P Hackathon, NIT Rourkela.  
March 2025  
*LinkedIn*

## Technical Skills

- **Languages:** C/C++, Python, SQL, MATLAB
- **Developer Tools:** Git, VS Code, Docker, PostgreSQL
- **Frameworks & Libraries:** FastAPI, Flask, scikit-learn, PyTorch, NumPy, Pandas

## Extracurricular Activities

**ICS Mentor, NIT Rourkela**

*Academic & Personal Mentor / Student Research Guide*

**Sept 2025 – Present**

- Mentored undergraduate students in **academics, research ideation, and structured problem-solving**.
- Organized **peer-learning sessions and workshops** to strengthen technical fundamentals and collaboration.