# ANIRUDH KROVI

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## EDUCATION

**NEW YORK UNIVERSITY, Leonard N. Stern School of Business** — **New York, NY**
***Master of Business Administration*** *(Specializations: Business Analytics (AI/ML) and Strategy)* — ***May 2023***
- Recipient, Prof. Robert Salomon Faculty Scholarship (full-tuition, merit-based); GMAT: 770 (99th percentile)

**NORTHWESTERN UNIVERSITY** — **Evanston, IL**
***Doctor of Philosophy (PhD), Theoretical Physics*** — ***March 2021***

**NATIONAL INSTITUTE OF TECHNOLOGY CALICUT** — **Kerala, India**
***Bachelor of Technology*** *in Engineering Physics* — ***May 2014***

## EXPERIENCE

**INDEPENDENT AI/ML-BASED SIGNAL RESEARCH** — **Chicago, IL**
***All working papers, results and additional projects****: https://anirudhkvs.github.io/anirudh-fullsite/* — ***2025 - Present***
- U.S. Equities Statistical Arbitrage – Designed sector-neutral mean-reversion framework for 60 large-cap stocks across 6 sectors using rolling sector-relative residuals, volatility-standardized z-scores, tail selection, and momentum filters; 726-day out-of-sample: 23.3% annualized return, Sharpe 1.21, robust to parameter variations
- News-Driven Alpha Models – Developed NLP-based sentiment and archetype pipelines from 350+ curated articles per firm; outperformed FinBERT in predicting return sensitivity for Apple and Delta Airlines
- Topology-Based Classifiers – Extracted loop-structure features from 125 years of weather (3,400+ cities) and 24 years of commodity prices; $R^2 = 0.96$ (weather) and 70%+ CAGR, Sharpe >1.0 (commodities) in out-of-sample tests
- Rhythm-Offset Latent VAEs –Built Deep-learning architectures for arrhythmia classification (MIT-BIH, 15M+ ECG points, AUC >0.9) and commodity cycles; VAEs combined with gradient-boosted models delivered Sharpe >2.5 in out-of-sample backtests
- Quantum Mechanics–Inspired EBMs – Created Tunneling-based models for Bitcoin trend prediction (8-year dataset), achieving in-sample Sharpe up to 0.9

**MCKINSEY AND COMPANY** — **Chicago, IL**
***Associate*** — ***2023 – 2025***
- Built LRP model for $20B+ pharma portfolio using 8+ datasets, layering policy scenarios for specialty, retail strategy
- Designed valuation model for $200M+ transformation at $250B+ pharma distributor, factoring pod structure, complexity, realization curves
- Authored top 5–ranked AI strategy proposal for major U.S. state government (use case evaluation and implementation)
- Built transaction tracking model for ERP rollout across 50+ public agencies, raising field clarity from ~70% to 90%+ on 50K+ records
- Built financial model for $100M+ ERP Finance upgrade, incorporating labor efficiency and readiness factors

**NORTHWESTERN UNIVERSITY** — **Evanston, IL**
***Graduate Research and Teaching Assistant*** — ***2015-2021***
- Developed dark matter models and proposed experimental studies achieving 10× improvement over prior results
- Built C++ programs processing 1M+ multivariable data points to generate distributions and new physics metrics; work cited by CERN collaborations (Geneva, Switzerland)
- Taught undergraduate physics with 95% (5.7/6.0) average rating across 5+ years

## PHYSICS PUBLICATIONS

- Anirudh Krovi, Ian Low, Yue Zhang, "Higgs portal to dark QED," Physical Review D, 102(5), 055003 (2020).
- Anirudh Krovi, Ian Low, Yue Zhang, "Broadening dark matter searches at the LHC: mono-X versus darkonium channels," Journal of High Energy Physics, 2018(10), 26 (2018).

## ADDITIONAL INFORMATION

- **Skills:** Python, C++, SQL, Excel | ML (e.g., XGBoost), Deep Learning Models (VAEs, EBMs), NLP, Topological ML, Convex Optimization, Statistical Arbitrage & Time-Series Modeling, Backtesting
- **H1B visa holder** (Visa valid till August 2026 along with option of 3-year extension)