

RAJVEER JAT

Website ◇ rjat001@ucr.edu ◇ PhD (Econometrics), UC Riverside ◇ [Linked-in](#)

SKILL-SETS

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| Programming | C++, R (np, tidyverse, ggplot, dplyer), Python (numpy, pandas, sklearn). |
| Big Data | SQL, PyTorch, TensorFlow, Dimension Reduction, RKHS, Distributed & Parallel Computing. |
| Expertise | High Dimensions, Factor Models, Time Series, Machine Learning, Forecasting, Non-linearity. |

EXPERIENCE

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**.
- Beats [Belloni et al](#) (*Econometrica*) and [Bai and Ng](#) (*Econometric Theory*) in simulation experiments.

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: 2024 California Econometrics Conference, European Winter Meeting of the Econometric Society 2024, and 34th Annual Midwest Econometrics Group Conference.
- Under review in the best field (applied econometrics) journal, *Journal of Applied Econometrics*.

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.

Lead, [GradQuant](#), University of California Riverside Jul'24 - Present

- Teaching Quantitative methods, ML methods, R programming, High-dimensional methods to grad students.

Quant Consultant, Research Triangle Institute (RTI) International Jul'21 - Sep'21

- 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.

Quant Consultant, Asian Infrastructure Investment Bank (AIIB) Nov'19 to May'21

- Developed mathematical models to guide the statistical pursuit of optimal solutions to investment problems.

C++ Software Engineer, HCL Technologies India Oct'16-Jul'17

- Developed software solutions for business problems using object-oriented programming concepts.

EDUCATION

University of California, Riverside PhD in Economics [*Field: Econometrics*, 4.0 GPA] Sep'20 - Present
Relevant Courses: Non-parametric Statistics, Advanced Time Series, Real Analysis, Measure Theoretic Probability, Computational Learning, Discrete Data, Topology, Deep Learning (DL), Parallel Computation.

Indian Statistical Institute (ISI) *MS in Quantitative Economics* Jul'17 - May'19
Relevant Courses: Linear & Matrix Algebra, Linear/Dynamic Programming, Discrete Mathematics, Applied Econometrics, Markov Chains, Monte-Carlo Simulation, Statistical Inferences, Monetary Econ, Asset Pricing.

Indian Institute of Technology Roorkee B. Tech. in *Electrical Engineering* Jul'12 - May'16
Relevant Courses: Differential Equations (ODE and PDE), Advanced Calculus, Algorithm & Data Structures, Programming in C++, Linear Algebra, Control Theory, System Dynamics, Numerical Analysis, FPGA.