RITAM MONDAL | 23IM30018

Indian Institute of Technology Kharagpur

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EDUCATION

Year	Degree/Exam	Institute
2028	B.Tech and M.Tech (DD), Industrial and system Engineering	Indian Institute of Technology Kharagpur
2022	Class XII, WBCHSE (87.8%)	Howrah Zilla School, Howrah
2020	Class X, WBBSE (91%)	Kona High School, Howrah

PARTICIPATION AND COURSES

Courses I learnt:

Advanced calculus, Probability and statistics, Transform calculus, Operations research , engineering economy, economics, Management of Inventory systems, work system design, matlab programming, cplex programming, python, data science, C++

Data sciene with generative AI   *PW skills*

Learned Python, Machine Learning, Deep Learning, Databases, NLP, and Generative AI models .During the ML course I have developed "Cryptocurrency Liquidity Prediction for Market Stability" project

decode C++ batch with DSA   *PW skills*

Covered complete DSA with C++, including advanced algorithms like Dynamic Programming, BST, Morris traversal, Segment Trees, and more
During the course I have developed some basic project like "snake game" , "employee management system" etc.

PROJECTS AND EXPERIENCE

Optimizing Revenue Leakage & Profitability in the Hospitality Sector   May'25 – Jun'25   *Summer Project'25 –IIT Guwahati* *(github)*

- Built a full-stack analytics solution to identify causes of revenue loss in hotel bookings
- Performed data preparation and EDA in Google Colab using Python (Pandas, Seaborn)
- Developed Power BI dashboard with KPIs like ADR, RevPAR, Realisation %, Occupancy %
- Simulated "late booking penalty" scenario — reduced revenue leakage by 49%
- Provided strategic suggestions: weekday bundling, platform shift, non-refundable policy

Portfolio Optimization in stock Market   March'25 - april'25   *Avishek Sharma, IIT Kharagpur*
- Implemented Sharpe ratio optimization to construct an optimal stock portfolio   *(gihub)*
- Used MATLAB and Python for data analysis, portfolio returns calculation, and risk assessment.
- Processed real Excel data of 10 stocks spanning the past 2 years for analysis
- Applied constrained optimization techniques to maximize risk-adjusted return
- Determine the optimal allocation of stocks in a portfolio by deciding how much proportion of total investment should be assigned to each stock

Breast Cancer Detection Using Logistic Regression, SVC & GridSearchCV   May'25   *self project (github)*
Machine Learning | scikit-learn | Python | Data Analysis | Model Evaluation
- Developed a binary classification model to predict malignant vs benign tumors using the Breast Cancer Wisconsin dataset
- Built end-to-end ML pipeline with StandardScaler + GridSearchCV, tuning hyperparameters for LogisticRegressionand SVC
- Evaluated model using **confusion matrix**, **ROC-AUC**, **precision/recall/accuracy trade-offs**, and **threshold optimization**
- Visualized key insights using **3D feature scatter plot**, **correlation heatmaps**, and **pie charts** for class distribution

Bus Terminus Design Project   january'25 - april'25   *prof Anand Jacob Abraham, B.G. Menon, IIT Kgp*
work system design
- Designed a bus terminus layout with optimized passenger flow and vehicle management.
- Developed a **3D model** to visualize the infrastructure and improve design feasibility.
- Conducted **work system analysis** to enhance efficiency and reduce congestion.
- Prepared a **detailed report and PowerPoint presentation** to document findings and recommendations.

Ultrasonic Arduino Sensor   august'23 - november'23   *IIT Kharagpur (academics)*
- Built a sensor system using an ultrasonic sensor and Arduino to detect objects within a 180-degree range both horizontally and vertically.
- Integrated servo motors for rotation and real-time detection of objects at various angles and distances.
- Displayed object detection results (distance and angle) on an monitor screen using Arduino libraries.
- Applied principles of sensor interfacing, servo control, and object detection to create a functional and interactive system

SKILLS AND EXPERTISE

- **Programming Languages:** Python Advanced,pandas, C++, C, SQL, Problem solving, Matlab, Cplex IBM
- **Skills:** Python for data analysis (Pandas, NumPy, EDA), All Regression & classification techinque, Advanced ML techniques KNN,PCA, clusturing,

Time series anomaly detection , DSA in C++ with backtracking, OOPs, Dynamic P, Morris traversal, Binary tree, BST, Hash table, MongoDB
- **Project software:** google colab, VS code, Tenser flow,pytorch, autodesk tinkercad, Arduino
- Publicity, event management ,presentation skill

CERTIFICATES

- C/C++ (PW skills) , Machine Learning (AlmaBetter),
- Python,Algorithmic Problem solving intermediate(Hacker Rank)
- Entrepreneurship drive awarness (certificate of participation)
- Quant quest,Kshitij-IIT kgp'25 algorithmic trading certificate (by Unstop)

POSITIONS OF RESPONSIBILITY AND EXPERIENCE

Kshitij, Techno management fest of IIT kharagpur | Kshitij Campus Affiliate   Oct'23 - August'24
- Co-managed Kshitij 2024 with footfall of over 60000 students.
- Publicised the fest in the state of Jharkhand (Dhanbad, Ranchi, Deoghar) ,Bihar (patna), West Bengal (Kolkata, Hooghly) . Also make editors to publish the fest in their respective newspaper of Gano Shakti, Telegraph, Ananda bazar, Times of India

Student Mentor | at Physics Wallah   April'24 - August'24
- Mentored and guided JEE around 350 students for their preperation

AWARDS AND ACHIEVEMENTS

- Secured All India Rank of 5435 in JEE Advanced 2023(out of 1,90,000 candidates).
- Secured All India Rank of 20819 in JEE Mains 2023(out of 13,00,000 candidates).
- 5 stars in C program (Hackerrank), algorithmic problem solving (Leet Code)
- WBCHSE (class XII) - 87.8%
- WBBSE (class X) - 91%

EXTRA CURRICULAR ACTIVITIES

- was Part of the Aquatic society - swimming, Gym, trekking enthusiast