PARAS NIGAM

ACADEMIC QUALIFICATIONS

Year	Degree /Board	University /Institution	%/CGPA
2025*	Post Graduate Diploma in Business Analytics	IIM Calcutta, IIT Kharagpur, ISI Kolkata	-
2023	M.Sc. Mathematics	IIT Gandhinagar	8.14/10
2020	B.Sc (Hons) Mathematics	ARSD College (University of Delhi)	8.405/10
2017	CLASS XII	GBSS School, New Delhi	85.2 %
2015	CLASS X	GBSS School, New Delhi	8.0/10

KEY SKILLS/TOOLS	Statistical Inference, LaTeX, PowerPoint, Predictive Modeling, Python, NLP, R Programming, SQL

AWARDS AND ACHIEVEMENTS

Scholastic Achievements
- Attained **10/10** or **9/10** grade in **11 out of 12 courses** during **1st (ISI)** and **2nd (IIT)** semesters of PGDBA
- Secured **AIR-196** out of **42K+** aspirants (among top **0.46 percentile**) in JRF **(NET)**-UGC **(Mathematics)** '22
- Secured **AIR-1692** in GATE Mathematics (2022) and **AIR-1423** in JAM Mathematics (2020) examinations
- Recognized by **Director of Education Delhi,** Saumya Gupta, for **1st** position in Class XII across the school '17

Jr. Research Fellow
- Worked as **JRF** (mathematics) and studied about **Algebraic Geometry** & aligned topics, IIT GN (Mar-Jun '23)

Competitions
- Ranked **1st** in Unravel 4.0, **IIM Sambalpur'24** | Ranked **3rd** in Product Classification Challenge, **RIT Paris'24**
- Finalist **(Top 6)** in White Ball Analytics, **IIM Amritsar'24** | Finalist **(Top 9)** in IDB Analytics, **IIM Calcutta'24**

Master's Thesis
- Achieved **10/10** for Masters Thesis in Mathematics on the topic **"Maximum Matching in Bipartite Graphs"**

ACADEMIC PROJECTS

Wind Energy Generation Forecasting
- Forecasted **monthly** wind energy generation for a period of **1 year** using past **~17 years** data with **SARIMA**
- Checked **stationarity** of transformed data with **ADF** test; removed trend by differencing; order by **ACF-PACF**
- Selected model with the best **AIC**; verified residuals using **Ljung-Box** test and achieved an **MAPE** of **4.74%**

Second-Hand Car Price Prediction (Regression)
- Predicted price of pre-owned cars; performed Exploratory Data analysis (**EDA**) to study features and outliers
- Performed **one hot encoding**, **box-cox transforms** for skewness and handled **multicollinearity** using **VIF**
- Implemented **MLR** & selected features with backward elimination; explored regularizations (**Ridge** & **Lasso**)
- Validated model using **error analysis;** explored tree-based models (**RF** & **XGB**); achieved best R^2 **0.88** (XGB)

Multimodal Classification
- **Pre-processed** an e-com. multimodal dataset (text+image) of **99K** products to classify them into **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)

Customer Segmentation (Clustering)
- Performed **customer segmentation** on a **retail transaction** dataset (**~3.5L** obs.) for **targeted ad** campaign
- Implemented **RFM** analysis for feature engineering; applied **PCA**; used **K-means**, **agglomerative** and DBScan
- Identified opt. **4** segments with customer profiling by **elbow** method; silhouette score-**0.83** & DB index-**0.41**

Volatility Prediction (Financial Risk Management)
- Developed model to predict **Alphabet Inc.** stock **volatility**; tested **stationarity** of log returns by ADF test
- Utilized **GARCH** model, performing **LM** test for **ARCH effects** and **ACF/PACF** analysis of **squared returns**
- Improved **MAPE** from **12%** (obtained for the **GARCH**) to **5%** by using **LSTM** trained with the **rolling sd** data

ADDITIONAL PROJECTS

Health Insurance Fraud Detection (Classification)
- Built a classifier to detect fraudulent claims from **1L** records; Applied **SMOTE** to treat class imbalance **(99:1)**
- Performed **EDA**; Trained **Logistic**, **AdaB**, and **XGB** classifiers. Hyper-params tuning through **Grid-Search CV**
- LR setting at **opt. threshold (0.61)** gave a best precision score of **0.91**; Feature importance using **SHAP** plots

News Topic Classification (NLP)
- Built a model to classify news articles into **4** categories (world, sports, business, science) using **2.5K** articles
- Leveraged **Word2Vec** embeddings, trained an artificial neural network to achieve a macro F1-score of **0.45**
- Applied bidirect. **RNN**, **LSTM** [macro F1-score: **0.69**]; attained a highest macro F1-score of **0.89** with **BERT**

Movie Recommender System
- Modelled a **recommendation system** of movies using the **MovieLens** dataset to **predict top 5 suggestions**
- Implemented **Collaborative Filtering** and utilized **Cosine Similarity** score for identifying recommendations

POSITIONS OF RESPONSIBILITY & EXTRA CURRICULARS

PGDBA Treasurer
- Collected, maintained, and managed funds worth **~₹1.5L** for student-driven clubs, teams, & related activities
- Established first-ever student activity fund (**~₹5L**) in **PGDBA history** from the tri-institute **Apex Committee**
- **Stand-in-President;** Coordinated with president to maintain synergy among teams & with admin. of **3 insti.**

Event Secretary
- **Spearheaded a team of 10** to organise **Mehfil-e-Mushaira**, annual urdu poetry recitation event, **IIT GN '23**

Sports
- PGDBA cricket team opener; **Winner** of 'Section Wars' (cricket), IIMC '23 | **Led** PGDBA badminton team to **SF**

Tutoring
- Mentored students globally; solved **4K+ real analysis** & calculus ques. entirely using **LaTeX**; earned **₹6.5L+**

ELECTIVES : Econometric Methods, NLP, FRM, Supply Chain	INTERESTS : Urdu Poetry, Badminton