Pranjal Rawat

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| **EDUCATION** | *Ph.D. Economics* Georgetown University, Washington DC, USA | Expected 2026 |
| | *MS Economics* Madras School of Economics, Chennai, India | 2016-2018 |

SKILLS

Languages: Python, R, Stata, Julia, Matlab, SAS, SQL, PySpark
Frameworks: PyTorch, JAX, Tensorflow, EconML, Prophet, Sklearn, Statsmodels
Certifications: Machine Learning and Deep Learning Specializations (Coursera).

EXPERIENCE

Assistant Manager (Data Science), American Express   2020-2021

- Implementing Facebook's PyTorch Big Graph to match interests, merchants, and customers. Graph embeddings from this facility produced affinity scores for over 100 million merchants, 350+ interests, and 60 million card members.
- Used Natural Language Processing techniques to build a name and address matching algorithm. This algorithm was used to match and correct over 100k mismatches.

Business Analyst (Data Science), American Express   2018-2020

- Developed large-scale machine learning models (CatBoost, XGBoost) to predict the probability of conversion and engagement of customers on marketing communications. This capability produced an uplift of about 15-20% on Email and Digital channels for over 60 million US Card members.
- Built a real-time outlier detection algorithm to detect incorrect flight streaming data from upstream providers.

ONGOING RESEARCH

Designing Auctions for Learning Algorithms
I conduct experiments with single and multi-agent reinforcement learning in dynamic multi-sided auctions to improve auction designs and ensure efficiency, stability, competitiveness, and rapid convergence. ArXiv ⤢

Demand Estimation with Deep Neural Networks
I use browsing and purchase data from ecommerce websites to estimate demand. Product text and images that capture nonprice factors are incorporated through neural networks, and customer price sensities are allowed to vary by demographics.

OTHER

Teaching: Financial Markets (Fall 2022), Advanced Data Analysis (Spring 2023, Fall 2024), Econometrics (Fall 2023), GU Econ Cluster Compute Coordinator
Research Assistantships: "FinTech and Environment" for Dr. Rossi (2022), "What drives Indian Gold Import?" for Dr. Rangarajan (2017)
Pre-PhD Working Papers: "Inflation Targeting in the United Kingdom: Is there a Deflationary Bias?" (2020), "Volatility, Persistence, and Synchronization in Indian State Business Cycles" (2017)

AWARDS	Winner, Machine Learning Hackathon, American Express	2018
	Winner, Reserve Bank of India, National Policy Challenge	2017
	Gold Medallist, MS Economics, Madras School of Economics	2018
	Gold Medallist, Physics and Chemistry, Gitanjali Senior School	2012