Porush Yadav

Mathematics & Scientific Computing | IIT Kanpur

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Professional Summary

Mathematics graduate (IIT Kanpur) with strong foundations in probability, statistics, and machine learning. Experienced in building end-to-end ML and data pipelines—from feature engineering and model development to explainability (SHAP), fairness analysis, and statistical validation—with projects in credit risk, NLP, and financial modeling.

Education

- **MS, Mathematics and Scientific Computing** — IIT Kanpur — CPI: 9.8 / 10 — **2021**
- **BS, Mathematics and Scientific Computing** — IIT Kanpur — CPI: 7.8 / 10 — **2021**
- **Class XII**, CBSE Board — 86.6% — **2016**
- **Class X**, CBSE Board — 9.8 / 10 CGPA — **2014**

Work Experience

Axis Bank Limited — Full Time **Aug 2021 – Nov 2021**

- Worked on an image-recognition system to automate document classification and data extraction.
- Evaluated its performance on diverse documents to identify and troubleshoot technical anomalies.
- Collaborated with cross-functional teams to enhance data extraction processes.

Samsung R&D Institute India — Intern **May 2020 – Jul 2020**

- Studied various IQ data compression techniques to minimize EVM values in uplink and downlink.
- Explored methods such as Vector Quantization, Bit vector compression, linear prediction coding etc.
- Evaluated compression techniques using mathematical models and input data properties of IQ data.

eJET Systems — Intern **May 2019 – Jul 2019**

- Built an entity recognition model to identify food items, their quantity, and attributes using NLTK.
- Built a food recommendation model using word embeddings and K-Nearest Neighbors (KNN).
- Built a classifier model to classify user input into pre-defined intents using GRU layers and Keras.

EZ Technologies — Intern **Dec 2018 – Jan 2019**

- Developed a face recognition model using OpenCV and Python to streamline classroom attendance.
- Implemented a pre-trained Deep Neural Network for detecting multiple student faces in real-time.
- Utilized MongoDB for record management, including attendance tracking and data manipulation.

Projects

Algorithmic Lending & Model Governance **July 2026**

GitHub: *https://github.com/porushy/Algorithmic_lending*

- Built a credit-scoring model using Logistic Regression and Random Forest on the Statlog dataset.
- Conducted SHAP-based explainability and fairness/bias analysis to understand how the model predicts.
- Identified biases shown by the model based on demographic data and mapped the behaviour with Indian digital governance frameworks.

Consumer Complaint Analytics **July 2026**

GitHub: *https://github.com/porushy/Consumer-Complaint-Analytics*

- Engineered a full NLP pipeline on the CFPB Consumer Complaint Database (8+ GB) using TF-IDF and logistic regression.
- Built an automated complaint classifier which achieved ∼0.87 accuracy.

- Identified the growing share of templated filings and distinguished automated volume from genuine consumer harm using statistical analysis such as Cramer's V test and chi-square test of independence.

Financial Market Surveillance **June 2026**

GitHub: *https://github.com/porushy/Financial-Market-Surveillance*

- Built an anomaly-detection model based on the unsupervised learning algorithm Isolation Forest.
- Detected anomalies in USD-INR exchange-rate data using rolling-volatility features.
- Detected stress episodes against real crisis periods (2008 GFC, 2013 taper tantrum, 2020 COVID) along with the recent 2026 rupee depreciation.

Credit Risk & Expected Credit Loss (ECL) **July 2026**

GitHub: *https://github.com/porushy/Credit-Risk*

- Built a Basel-style expected credit loss engine which converts an algorithmic lending model's output into calibrated PD and combines it with LGD and EAD to produce loan-level ECL.
- Implemented IFRS-9 three-stage impairment logic and ran LGD sensitivity analysis.
- Analyzed risk-grade deciles and quantified how sharply expected loss concentrates in a small share of the book, driving a disproportionate share of provisions.

European Option Pricing under Black-Scholes (MS Project) **Aug 2020 - Nov 2020**

GitHub: *https://github.com/porushy/European-Option-Pricing/blob/main/Report.pdf*

- Analyzed risk-neutral valuation and delta-hedging of vanilla and binary European options via the Black-Scholes framework, including option Greeks and implied volatility.
- Simulated a volatility surface for Microsoft stock in R.

Relevant Coursework

- **Computer Science:** Machine Learning, Computational Cognitive Science, Data Structures & Algorithms
- **Statistics:** Time Series Analysis, Stochastic Processes, Probability Theory, Statistical Inference, Statistical Simulation and Data Analysis, Sampling Theory
- **Mathematics:** Computational Financial Mathematics, ANN/ML Approach for Differential Equations, Linear Algebra, Calculus, Numerical Analysis

Technical Skills

- **Languages:** Python, R, SQL, C++, C, MATLAB
- **Tools & Libraries:** scikit-learn, PyTorch, TensorFlow, Keras, NLTK, NumPy, pandas, SHAP
- **Concepts & Methods:** ML, NLP, Statistical Inference, Prompt & Context Engineering, RAG

Certifications

- **Machine Learning Specialization** — DeepLearning.AI Aug 2026
- **AI Code Review** — DeepLearning.AI Aug 2026
- **Software Processes and Agile Practices** — Coursera Sep 2021
- **Applying Machine Learning to your Data with GCP** — Coursera Sep 2021
- **Smart Analytics, Machine Learning, and AI on GCP** — Coursera Sep 2021

Achievements & Scholarships

- Received the National Talent Search Examination **(NTSE) Scholarship** from the Government of India
- Received the **INSPIRE** Scholarship for Higher Education (SHE) from the Government of India