Raj Datta

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Summary

Economist with 3+ years of experience applying econometrics and forecasting to financial, regulatory, and operational analysis. Ph.D. with expertise in causal inference, statistical modeling, and complex data evaluation. Supported capital planning and regulatory compliance, delivering quantified impacts of $25M+ in client savings and $8M/year in cost reductions through scenario analysis and risk models in Keystone Strategy. Built forecasting systems at Amazon that expanded revenue prediction coverage from 60% to 90% and improved accuracy by up to 10%. Open to relocation.

Experience

Keystone Strategy *Bellevue, WA*

APPLIED ECONOMIST *Sept 2024 - July 2025*

- Improved SKU-level demand forecasting accuracy by 15%, generating $25M in annual savings, by applying hierarchical time series methods with statistical reconciliation.
- Designed inventory optimization framework integrating reconciled forecasts with causal impact analysis, reducing holding costs by 12% ($8M annually).
- Developed causal forecasting models linking macroeconomic and cost drivers to revenue, informing pricing and capacity decisions on portfolios exceeding $50M.
- Produced executive-facing dashboards and analytical tools to communicate quantitative findings clearly, enabling data-driven decisions in procurement and pricing.

Amazon *Seattle, WA*

ECONOMIST INTERN *June 2024 - Sept 2024*

- Built and deployed an enhanced revenue forecasting framework for AWS Central Economics, expanding production coverage from 60% to 90% of monthly net revenue and supporting strategic planning.
- Improved forecast accuracy by 8–10% by applying Bayesian Vector Autoregression (BVAR) models with time-varying parameters, enabling more reliable assessment of demand volatility and operational risk.

Amazon *Seattle, WA*

ECONOMIST INTERN *June 2023 - Sept 2023*

- Increased forecast accuracy by 8% by developing Bayesian VAR models that integrated mixed-frequency macroeconomic and internal business signals, producing robust two-year pricing scenarios for strategic planning and cost management.
- Partnered with cross-functional teams to deploy models into internal dashboards, streamlining decision workflows and providing finance leadership with actionable pricing and revenue insights.

Deloitte *Hyderabad, India*

RISK MANAGEMENT CONSULTANT *May 2017 - June 2018*

- Validated CCAR stress testing models, including PPNR, to ensure regulatory capital compliance (SR 11-7, Basel standards) and strengthen model reliability for major U.S. banks.
- Conducted credit risk analysis using Value at Risk (VaR), maintaining portfolio loss estimates within 5% tolerance and informing strategic planning and capital allocation decisions.

Research Projects

Quantitative Research in Asset Prices and Wealth Inequality *(ongoing)*

- Applied stochastic models to SCF data to evaluate portfolio impacts on wealth inequality, informing strategy and regulatory risk.

Causal Macro Impact Analysis Of Monetary Policy On Asset Returns *(JMP)* *August 2024*

- Leveraged Structural VARs with instruments to quantify effects, strengthening data-driven decisions in finance.

Causal Micro Consumer Mortgage Refinance Analysis *March 2022*

- Applied logit, probit, SVM, and decision tree models to loan survey data to evaluate household refinancing decisions.

Education

University of Washington *Seattle, WA*

Ph.D. In Economics *Sept 2018 - Nov 2024*

- Thesis: Forecasting effects of monetary policy on economic outcomes using Bayesian VARs and external instruments for structural identification.
- Causal methods, Uplift Modeling, Econometrics of Big Data, Nowcasting, Non-Parametric Modeling, ML (Supervised and Unsupervised)
- Optimization Techniques, Stochastic Modeling, Mechanism Design, Auctions, Industrial Organization with GPA: 3.85/4.0

Indian Statistical Institute *Kolkata, India*

M.Sc. In Quantitative Economics *May 2015 - Apr 2017*

Skills

Core DS & ML	Feature Engineering, Hyperparameter Tuning, Cross-Validation, Random Forest, XGBoost, Reinforcement Learning
Causal Inference	A/B Testing, Instrumental Variables, Propensity Score Matching, Diff-in-Diff, RDD, Synthetic Controls, Switchback, Double ML
Programming	Python, SQL, Unix, R, SAS, Matlab, Stata, C/C++
Predictive Modeling	Deep Learning (RNN, LSTM, TFT), Ensemble Forecasting, Time Series, SARIMA, Prophet, State Space Models
Cloud & Libraries	AWS (EC2, SageMaker, S3), AutoGluon, Nixtla, MLflow, TensorFlow, PyTorch, Databricks
Data Engineering	Data Pipelines (ETL, EDA), MLOps, Model Deployment (batch/real-time), Model Monitoring, Tableau

Fellowships

Henry T. Buechel Memorial Fellowship, University of Washington *Spring 2022*

Grover and Creta Ensley Fellowship in Economic Policy, University of Washington *Autumn 2021*

James K. & Viola M. Hall Fellowship, University of Washington *Spring 2019*

Seminar Presentations

Virtual – International Conference on Empirical Economics, Pennsylvania State University at Altoona, August 3, 2024

27th Annual Workshop on Economics with Heterogeneous Interacting Agents, University of Bamberg, July 9–11, 2024

Virtual – 2024 ISAFE Thailand Conference, Kasetsart University, July 8–10, 2024

30th International Conference on Computing in Economics and Finance, Nanyang Technological University, June 20–22, 2024

7th International Workshop on Financial Markets and Nonlinear Dynamics, June 1–2, 2023

2023 Eastern Economic Association Annual Meetings, February 23–26, 2023

Paper Presentation – Job Market Paper at MTI Brownbag, University of Washington, March 2023

Languages

English (FLUENT), Hindi (FLUENT), Bengali (NATIVE)

Citizenship/Visa Status

Citizenship: India

US Work Authorization: H-1B Visa