Subham Shaurav

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EDUCATION

University of Illinois at Urbana-Champaign, Illinois - MS in Business Analytics (STEM) - Concentration: **Data Analytics in Finance** May 2024, GPA: 4.0/4.0
Courses: Fall 2023 - Machine Learning in Finance (Python), Big Data Analytics in Finance (R), Enterprise Database Management, Data Storytelling
Spring 2024 (In Progress) – Quantitative & Fundamental Investments (Python), Financial Innovation, Big Data Infrastructure, Data Science and Analytics (Python)

Indian Institute of Technology (IIT) Indore, India - Bachelor of Technology, Major: Mechanical Engineering May 2018, GPA: 7.46/10
Relevant Courses: Calculus, Linear Algebra, Ordinary Differential Equations, Numerical Methods, C Programming

PROFESSIONAL EXPERIENCE

Quantile Analytics Pvt. Ltd., Indore, India (Strategic R&D Partner of Ergoteles Capital, New York)

Lead Quantitative Developer & Team Lead – Analytics and Research Technology Aug 2022 – Jul 2023

- Conceived and scaled a Python (Pandas, Numpy) and JavaScript based web app leveraging BARRA Risk Models, actively used by 50+ researchers & portfolio managers for cross-sectional and time-series breakdown of PNL of 1500+ live trading strategies, covering 10000+ daily positions, in production workflows for 6+ months.
- Improved data infrastructure and analytics platform by rolling out multiple proprietary risk models (3 regional and 4 multi-asset class) derived from BARRA Risk models, a heuristic Impact cost estimation model and Risk Factor Tracking Portfolios, significantly strengthening risk analysis, hedging and optimization capabilities.

Associate Quantitative Developer – Analytics and Research Technology Jul 2021 – Jul 2022

- Engineered a Python-based multi-asset hedging framework using convex optimization, used for risk management of portfolios with GMV>$3B, daily traded value >$100M.
- Developed an automated platform for predicting index changes across 10+ global indices (S&P, MSCI, Russell), 8000+ securities, saved 6000+ person-hours annually.
- Managed rollout of impact cost estimation algorithms for analysis of $1B+ daily trading value and factor returns analysis system covering 200+ global factors, 2 risk models.

Senior Quantitative Developer – Analytics and Research Technology Jul 2020 – Jun 2021

- Formulated a comprehensive event alpha analysis framework, covering over 10 different types of corporate events, spanning 14,000+ live and historical corporate events, providing end to end solution for collection, dissemination and analysis of corporate events forming the backbone of highly successful event arbitrage trading strategies.
- Created portfolio performance and risk analysis dashboards, using BARRA risk models and returns data to breakdown performance and risk metrics of a portfolio by sectors, market-cap, liquidity, volatility level etc. Dashboards were actively used by 50+ researchers and portfolio managers for analyzing back-test results and live trading portfolio.

Quantitative Developer – Analytics and Research Technology Jul 2018 – Jun 2020

- Built MySQL based database to store and access 15+ years of timeseries data of adjusted, unadjusted price, open interest (futures), factor and specific returns, covering 3 risk models and 35000+ assets. Implemented multi-layer caching architecture to achieve 10X speed enhancements in data retrieval speed using LRU Cache, Redis and HD5 files.
- Designed 200+ factor mimicking portfolios covering AMER, APAC, EMEA using BARRA multi-factor risk models for intraday PNL analysis and factor hedging strategy.
- Architected a data consumption framework to access 400+ Time Series and Cross-Sectional data fields via Restful APIs, sourcing data from SQL, NoSQL & cache sources.
- Implemented algorithms for automated contract-rolling program of 150+ futures contracts optimizing for expiry date, first notice date and open interest at contract level.

ACADEMIC PROJECTS

Grant Tracking and Research Matching Framework for DPI Chicago | Python, Large Language Models (LLM), Web Scraping, SQL, MS Azure Jan 2024 – Ongoing

- Scraped and unified data of 3000+ researchers and 100+ grants into a Dash based web app powered by LLMs. Leveraged RAG for curating matches of grants and research.

Ecommerce product recommendation model | Python (Pandas, Numpy), Content Based Filtering, Collaborative Filtering, Heuristic Ranking Jan 2024 – Ongoing

- Analyzed customer purchase history data of over 10000 products to develop and optimize a suite of recommendation models for multiple customer segments.

Asset Pricing using Temporal difference learning | Python (Pandas, Numpy, PyTorch), Neural Network, Stochastic Gradient Descent Aug 2023 – Dec 2023

- Implemented a cutting-edge Neural Network model to predict asset prices based on upcoming dividends, state of economy and a stochastic discount factor.

Analyzed effect of similarity of 10K filings on returns of stocks | Python (Pandas, Numpy), Mathematica, Web scraping, Text analysis, Return analysis Sep 2023 – Dec 2023

- Sourced 5 years of returns data from Yahoo Finance and filings data from SEC Website. Quantified filing similarity using word count analysis and cosine similarity.
- Scrutinized returns data across various temporal windows around filing dates to assess the presence of a consistently positive net return relative to benchmark market index.

Property Valuation for Taxation | R, Statistical Modelling, Lasso Regression, Linear Regression, Random Forest Oct 2023 – Nov 2023

- Researched and implemented a housing valuation model accounting for 20+ variables through a multi-model approach and achieved 10% lower MSE than the benchmark.

TECHNICAL SKILLS

Languages: Python (Pandas, Numpy, Scikit-Learn, Scipy, Mosek, Cvxopt), R, SQL, Angular JS, HTML/CSS, VBA
Financial Data: FactSet, MSCI Barra, Bloomberg
Technology: SQL DB, MongoDB, Redis, YAML, AWS, Azure, GCP, Hadoop, Linux, MS Office Suite, Jupyter Notebook, R Studio, Knime, Wolfram-Mathematica
Machine Learning Models: Linear Regression, Logistic Regression, Decision Tree, Random Forest, Neural Networks, Time-Series Forecasting (MA, AR, ARMA)

CERTIFICATIONS

- **GARP – FRM Level 1 Cleared (2023)**
- Microsoft Certified: Azure Fundamentals (2023)

LEADERSHIP

- **Technical Project Manager** (Aug 2023 – Now): Spearheaded 18 students in delivery of 3 software systems for 3 high-value clients for **Gies College of Business**.
- **Line Manager** (Jul 21- Jul 23): Handled project approval, resource allocation and client engagement for Analytics & Research Technology Team at **Quantile Analytics**.
- **Recruitment Team Member** (2020 – 23): Conducted 100+ interviews across **5 universities** and optimized candidate screening process by revamping testing methodology.