

# Aditi Asati

BS-MS Graduate · Mathematics · Machine Learning  
IISER Tirupati · IIT Bombay · INSPIRE SHE Fellow

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Navsari, Gujarat - 396445

## Education

### BS-MS Dual Degree

Tirupati, India

Indian Institute of Science Education and Research (IISER)

MS Thesis at Indian Institute of Technology Bombay (IITB)

August 2019 - May 2024

Specialization: Mathematics

Master's CGPA: 8.48/10 ; Total CGPA: 7.6/10

MS Thesis Project Score: 8.9/10

### 12th Grade

Nagpur, India

Dr. Ambedkar College

August 2018 - June 2019

Board: Maharashtra State Board

Stream: Science (PCM + Electronics)

Percentage: 85%

### 10th Grade

Bhandara, India

Sunflag School

Apr 2016 - Apr 2017

Board: CBSE

CGPA: 10.0/10

## Skills

- **Languages & Frameworks:** Python, SQL, Shell Scripting, FastAPI, Streamlit
- **Tools and Technologies:** Docker, Git, GitHub, Linux
- **Data Analysis & Modelling:** Numpy, Pandas, Matplotlib, Scikit-learn, Tensorflow, Pytorch, LangChain, AB testing, Statistics & Maths

## Experiences

### Master's Thesis Project Student

Bombay, India

Koita Centre for Digital Health (KCDH),

Indian Institute of Technology Bombay

Jun 2023 - Present

**Advisors:** Dr Kshitij Jadhav (Supervisor; Koita Centre for Digital Health, IITB) and Dr Kaustubh Patil (Co-supervisor; Forschungszentrum Jülich)

- Researched synthetic data utilization to mitigate site effects from structural MRI data.
- Designed and implemented SMOTE algorithm for synthetic datapoint generation.
- Engineered pipelines for experiment execution using **Scikit-learn, Python, and Shell Scripting**.
- Presented research findings to academic peers and faculty members.
- Explored advanced ML algorithms in **object detection, image recognition, data efficient ML**.

### Semester Project Student

Tirupati, India

Indian Institute of Science Education and Research Tirupati

Jan 2023 - April 2023

**Advisors:** Dr Hussain Bhukya (IISER Tirupati) and Dr Debasish Koner (IIT Hyderabad)

- Constructed an attention-based deep learning model using Transformers in **Tensorflow**.

## Projects

### Hazelnut 🌰

- Engineered a **LangChain**-based chatbot for natural language to SQL query generation and execution.
- Enhanced query accuracy by integrating database schema awareness and conversation context.

- Developed frontend using **Streamlit**, backend with **FastAPI**, and containerized the application with **Docker**.

### Tomato Doctor

- Designed a deep learning model utilizing transfer learning & **TensorFlow**, achieving 86% test accuracy in tomato leaf disease diagnosis.
- Implemented confidence scoring for each prediction to indicate accuracy.
- Created a web application using **Streamlit** and **FastAPI**, containerized with **Docker**.

### Interpolation for Brain Age Prediction

- Generated and analyzed SMOTE-based synthetic datasets to build brain age prediction models using **Python** and **scikit-learn**.
- Executed multiple experiments to evaluate synthetic dataset effectiveness in brain age prediction using **Shell Scripting & Python**.
- Authored a comprehensive thesis and delivered a 30-minute oral presentation.

### News Article Summarizer

- Developed a program extracting title, summary, authors, and publishing date from news article URLs using **NLP**.
- Incorporated sentiment analysis to determine article polarity.

## Relevant Coursework ---

During my first two years, I completed undergraduate coursework in physics, chemistry, biology, and mathematics. Here are some selected courses that I have completed at IISER:

- |                   |                         |                                   |
|-------------------|-------------------------|-----------------------------------|
| • Data Science I  | • Linear Algebra        | • Probability and Statistics      |
| • Data Science II | • Operations Research   | • Discrete Mathematics            |
| • Graph Theory    | • Computational Methods | • Single & multivariable Calculus |

## Certifications and Training ---

### Data Analysis and ML using Python

E&ICT Academy, IIT Roorkee

Remote

Aug 2020 - Aug 2020