HARSH RAJ

ACADEMIC QUALIFICATIONS

Year	Degree /Board	University /Institution	%/CGPA
2025*	Post Graduate Diploma in Business Analytics	IIM Calcutta, IIT Kharagpur, ISI Kolkata	-
2021	B. Tech Civil Engineering	IIT Dhanbad	8.04/10
2017	Class XII	Modern Academy, Gaya	82.4 %
2015	Class X	Secondary Delhi Public School, Gaya	9.4/10

KEY SKILLS/TOOLS EDA, Time Series Forecasting, Machine Learning, NLP, Python, SQL, Power BI, MS Excel

WORK EXPERIENCE (23 Months)

Larsen & Toubro — **Senior Engineer - Planning** — **Howrah (Aug '21 - Jul '23)**

Roles and Responsibilities	■ **Liaised** and onboarded **50+** vendors, **managed** work execution & billing across 2 packages worth **₹411 Cr** ■ **Led** a team of **10+** for project execution & quality control; **Collaborated** with clients, yard, & on-site teams ■ Prepared project **cost** estimate adopting **Bottom-up Forecasting**; performed earned value mgmt. analysis ■ **Negotiated** with client for addition of extra item over contract value worth **₹65 Cr**; raised claim of **₹3.1 Cr**
Data Visualization	■ Built **interactive dashboards** using Excel & **Power BI** for project monitoring & task control with **10+** KPIs ■ Identified underutilized equipment; re-allocated and **saved ₹ 7 Cr**; **Increased** productivity by **2** hours/day
Key Achievements	■ Raised price escalation invoices of **₹25 Cr** for project delays due to unforeseen events & increased material and equipment costs; Conducted delay analysis, successfully obtaining a crucial **11-month** extension of time

ACHIEVEMENTS & DISTINCTIONS

Case Competitions	■ Ranked **(1/627)** in **dashboarding** event by [XLRI Delhi]; Won cash prize (**₹18,000)**; Skills used: **Power BI** ■ Ranked **(3/112)** in **Multimodal Product Classification Challenge** by **[RIT, Paris]**; Skills Used: **CNN, NLP** ■ Ranked **(3/247)** in Managing **Blood Operation** at blood bank by [SIOM, Nashik]; Skills Used: **Time Series** ■ **Top 10/538** in Bike **Operations** Optimization [IIM KSP] | **Top 8/211** in **dashboarding** [BIMTECH, Noida]
Certification	■ Essentials of **Project Planning and Control** by L&T Institute of Project Management - L&T IPM (24 PDU's)

ACADEMIC PROJECTS

Renewable Energy Demand Forecast (Time Series)	■ Forecasted monthly demand of renewable energy for next 8 months using past **23 years** data [2001-2023] ■ Analyzed stationarity of **Log transformed** data using **ADF**; order with **ACF-PACF**; **Ljung-Box** for residuals ■ Applied **Auto ARIMA** to get **SARIMA** model with **lowest AIC**; achieved **MAPE** of **0.63%** and **RMSE** of **0.05**
Uber-Price Prediction (Regression)	■ Predicted Uber ride prices on dataset having **2L** observations using the **OLS Regression** as baseline model ■ Treated outliers, detected multicollinearity using **VIF,** tackled it with **PCA**; identified features using **ANOVA** ■ Achieved **R2 score** of **0.72** for **Ridge** & **Lasso** regression by tuning **hyperparameter** using **GridSearchCV**
Product Classification (Deep Learning)	■ Pre-processed E-Comm. **Multimodal** dataset (Text+Image) of **99k+** products to classify them in **27** classes ■ Fine-tuned the pretrained models (Unimodal): **ResNet50** for image [**0.6**] & **BERT** for text [**0.87**][F1-score] ■ **Combined** Image & Text inputs into Multimodal **Framework** (**0.3↑** in F1-score over Image-only classifier)
Apollo Hospitals' Reviews Analysis (NLP & DL)	■ Analyzed review data of **4k+** employees of Apollo Hospital to identify issues; generated recommendations ■ **Scraped** data using **Beautiful Soup**, applied **text - preprocessing**; Used **RoBERTa** to capture **sentiments** ■ Used custom **Zero shot prompt** to **Gemini Pro API** for recommendations; deployed the model on **Gradio**

ADDITIONAL PROJECTS

Chatbot Assistant (LLM, NLP)	■ Created a **chatbot** to answer based on the input pdfs. Used **Langchain** to create prompt template for **LLM** ■ Used **Pypdf** to read pdf data; Used a transformer to create **embeddings** & stored in **VectorDB - PineCone** ■ **Retrieved** results based on **cosine similarity;** Generated response using **Llama2**. Deployed bot on **Flask**
Credit Default Prediction (Classification)	■ Built a **classification** model to predict credit card default with **30K** historical credit dataset & **24** features ■ Utilized **feature engineering**; applied **SMOTE**; used **Logistic Regression**, **SVM** & **Random Forest** models ■ Performed hyperparameter tuning for **XGBoost** to increase F1 score from **.77** to **.86;** attained **AUC** of **0.94**
Customer Segmentation	■ Segmented **1M+** E-commerce customers using **Pyspark**; performed **RFM Analysis** and outliers treatment ■ Used **K-Means**, **Agglomerative**, **DBSCAN**; identified cluster with **elbow** plot; best **Silhouette score** [**0.53**]
Portfolio Optimization	■ Computed Annual Portfolio Return and Risk of **5 stocks** (Disney, Microsoft, Amazon, Google and Walmart) ■ Optimized portfolio to maximize **Sharpe Ratio (1.08)** on **efficient frontier** & minimum **volatility 22.7%**

POSITIONS OF RESPONSIBILITY & EXTRA CURRICULARS

PGDBA Conclave	■ **Sponsorship Executive** of Trilytics'24 for budgeting & onboarding firms; garnered **₹2L+** amount [**100%↑**]
Coordinator (POR)	■ Event Coordinator at Civil Engineering Society, IIT Dhanbad; Organized and **Coordinated 3** major events.
Extra-Curriculars	■ Spearheaded event in **3-day** Techno-Management fest, Concetto 2018, IIT Dhanbad, achieved **2k+** footfall. ■ **Winner** in Oral Presentation on "**Industrial Automation through AI**" in ASME-**CISMA**'18 at IIT Dhanbad.

ELECTIVES: FRM, Big Data Processing, Healthcare Analytics | **INTERESTS: Chess, Photography, Fitness**