Achintya Jha

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Experience

ASU Investment Management Fund ($3M AUM) Tempe, AZ

Quantitative Research Analyst *Aug 2025 – Present*

- Engineered multi-factor stock selection model combining quality, momentum, and low-volatility factors; 5-year backtest showed **3.2% annualized alpha vs. Russell 3000** with IR of 0.8; 2024 OOS performance 1.1%
- Built automated research pipeline ingesting 50K+ earnings transcripts, insider filings, and SEC documents; extracted management sentiment shifts and CapEx guidance changes using TF-IDF and topic modeling; currently tracking **+130bps vs. benchmark YTD**)
- Designed portfolio construction framework with sector neutrality constraints, stock-level position limits, and quarterly turnover caps; implemented in cvxpy with transaction cost penalties. Reduced one-way **turnover from 65% to 38%** while maintaining 90% of unconstrained alpha
- Implemented pre-trade risk monitoring with real-time factor exposure tracking (Fama–French 5-factor + momentum), sector deviation alerts, and position concentration limits; flagged and prevented 4 constraint violations.

Tzar Labs Remote

Machine Learning Engineer Intern *May 2024 – Aug 2024*

- Designed high-throughput Python ETL for 2+ TB of biological data; improved preprocessing throughput by 5× via parallelized chunked I/O.
- Productionized sequence-classification models behind type-safe FastAPI (Pydantic); unified 15+ external bioinformatics sources into a single pipeline.

Research Projects

Regime-Switching Statistical Arbitrage with Microstructure Filters github.com/achntj/statistical-arbitrage

- Developed 3-regime Hidden Markov Model over Ornstein–Uhlenbeck mean-reversion parameters for 40 sector-neutral pairs; traded only high-reversion states (half-life <5 days).
- Engineered bid–ask bounce filter on tick data requiring both legs to cross the same spread side within 200ms; cut false signals 40% and lifted directional accuracy from 51% to 58%.
- Backtested 2018–2024 with adversarial costs (10bps slippage, 30% adverse selection); achieved Sharpe 0.9 post-costs vs. 0.3 baseline; documented alpha concentration in 8 pairs and capacity limits near $5M AUM.
- Discovered regime asymmetry: mean-reverting states persisted 18 days vs. 6 for divergent states; optimal re-entry required a 3-day delay post-regime-flip, improving Sharpe by 0.2 by avoiding whipsaws and false breakouts.

Black–Litterman with Covariance Shrinkage github.com/achntj/Quantitative-Strategies

- Constructed diversified 29-asset portfolio (equities, Treasuries, TIPS, commodities, REITs) using Black–Litterman with Ledoit–Wolf shrinkage; stabilized mean–variance optimization under return/covariance estimation error.
- Implemented realistic constraints: long-only, sector caps (±15% vs. benchmark), 12% vol target, and turnover penalties; cut rebalancing from 28% to 18%, saving ∼80bps annually vs. unconstrained MVO.
- Backtested 2015–2024 with walk-forward validation; out-of-sample (2023–2024) delivered 14.2% return, 11.8% vol, Sharpe 1.2 vs. 0.6 for traditional MVO.
- Validated robustness under parameter uncertainty (shrinkage 0.3–0.6, view confidence 40–80%); systematic momentum/carry views added +0.15 Sharpe vs. equilibrium-only baseline.

Education

Arizona State University Tempe, AZ

B.S. Computer Science; B.S. Economics ***GPA: 4.0*** *Dean's List (all semesters)* *Aug 2022 – May 2026*

- **Coursework:** Probability, Regression & Time Series, Introductory Statistics, Linear Algebra, Calculus III, Financial Economics, **Portfolio Engineering**, Data Structures & Algorithms, **Game Theory**.

Skills

- **Programming:** Python (NumPy, pandas, statsmodels, scikit-learn, cvxpy, scipy), C++, Git, Linux, SQL.
- **Quant/Math:** Probability & Statistics, Time Series, Optimization (cvxpy), Stochastic Calculus.
- **Data/Systems:** Excel, Bloomberg Terminal, CI/CD (GitHub Actions), AWS, Docker.