Daman Dhaliwal

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Education

MA, Economics (Research Emphasis) - GPA: 4.0/4.0 | University of Toronto May 2026
Coursework: Applied Causal Machine Learning, Statistical Methods for Machine Learning and Data Mining, Econometrics, Economics of Algorithms, Computational Methods for Heterogeneous-Agent Models

B.Comm, Finance (with Honours) | University of British Columbia May 2022
Awards: Karen McKellin International Leader of Tomorrow Award ($300,000 merit-based)

Selected Projects

PyFixest (Open Source) | Individual Contributer github.com/py-econometrics/pyfixest

- Implemented Newey-West & Driscoll-Kraay HAC standard errors, configurable demeaning iteration limits and sensitivity analysis based on Cinelli and Hazlett (2020).

Viral Voting: Information Diffusion Effects of Social Pressure github.com/damandhaliwal/ViralVoting

- Modeled information diffusion dynamics across a 344K observation field experimental dataset, deploying Causal ML to reveal a saturation point in public pressure versus the monotonic scalability of private interventions.

Social Capital and Economic Success: A Causal Inference Analysis github.com/damandhaliwal/SocialCapital

- Quantified the causal impact of social capital on firm survival and growth across 14M records, using Double ML to reveal that social cohesion serves as a safety net across the distribution while economic connectedness benefits only top-performing firms.

Deep Hedging with Predictive Market Dynamics github.com/damandhaliwal/RLAlgoTrading

- Reduced hedging error by 46% over Black-Scholes using a Deep Reinforcement Learning pipeline (Autoencoder + LSTM) that compresses 374-dimensional volatility surfaces into latent representations for optimized policy learning.

Experience

Research Replicator, Journal of Political Economy, University of Chicago | Chicago, IL July 2025 – Present

- Served as an independent auditor of research for JPE, replicating empirical results, verifying causal inference methods in submitted manuscripts and detecting inconsistencies between code and reported findings.
- Standardized the team's workflow alongside the Data Editor to develop a reliable system for validating research.

Senior Financial Analyst, Chard | Vancouver, BC June 2022 – July 2025

- Drove a $1.0B in capital allocation decisions, engineering the financial and econometric models used to forecast asset performance and validate high-stakes investment theses for real estate development projects across Western Canada.
- Architected a unified market intelligence pipeline, fusing unstructured municipal filings with real-time market data to create a proprietary, 360-degree view of the competitive landscape.

Data Scientist, Sciences Po | Paris, France January 2024 - December 2024

- Engineered a real-time geospatial data pipeline integrating live transit APIs to model competition dynamics in London's bus network, utilizing spatial econometric methods for large-scale performance benchmarking.
- Analyzed 50M+ GPS observations across London's full bus fleet to construct a high-frequency dataset, enabling granular visibility to quantify the spatial market power of transit operators.

Research Assistant, University of British Columbia | Vancouver, BC July 2020 – January 2022

- Constructed heterogeneous agent simulations to model credit risk transfer securities (STACR). Estimated default rates and loss given default using U.S. Loan-Level Dataset to benchmark against observed market pricing.
- Extracted and transformed ∼30GB geospatial elevation data (GDAL, Raster) from USGS. Applied Geopandas, Shapely, and Rasterstats to analyze land use and housing price dynamics across major metro areas.

Technical Skills

Programming: Python, R, Julia, SQL (Advanced), OCaml, TypeScript (Basic)
ML/Data: Scikit-Learn, PyTorch, TensorFlow, Statsmodels, Numpy, Pandas, EconML, DoWhy
Causal Inference: Double ML, Panel Data Methods, Causal Forests, Meta-Learners, Graph Neural Networks, IV
Experimentation: Heterogeneous Effects, Counterfactual Modeling, Propensity Score Matching, Sensitivity Analysis, Information Diffusion Detection