

Mike Purewal

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Profile

- Capital Markets data scientist and AI product leader with 10+ years in Risk, Sales & Trading.
- Thought leader on AI in finance including setting strategic direction for a large financial institution, advising start-ups and presenting at industry conferences.
- Expertise utilizing data assets and AI to create business value by collaborating across business, quant and tech.

Experience

Bank of America, NY

Head of Markets Data Science, 2022-present

- Foundational work on data engineering, data quality and data sourcing. By refactoring our Python data platform from first-principles, obtained a 70% reduction of data related incidents in 6 months and unlocked room for new growth.
- Leveraged the quality and velocity of the new platform to re-think the delivery of enterprise datasets. Through a new feedback mechanism, doubled the number of datasets reliably available in the marketplace.
- Building a high-function, agile data insight team on top of reliable data pipelines. Data scientists generate trusted analytics for Sales, Trading and Management.
- Through collection and processing of user data, introduced fine-grained usage KPIs, tiering user access via throttling and user education based on patterns.
- All combined, data marketplace resulted in multi-\$M revenue from external Buy Side Quants & internal trading.
- Responsible for 3 quant publications generating 5k+ monthly clicks funneling into touchpoints for Sales. Content includes a summary of recent financial academic research and Equity Flow analytics.

Global Equities, Director, 2018-2022

- Designed and led implementation of AI models across Equities Sales & Trading, directly leading to revenue. Models predicted business processes such as inventory supply, demand and price. Outcomes included overnight automated processing for global clients & increasing available inventory for trade execution.
- Responsible for selection of the enterprise AI platform. Evaluated internal and vendor candidates for cost, functionality, ease of support and integration.
- Key member of the first Capital Markets data science group, recruiting and interviewing for broader team.

Global Markets Risk, Director, 2014-2018

- Led management response to high priority regulatory matters, including annual stress test (CCAR).
- Developed hedging algorithm used for multi-billion \$ reduction of risk weighted assets by identifying outsized positions contributing to market risk.
- Developed Bank's Inter-Affiliate ("Living Will") market risk framework using machine learning.
- Designed and implemented stress scenario design model used for European Bank Authority testing, allowing for critical new Legal Entity formation during Brexit.

Model Risk Management, VP, 2011-2014

- Validated high risk credit models, resulting in significant lowering of Banks's counterparty capital charge.

New York University, NY

Adjunct Professor, 2018-2023

- Teach a Master's level course called Machine Learning in Finance.

CRAFT - Center For Research Toward Advancing Financial Technologies

Advisory Board, 2023

- A collaboration between industry & academia to solve common non-proprietary needs within the global markets, trading and technology space.
- Identify FinTech academic research areas with strong chance of commercialization and advise on agenda, setting for research.

Protiviti & FisherJordan, NY

Senior Consultant, 2008-2011

- Modeled value of consumer debt portfolios for firm's bidding, purchase and subsequent collection.

Additional Highlights

Programming & Technology

- Python - Develop models in Python ecosystem, including experience with pandas, numpy, sklearn, tensorflow, pymc3, nltk, selenium, Jupyter.
- Platforms -Advised 2 start-ups in stealth mode building AI Platforms. On-boarded & operated an AI Platform at BofA.
- Cloud - Live serverless AWS applications on Entity Resolution and NLP used for student instruction purposes: serverlessexperiments.com.

Modeling

- Business Processes: Systematic trading strategies with AI, credit default, client demand, inventory supply, stress scenario design, Value-at-Risk.
- Quantitative Techniques: Monte Carlo methods, non-parametric historical simulation, client clustering, ensembles, sampling with imbalanced data sets, basic natural language process, sentiment analysis, web scraping.

Speaking & Publications

- Frequent presenter at industry conferences, including Ai4 Finance & MLOPs NYC.
- 10 publications in high impact journals; ~2k citations.

Education

Columbia University

PhD Applied Physics, 2003-2008

- Nanotechnology: First to measure 1D electron transport in carbon nanotubes.
- Research group co-discovered 2d graphene, the material winning the 2010 Nobel Prize.

Lehigh University

BS Engineering Physics, 1998-2002

- Highest Honors.
 - Dissertation: Building a Neodymium YAG Laser with disposable cameras.
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