MOHIT LADDHA | 22AE10023
AEROSPACE ENGINEERING(B.Tech 4Y)

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EDUCATION

Year	Degree/Exam	Institute	CGPA/Marks
2026	B.TECH	IIT Kharagpur	8.37/10
2022	HSC (Maharashtra Board) - XII	Champions Junior Science College, Kharghar	82.33%
2020	AISSE (CBSE) - X	New Horizon Public School , Airoli	96.40%

AWARDS AND ACHIEVEMENTS

• Ranked among the **top 1%** among **1Million+** students in the highly competitive Joint Entrance Examination Mains
• Amongst the **top 2%** of **2,50,000+** students who appeared for Joint Entrance Examination Advanced (Entrance test for IITs)
• Secured a **top 0.05%** rank and placed **55th** out of 2,00,000+ students in the MHT-CET entrance exam showcasing academic excellence

INTERNSHIPS

Research Intern | IIM Ahmedabad | Prof. Adrija Majumdar   **March'24 - May'24**
Objective:Analysis of Narratives across Green Sustainability and Non-Green Crypto Sustainability
• Processed **4.5M+** tweets on proof of stake and sustainable, and **4.74M+** tweets on proof of work and non-sustainable cryptocurrencies
• Implemented **Latent Dirichlet Allocation (LDA)** and **Non-Negative Matrix Factorization (NMF)** for comprehensive topic modeling
• Analyzed data sentiment using **McDonald Loughran, TextBlob, and Vader**, visualizing outcomes with Matplotlib pie charts

Research Consultant | WorldQuant - Brain   **March'24 - Present**
Objective : Worked as a Quant Researcher at WorldQuant, developing and back-testing trading strategies on the BRAIN platform
• Generated **10+** alphas for both US and Chinese equity markets using time series analysis, steadily outperforming market benchmarks
• Tested alphas with **Sharpe Ratio** over **1.58**, fitness above **1**, and production correlation below **0.7** for high performance and robustness
• Ranked in the **Top 5%** of the WorldQuant Challenge, outperforming **30k+** participants worldwide with strong analytical performance

PROJECTS

AI-Powered Runway Inspection and FOD Detection | Prof. Sandeep Saha   **Jan'25 - Present**
• Developed an autonomous FOD detection system using **YOLOv8 & UNET**, trained on **3,000** simulated runway images for real-time monitoring
• Automated dataset creation with **auto-labeling and annotation**, ensuring high-quality data for better model training and detection
• Optimized deep learning with **OpenCV**, refining image processing to enhance detection of metal scraps, screws, and nuts with **90%** accuracy

Time Series Classification using KNN | Self Project
• Developed Python-based **Time Series Analysis** framework using **KNN** for trend similarity prediction, emphasizing analysis and prediction
• Accommodated temporal misalignment in stock networks for time dilation-invariant clustering using **pairwise Dynamic Time Warping**
• Achieved a **93% reduction** in model training time by implementing the DTW technique, while attaining a high similarity score of up to **50k**

Attenue | Smart Attendance System | Prof. Amardip Ghosh   **Sep'24 - Nov'24**
• Developed a face recognition system using **Python & OpenCV**, enabling automated attendance with real-time face detection & recognition
• Achieved high-accuracy face matching with **face_recognition** & developed a facial embeddings database using pickle for efficient storage
• Integrated **Raspberry Pi** for remote image capture and automated data transfer via Paramiko, enhancing scalability and efficiency

COMPETITION/CONFERENCE

Data Analytics Challenge | NSSC'23   **Sep'23 - Oct'23**
• Trained a supervised classification model on the **PHL Exoplanet** Catalog to predict the habitability of **4000+** exoplanets with high accuracy
• Enhanced model performance by consolidating a feature-rich dataset using **MICE, SMOTE, and Feature Correlation Analysis**
• Implemented the **one-vs-all classification** with 6 binary models, achieving an accuracy of **98.6%** in predicting the exoplanet habitability

Excavate | Composite'24 | IIT Kharagpur   **Feb'24 - March'24**
• Developed a regression model predicting **Dmax** of **440+** alloys with **8** specified features, significantly enhancing accuracy and reliability
• Applied polynomial feature transformation, repeated **K-fold cross-validation**, and random search, effectively optimizing the parameters
• Implemented standard scaler and hyperparameter tuning, reducing the mean squared error (MSE) by **30%**, achieving a final score of **10.3**

SKILLS AND EXPERTISE

• **Languages and Frameworks :** C | C++ | Python | HTML | C++STL | Numpy | Matplotlib | Pandas | Sklearn | Tensorflow | Seaborn
• **Softwares :** Sublime Text | Canva | Visual Studio Code | Jupyter Notebook | Matlab | Google Colab | MS Office

COURSEWORK INFORMATION

• **Academic Courses** : Programming and Data Structures | Advanced Calculus | Transform Calculus | Linear Algebra and Complex Analysis | Numerical Solution of Ordinary and Partial Differential Equation | Probability &Statistics | Introduction to Flight Vehicle Controls
• **MOOCs :** Introduction to Computer Vision | Supervised Machine Learning | Neural Networks &Deep Learning | Summer Analytics by IIT-G

POSITIONS OF RESPONSIBILITY

Secretary: Aquatics Subcommittee , Technology Students' Gymkhana , IIT Kharagpur

• Elected to the **highest available position** for a second-year student by the entire IIT Kharagpur community, securing a total of 4957 votes
• Managed a budget of **6 Lakhs+** and orchestrated **10** aquatics tournaments for a student body exceeding **15,000** students
• Influenced institute-wide decisions as **Student Council member** and curated social media content to boost sports participation

EXTRA CURRICULAR ACTIVITIES

• Led the LLR hall **Water Polo** team to a **gold** finish in the General Championship, amongst 10+ teams from the campus
• Led the LLR hall to a **runner-up** finish in the **Illumination event,** managing **50+** students, demonstrating exceptional **leadership skills**
• Won the **silver medal** in street play representing LLR hall in the General Championship, amongst 20+ teams from all over the campus
• Co-founded Facto Store, generating **INR 42,000** in revenue with a **50% profit** margin and serving **80+** customers in tailored student fashion