

RAJVEER JAT, PhD (Phone: 951 573 0953)

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AREAS OF EXPERTISE

Econometrics, Generative AI, High-dimensions, Statistics, Causal & Predictive ML Modeling

EDUCATION

University of California, Riverside	PhD in Economics [<i>Field: Econometrics</i> , 4.0 GPA]	Sep'20 - Present
Indian Statistical Institute (ISI)	MS in Quantitative Economics	Jul'17 - May'19
Indian Institute of Technology (IIT), Roorkee	B. Tech. in Electrical Engineering	Jul'12 - May'16

PhD RESEARCH

[Forecasting Paper] **Kernel Three Pass Regression Filter** [Paper]

- Developed a new theoretical machine learning (ML) method of forecasting using high-dimensional topology.
- Rare package of supervised learning, Ability to handle non-linearities, and Computational efficiency.
- Tested on 175 macro-finance variables, our method is the best $\sim 87\%$ of the time, especially in longer horizons.
- Accepted in the world's best econometrics conferences e.g. Annual California Econometrics Conference, 2024.
- Currently R&R in the top field journal: the Journal of Applied Econometrics.

[Causal Inference Research] **Sufficient Instruments Filter** [Job Market Paper]

- Novel five-layered tractable **Deep Learning** (DL) procedure to filter sufficient information for causal inference.
- Allows many correlated and even invalid instrumental variables and works in serially correlated observations.
- Incorporates **Supervision**, accommodates **Non-linearities**, and can sufficiently do **Dimension Reduction**.
- Robust to Linear, Non-linear, IID, Correlated data generating processes, beats [Belloni et al](#) (*Econometrica*).
- CAPM Beta and Price elasticity of demand: Superior causal identification in these two real world problems.

[Deep Learning (DL) Research] **Supervised Deep Factor Models** [Work in Progress]

- Employing adversarial, variational autoencoders and supervised learning to uncover latent space.
- Developing a new forecasting method by combining the best of time series econometrics with machine learning.

QUANT INDUSTRY EXPERIENCE

Quant Consultant, Research Triangle Institute (RTI) International Aug'21 - Aug'22

- Developed statistical models for future cash flow streams to help \$10 million investment decision problem.

Quantitative Researcher Intern, KPMG Jan'20 - Aug'20

- Solved an expected revenue estimation problem using a constrained optimization framework in Python.
- Developed a quantitative framework to compare the industrial competitiveness of the countries for our client.

Quant Consultant, Asian Infrastructure Investment Bank (AIIB) Jul'19 to Jun'21

- Developed mathematical models to guide the statistical pursuit of optimal solutions to investment problems.
- Used ML methods and Economic Theory to advise government client on developing a new industrial city.

SKILL-SETS

Programming	R (np, tidyverse, ggplot2, dplyr), Python (numpy, pandas, sklearn, statsmodel), C++.
Big Data	SQL, PyTorch, TensorFlow, Dimension Reduction, RKHS, Distributed & Parallel Computing.
Modeling:	ML Classification, Clustering, Regression, Inference, Monte Carlo, Financial Derivative Pricing

LEADERSHIP

Head of Quant Methods Center, UC Riverside Jul'24 to Present

- Leading a team of experts which advises PhDs and Post-docs on quantitative methods in their research.

General Secretary of Financial Affairs, Student Government Body, IIT Roorkee Jul'14 to Jun'15

- Represented the student community's interest in the Dean's office and Senate on financial matters.