RITAM MONDAL | 23IM30018
Indian Institute of Technology Kharagpur

EDUCATION

Year	Degree/Exam	Institute
2028	B.Tech + 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 , PROJECTS 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, Python for data analysis (Pandas, NumPy, data cleaning and preparation, exploratory data analysis), Regression (Polynomial and Logistic), Basic machine learning techniques.

1. **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

2. **Snake Game(C++)**   *PW skills*
   Developed a classic Snake game using C++ as a part of a course project.
   ○ Implemented game mechanics, including movement, food collection, and score tracking.
   ○ Utilized basic data structures like arrays for snake movement and handling collisions.

3. **Employee Management System (C++)**
   Developed a system for managing employee records including adding, updating, deleting, and searching for employees.
   ○ Applied object-oriented programming principles, such as inheritance and polymorphism, to build a robust and modular system.
   ○ Utilized file handling to store and retrieve employee data.

PROJECTS AND EXPERIENCE

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

Bus Terminus Design Project   january'24 - april'24   *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.

Portfolio Optimization in stock Market   March'24 - april'24   *Avishek Sharma, IIT Kharagpur*
○ Implemented Sharpe ratio optimization to construct an optimal stock portfolio
○ 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

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