RAJVEER JAT

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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 34^{th} 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: Stochastic Calculus, Non-parametric Statistics, Advanced Time Series, Semi-parametric, Real Analysis, Measure Theoretic Probability, Computational Learning, Statistical Computing with R, Discrete Data Analysis, High dimensional Statistics, Topology, Deep Learning (DL), High-Speed Parallel Computation.
Awards: Dean's Distinguished Fellowship, Conference Travel Grant, Associate Instructor-ship, Seminar Speaker.

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, Statistical Learning, Financial Intermediaries and Volatility, Growth Theory, Global Macro, Game Theory.
Awards: The Youngest Speaker in 15^{th} Annual Conference, Academic Distinction, and Book Prize Awards.

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.
Awards: Merit-cum-Means Scholarship (three times), General Secretary of Financial Affairs in the Senate.