



EDUCATION

Year	Degree/Exam	Institute	CGPA/Marks
2025	M.TECH DUAL	IIT Kharagpur	8.01 / 10
2019	All India Senior School Certificate Examination	Delhi Public School Bokaro Steel City	93.8%
2017	All India Secondary School Examination	DAV Public School WBC Ghatotand	10 / 10

INTERNSHIPS

Computer Vision Intern | Dewinter Microscope Optical Inc. | On site **May 2023 - June 2023**
• Developed an **image processing algorithm** using OpenCV, python to **detect white blood cells**, cytoplasm and nucleus in blood cell image
• Successfully trained a **custom YOLO v5x model** from scratch for 100 epochs on a dataset of 3500 images, achieving a test **accuracy of 90%**
• Employed **post-processing on predictions** using best weights to obtain predictions of WBC located at center of images with highest score
• Developed an algorithm capable to **detect, classify, locate and count all red blood cells** and its types based on the geometrical features

Machine Learning Intern | AI4ICPS Innovation Hub | Remote **May 2023 - June 2023**
• Developed data-driven **energy demand forecasting** methods for Andhra Pradesh, incorporating relevant factors such as weather, festivals
• Achieved a low test **RMSE of 9.446** on the **LSTM model**, demonstrating accurate short-term energy demand predictions using all variables
• Optimized the LSTM model by tuning the parameters to enhance performance and accuracy, improving short-term forecasting capabilities
• Deployed the optimized LSTM based energy demand forecasting model on **Streamlit** for real-time predictions and practical decision-making

Research Intern | AIHBI Lab, IIT Kharagpur | Prof. Dr. Prashant Anand **Feb 2023 - Present**
• Collected and analyzed dataset on indoor and outdoor CO2 levels, temperature, and humidity to gain insights into the energy use patterns
• Performed **data cleaning, preprocessing, and visualization** techniques, followed by Exploratory Data Analysis through python libraries
• Utilized python functions and libraries to derive occupancy status, AC active status, and window status on the CO2 and temperature data
• Implemented **K-means clustering algoirthm** and Matlab **simulation**-based methods to identify patterns of occupancy and energy usage

PROJECTS

Speech-Enabled Movie Recommendation System | Self Project **Feb 2023**
• Created a python program that **takes speech input**, transcribes it and **recommends top 5 movies** of Netflix similar to the content spoken
• Utilized libraries like **sounddevice, soundfile**, and **wavio** for reading files and handling audio data and **wav2vec2.0 model** for speech2text
• Preprocessed Netflix data for clean texts, trained using **sentence transformers** for embeddings, recommendations using **cosine similarity**

Multi Label Classification of Enzyme Substrates | Kaggle | Self Project **July 2023**
• Implemented an **ensemble model** for the multi-label classification of enzyme substrates, performed exploratory data analysis on the data
• Employed feature engineering methods including **Principal Component Analysis, Non-Negative Matrix Factorization** and label encoding
• Used **Optuna** to tune **LightGBM, CatBoost, Xgboost**, and **HistGradientBoosting** models, achieving score of **0.65540 (top 20%)** on leaderboard

COMPETITION/CONFERENCE

Convolve Epoch-1 | First Round | Organized by IIT Guwahati **Dec 2022**
• Successfully solved the problem of **Log Anomaly Detection** in a team of three, secured **12th rank** on the leaderboard during the first round
• Employed **preprocessing steps using numpy, nltk**, etc to efficiently handle and analyze the software logs, transformed it into vocabulary
• Implemented the **BERT model** for log anomaly detection, using its NLP capabilities to classify logs, achieved **score of 0.977** on leaderboard

Google Smartphone Decimeter Challenge 2022 | Kaggle Competition **May 2022**
• Implemented **ECEF to BLH** coordinate system conversion to **predict the latitude, longitude coordinates of vehicles** based on GNSS data
• Employed the **Savitzky-Golay filter** to effectively smooth GNSS data, reducing noise and enhancing the baseline performance of the model
• Successfully **corrected outliers** in time series paths using the **Bayesian Optimization** method resulting in improved leaderboard accuracy

SKILLS AND EXPERTISE

• **Proficient:** C | C++ | Python | SQL | Jupyter Notebook |, **Basic:** React JS | Power BI | Ms Powerpoint | Ms EXCEL | Figma | Canva | HTML | CSS |
• **Libraries/Frameworks:** Scikit-learn | Tensorflow | Pytorch | Plotly | Pandas | Numpy | Keras | Hugging Face | Stremlit | opencv | STL |

POSITIONS OF RESPONSIBILITY

Head | Space Technology Students' Society, IIT Kharagpur **Aug 2022-March 2023**
• Successfully headed the **sponsorship and marketing team** of the National Students' Space Challenge 2022, securing total **18 sponsors**
• Effectively coordinated and **communicated with the heads and subheads** to ensure the tasks completion before the expected deadline
• Organized the **post-covid** first offline fest with a **participation of 500+ offline and 2000+ online** enthusiastic individuals across the nation

Hackathon Co-Organizer | AI4ICPS AI Hackathon 2023 | IIT Kharagpur **March 2023**
• Organized an **AI/ML hackathon** for AI4ICPS within a two-week timeframe, collected relevant datasets and formulated the **kaggle challenge**
• **Designed the poster, website, and email content** to promote the event and attract participants, sent reminders to motivate the teams
• Successfully concluded the hackathon with a total of **70 online teams** and **15 offline teams**, invited **prof. suman chakraborty** as judge

COURSEWORK INFORMATION

• **Programming:** Programming and Data Structures (CS10003) | Data Structure and Algorithm (MA60002) | Getting Started with Python |
• **Maths and ML:** Probability and Statistics | Linear Algebra | Machine Learning Specialization | Deep Learning Specialization by Andrew Ng |

EXTRA CURRICULAR ACTIVITIES

• **Social and cultural:** Integral part of **Silver** winning **Inter-Hall Choreography** team of **Azad Hall** of Residence for academic year 2022-2023
• **Sports:** Integral part of **Silver** medal-winning **Inter-Hall Cricket** team of the **Azad Hall** of Residence for the academic session 2022-2023
• **Technology:** Participated in the **Inter Hall Hardware Modelling** Competition 2022-23 conducted by the Technology Students' **Gymkhana**