Pulkit Bhardwaj

3rd Year Undergraduate | pulkitv23@iitk.ac.in | +91-7042493643 | Pulkit Bhardwaj | Pulkit Bhardwaj

Academic Qualifications

Year	Degree/Certificate	Institute	CPI/%
2023-2027	B.Tech-Chemical Engineering	Indian Institute of Technology Kanpur	7/10
2023	CBSE(XII)	Dev Samaj Vidya Niketan School, Gurgaon	94.4%
2021	CBSE(X)	Dev Samaj Vidya Niketan School, Gurgaon	93.2%

Scholastic Achievements

- Earned **Bronze Level** recognition in the **WorldQuant Challenge** for applying predictive modeling techniques *2024*
- Secured **All India Rank 5649** in JEE Advanced 2023 among the **1.9 Lakh** shortlisted candidates across India *2023*

Work Experience

Optimizing DELM via Small-World | Winter Intern
Mentor: **Prof. R.M. Hegde, Dept. of Electrical Engineering**, IIT Kanpur *(Nov'24 - Jan'25)*

Objective	• Developed a **high-speed** DELM model as a **scalable** alternative to backpropagation-based neural networks
Approach	• Implemented **small-world architecture** with randomized **inter-layer** connections to boost model efficiency • Enhanced accuracy via **optimal node selection** using **weight analysis** and **activation value analysis** • Experimented with **learning methods**, number of nodes and implemented **iterative weight storage** solution
Impact	• Achieved **100% stability** on Concrete dataset with **15x lower training time** and reduced RMSE compared to traditional backpropagation models; delivered similar results on **Parkinson and Energy** datasets

Key Projects

CycleGANs: Translating Images | IITK Consulting Group | IIT Kanpur *(May'24 - Jul'24)*

Objective	• Built a **CycleGAN** model to perform **unpaired**, high-quality **image-to-image translation** across domains
Approach	• Used GAN architectures like **Pix2Pix, PatchGAN**, and **DCGAN** to improve translation quality and stability • Applied ML techniques such as **PCA, k-means**, regression, **ANN**, and **CNN** to optimise model performance
Results	• Achieved **Realistic** image translation in domains like (day ↔night, horse↔ zebra), **without paired datasets**

Mutual Fund Return Prediction & Portfolio Suggestion System | Self Project *(May'25 - Jul'25)*

Objective	• Developed a **TFT** model to predict **Mutual Fund returns** and **optimal investment distribution**
Approach	• Scraped and cleaned monthly and annual return data for **80+ Mutual Funds** from **ETmoney** and **AMFI** • Built a **TFT**, and implemented allocation strategy to suggest portfolio in **top-performing and stable** funds
Result	• Achieved **8% return** on test data with portfolio suggestions balancing growth and risk stability in 2 months

Stochastic Modelling of Financial Derivatives | Stamatics | **Dept. of Statistics**, IIT Kanpur | *(May'25 - Jun'25)*

- Calibrated **Heston** models using real-world data**(NIFTY/SP 500)** through non-linear regression for volatility surface fitting
- Applied **ML** algorithms(**ridge regression**, gradient boosting) for volatility estimation with variance-reduced **Monte Carlo**

LLM Fine-Tuning | Self Project | IIT Kanpur | *(May'25 - Jun'25)*

- Fine-tuned open-source **LLaMA** model using **instruction-tuning** and **PEFT methods** to generate task-specific responses
- Evaluated uncensored **Mistral-7B-Instruct-v0.2-GPTQ** and achieved a functional local chatbot without cloud APIs

Forecasting using Time Series | Stamatics | **Dept. of Statistics**, IIT Kanpur *(May'24 - Jul'24)*

- Built time series forecasting models (**ARIMA, GARCH, LSTM**) on real-world data to capture trends & temporal patterns
- Led end-to-end **ML** pipeline with **preprocessing, feature engineering**, and tuning to boost accuracy on noisy data
- Achieved **5-6%** improvement in forecast accuracy over baseline models through iterative refinement and visualization insights

Technical Skills

Programming Languages	Libraries	Core Concepts
C, C++, Python, SQL, MATLAB	Numpy, Pandas, Keras, Matplotlib, TensorFlow	DBMS, OOPs, Probability & Statistics

Relevant Courses

Fundamentals of Computing	Computer Methods for Engineers	Introduction to Electronics
Single Variable Calculus	Linear Algebra	Ordinary Differential Equations

Positions of Responsibility

Core Team Member, Chemineers Society | Dept. of Chemical Engineering, IIT Kanpur *(Apr'25 - Present)*

Leadership	• Leading a **three-tier** team of **40+** to drive academic, skill-based and cultural growth for **700+ students**
Management	• Managing **INR 7.2 Lakh** budget, targeting **INR 10+ Lakh** this year ensuring efficient resource allocation • Recruited **15 secretaries** out of multiple application received through **two-stage** elimination process
Intiative	• Led initiatives like **Intern Marathons**, **alumni talks**, and fresher sessions, enhancing career readiness • Collaborated with **10 IITs** to organise ChemBlitz, an **inter-IIT** E-sports Tournament featuring 6 games