Dhruv Singal

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Education

Columbia Business School *New York, US*

PhD in Finance (Quantitative Economics and Econometrics, GPA: 9.6/10) *2024 (expected)*

- **Research Interests:** Asset Pricing, Macroeconomics, Information Economics, International Finance
- **Selected Courses:** Empirical Asset Pricing, Asset Pricing Theory, Continuous Time Finance, Time Series Econometrics, Macroeconomics

Indian Institute of Technology Kanpur *Kanpur, India*

BTech in Computer Science (GPA: 9.5/10) *2016*

- **Selected Courses:** Probabilistic Machine Learning, Machine Learning Techniques, Data Structures and Algorithms, Advanced Algorithms

Work Experience

X, The Moonshot Factory (Google X) *Mountain View, US*

AI/ML/Quant PhD Resident *July 2023 - Current*

- Leading initial investigations in a confidential project investigating the financial economics of carbon markets
- Responsible for data analyses (ML, NLP, financial engineering), prototyping solutions, shaping experiments and strategy
- Collaborating on rapid evaluation of additional projects in AI and finance

Capital Fund Management International Inc. *New York, US*

Quant Research Intern *May 2022 - May 2023*

- Worked on an academic project studying linkage between international trade flows and international capital flows
- Produced novel firm–country level insights through daily data on global universe of corporate bond issuances from Bloomberg and LSEG with all US trade shipments from IHS and S&P

BigData Experience Lab, Adobe Research *Bengaluru, India*

Research Associate *Jun 2016 - Aug 2018*

Research Intern *May 2015 - Jul 2015*

- Produced novel research in fields spanning machine learning, computer vision, data mining, document recognition and marketing
- Generated IP—8 patents accepted at USPTO—in collabration with product teams across digital advertising, document reader and creative cloud
- Integrated research code with real-time big data production systems; also wrote lightweight code for deep learning product applications

Selected Research Articles (Complete list on webpage)

Valuing Financial Data

R&R at *The Review of Financial Studies*; joint with M Farboodi, L Veldkamp and V Venkateswaran *Ongoing*

- Quantified a macroeconomic model with information frictions using multiple regression
- Processed financial data including I/B/E/S analyst forecasts to trace the demand curve for investors in market factor portfolios
- Produced novel evidence on the role of market illiquidity and investor heterogeneity in valuing various financial data series
- Winner of the **SFI Outstanding Paper Award, 2022**

Droughts and Asset Prices

Working Paper; joint with O Giesecke and J Goldenring *Ongoing*

- Used tools from empirical asset pricing and real estate finance to study the impact of droughts on farmland valuation in California
- Integrated analysis of data spanning 80M land transactions from Zillow and geospatial datasets of administrative boundaries, farmland and water access from Govt of California, and satellite imagery on land use and survey data on farm yields from US Dept of Agriculture
- Implemented state-of-the-art repeat sales indices including the S&P Case-Shiller index to estimate market beliefs about valuation

Show and Recall: Learning What Makes Videos Memorable

IEEE International Conference on Computer Vision Workshops; *2017*

joint with S Shekhar, H Singh, M Kedia and A Shetty

- Implemented an ensemble machine learning model using deep learning and canonical computer vision features
- Designed and built a responsive MEAN stack web application for user study and data collection

Skills

Programming Proficient in Python (Pandas, GeoPandas, NumPy, Scikit-learn), Matlab, C/C++, Stata, SQL
Prior experience with TensorFlow, Keras, R, Apache Hive, Apache Spark, OOP (Ruby, Java), functional (Oz, Erlang)

Web Development Prior experience with HTML/CSS, JS, MEAN stack, ReactJS

Miscellaneous GNU/Linux, Shell scripting, LaTeX, Git, Microsoft Office