PRATIK KAILASH TIRPUDE

ACADEMIC QUALIFICATIONS

Year	Degree /Board	University /Institution	%/CGPA
2025*	Post Graduate Diploma in Business Analytics	IIM Calcutta, IIT Kharagpur, ISI Kolkata	-
2017	B.Tech (Mining Machinery Engineering)	IIT Dhanbad	6.61/10
2012	CLASS XII	Pace Junior Science College, Andheri	77.33 %
2010	CLASS X	Little Angels High School, Warora	85.09 %

KEY SKILLS/TOOLS Python3, Strategy and Leadership, Predictive Modeling, SQL, Statistical Data Analysis, Excel, R, Tableau

WORK EXPERIENCE (72 Months)

Neyveli Lignite Corporation India Ltd — **EXECUTIVE ENGINEER** — **Neyveli (Jul '22 - Jul '23)**

Roles & Responsibilities	■ Executed **Condition Monitoring system** analyzing **current** & increased efficiency of **100+** pumps by **25%**. ■ Executed a skill-based **job scheduling system| forecasted** bearings lifespan, reducing unexpected failures.
Financial Planning	■ Planned **Annual budget** of spares| organized refurbishment plans for outdated machines, saving ₹ **2+** Crores.
Leadership	■ Led a team of **100+** employees in **Flood mitigation** efforts in **15 MTPA Mine** | **Mentored 5+** jr. executives.
Recognition	■ Awarded **Appreciation** for **Strategic Planning** in flood Mitigation | Ranked **outstanding** rating for **5 yrs**.

Neyveli Lignite Corporation India Ltd — **Deputy Executive Engineer** — **Neyveli (Jun '17 - Jul '22)**

Deliverables	■ Prepared **MIS reports** on readiness, cost, and performance, providing key insights for **executive decisions**. ■ Built a **Clustering** solution in **Excel** using **VBA** to analyze **geological data**, enhancing **Drilling Strategies**.
Initiatives	■ Developed a **Dashboard** for **real-time monitoring, trend analysis** & improved **Drilling decision-making**.
Recognition	■ Awarded for completing a **₹5 Crore**, **35+** borewell drilling project; selected for **BHEL** training by sr mgmt.

AWARDS AND ACHIEVEMENTS

Academic	■ Secured **Rank 20** in Maharashtra's **"Super-50"** batch for IIT-JEE preparation, earning a **100% scholarship**. ■ Qualified for **IIT-JEE (Mains) and IIT-JEE(Advanced) and** among **Top Seven percentile students** in **2013**.
Case Competitions	■ **National Winners** in XLRI's E2A Analytics Competition for creating a dynamic **GaadiDekho.com** dashboard. ■ Secured **3rd place** in IIM Ahmedabad's Sustain 3.0 for proposing sustainable solutions to Bangalore's traffic.

ACADEMIC PROJECTS

Second-Hand Car Price Prediction (Regression)	■ Predicted used car prices (**11.8k+** records), used **iterative imputer** | detected **multicollinearity** with **VIF**. ■ Used **PCA, Lasso & Ridge**| Performed **residual analysis** | Handled **Influential Pts** with **DFFITS-statistic**. ■ **Adj. R^2** = 0.77 (↑11.5%); Analyzed non-linear models: **AdaBoost, XGB, RF**; enhanced Adj. R^2 to **0.84 (↑9%)**.
Churn Prediction (Genetic Algorithm)	■ Developed a NN Model with **Genetic Algorithm Optimization**; achieved **84.2% acc** and **90.35% F1 Score**. ■ Surpassed **Logistic Regression**, **SVM**, **D-Tree**, **RF** & **XGB**, enhancing accuracy by 2.64% & F1 Score by 2.67%.
Credit Card Analysis (Clustering)	■ Implemented **K-means clustering** with **cosine similarity**, determining **optimal K** using **Silhouette score**. ■ Conducted Complete Linkage Clustering with **Silhouette** and **Jaccard similarity** for customer segmentation.
Skin Cancer Classification(CNN)	■ Employed a self-built **CNN** model on11k dermatoscopic images with **augmentation, batch norm, dropout.** ■ Leveraged transfer learning with **ResNet50** and **VGG16** models, improved test accuracy from **60%** to **67%.**
Email Text Summarization (NLP)	■ Trained **Seq2Seq model** (**LSTM**, **GLoVE** embed.) for abstractive email thread summarization (**20k emails**). ■ Leveraged **cross-attention** in Seq2Seq model | Improved results by transfer learning with **T5 transformer**. ■ Improved **BLEU** to 0.36; **ROUGE-L** from 0.06 to 0.44; **ROUGE-1** from 0.08 to 0.59 for **generated summaries**.

ADDITIONAL PROJECTS

Air Passenger Number Prediction (Time Series)	■ Developed **forecasting model** for monthly air passenger numbers using the Air Passengers dataset of 11 yrs. ■ Leveraged **ADF Test** to analyze **stationarity**, inspected **ACF/PACF** plots, **Q-Q plot** & **Ljung – Box statistic**. ■ Finalized **SARIMA** model analyzing **AIC** values compared to **AR**, **MA** and **ARIMA**, and achieved **4% MAPE**.
Portfolio Optimization (Finance)	■ Computed **annual portfolio return** and **risk** of **5 stocks** (Disney, Microsoft, Amazon, Google, and Walmart). ■ Refined portfolio to maximize **Sharpe Ratio**(1.08) on the efficient frontier, optimized **risk-adjusted return**. ■ Leveraged the **pypfopt** library to **discretely allocate** stocks for each asset given certain **investment amt**.
Medical Chat-Bot (Gen-AI)	■ Created a **chatbot** to answer based on the input PDFs. Used **Langchain** to create a 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 **Llama-2 LLM**. Deployed on **Flask**.

POSITIONS OF RESPONSIBILITY & EXTRA CURRICULARS

Extra-curriculars	■ Represented **IIT Dhanbad** in **HPVC-ASME(DTU)** | Represented **IIT Dhanbad** Volleyball team at **IIT-BHU**. ■ Managed overall activities of **Kartavya**, an **NGO** providing **free education to underprivileged children**.
Student Coordinator	■ Coordinated **PARAKRAM'16**, **IIT Dhanbad**'s sports festival, managing & organizing overall **event execution**.

ELECTIVES : Machine Learning, FRM, Suppy Chain Analytics | **INTERESTS : Swimming, Gym, Football**