XINYUE ZHANG

Telephone:(215)-209-9786; Email: celinazhang17@gmail.com

ACADEMIC BACKGROUNDS

University of Pennsylvania — Philadelphia, PA
Master of Systems Engineering — Aug. 2026 - May 2028 (Expected)

Central University of Finance and Economics (CUFE) — Beijing, China
Bachelor of Science in Mathematics & Applied Mathematics — GPA: 3.97/4.00 — Sep. 2022 - Jun. 2026

University of California, Berkeley — Berkeley, CA
Visiting Student, Berkeley Global Access (BGA) — GPA: 3.67/4.00 — Aug. 2025 - Dec. 2025

INTERNSHIP EXPERIENCES

StratiFi Solutions — New York, NY
Quantitative Research Analyst — Jun. 2026 - Aug. 2026

- **Portfolio Construction:** Built a long-only S&P 500 tangent portfolio via greedy stock replacement and weight re-optimization; achieved 32.7% annualized return and 1.89 Sharpe versus SPY's 11.6% and 0.44, while a −21.7% maximum drawdown revealed residual systematic risk.
- **Dynamic Allocation:** Developed a weekly rebalanced linear-kernel equity–bond policy using PCA-transformed volatility signals; raised Sharpe from 1.89 to 2.20 and reduced maximum drawdown from −21.7% to −8.5%, while cutting equity exposure 60% during COVID.
- **ML Improvement:** Compared nonlinear models (e.g., random forest/XGBoost) under rolling OOS validation; XGBoost performed best through state-dependent exposure, retaining equity in normal markets while de-risking during volatility spikes (Sharpe 1.90; max DD −8.28%).
- **SHAP Interpretation**: Applied rolling SHAP to diagnose regime-dependent shifts in feature importance; PC2, capturing the short–long volatility spread, contributed the largest share of allocation-weight attribution (15.7% overall; 34.5% during crises).
- **Feature Expansion:** Added multi-horizon volume-volatility signals and PCA factors; the expanded XGBoost model raised OOS Sharpe from 1.90 to 1.94 and annualized excess return from 15.45% to 16.47%, with the strongest return–volume interaction centered on PC2.

Beijing Nijie Technology Co., Ltd — Beijing, China
Quantitative Research — Mar. 2026 - Jun. 2026

- **Reverse Engineering**: Decomposed seed factors from established libraries (e.g., Qlib Alpha158/Alpha101/Alpha191) into formulaic components across market features (e.g., price/volume/market cap), using reusable operators (e.g., ranking/EWMA/rolling correlation).
- **Factor generation modeling:** Built AlphaRefinery to generate economically interpretable candidate factors across economic themes (e.g., liquidity pressure, investor cost-basis distribution, and value-driven trading behavior) by recombining features and operators, prioritizing high-quality, diverse candidates via MMR reranking, then automatically evaluated and refined candidates to retain more robust formulas.
- **Model combination:** Built a two-stage TFT–CatBoost model combining TFT-generated forecasts with daily factors; used ablation studies to select informative TFT outputs (e.g., predicted returns/ directional probabilities/ temporal embeddings) as CatBoost inputs, increasing rolling out-of-fold ICIR from 0.54 to 0.78 and annualized excess return from 23.4% to 37.6%.
- **Monetization & backtesting:** Converted ranked alpha scores into capped, volatility-scaled positions across the 300 highest-ADV equities, incubating transaction costs as a function of trade size and liquidity (e.g., half-spread/ADV-based market impact), achieving a 47.3% annualized return, 2.8 Sharpe ratio, and 11.4% maximum drawdown on the held-out test set.

Revisiting the Idiosyncratic Volatility Puzzle in China: Evidence from Deep Learning Models — Beijing, China
Research Assistant *Working paper available on SSRN (SSRN 6147769)* — Apr. 2025 - Jan. 2026

- **Motivation & Empirical Design:** Re-examined the idiosyncratic volatility puzzle using 25 years of firm-level equity data; investigated whether the documented negative IVOL–return relation reflects genuine mispricing or systematic forecast bias.
- **Model Comparison:** Assessed whether IVOL measurement depended on forecasting specification by comparing 22 models for monthly IVAR prediction (e.g., Martingale/ARMA/TFT/GARCH) using OOS RMSE; TFT reduced mean forecast error by 14.5% versus Martingale, with outperformance confirmed by paired significance tests (e.g., paired t-test/ Sign/ Wilcoxon Signed Rank).
- **Asset Pricing Tests:** Isolated IVOL's incremental pricing effect via CH-4-adjusted IVOL portfolios and controlled WLS Fama–MacBeth regressions; Martingale-based IVOL was significantly negative ($t = -2.67$), while TFT-based IVOL and CH-4 alpha were insignificant ($t = 0.86$).
- **Forecast-Bias Mechanism**: Tested whether the Martingale-implied anomaly was driven by extreme forecast errors; removing the top 3% of overpredicted observations reduced the IVOL coefficient from −0.090 ($t = -2.67$) to −0.053 ($t = -1.44$), rendering the relation insignificant.
- **Return Decomposition**: Explained cross-model differences in total-return IVOL results through differing offsets between intraday and overnight effects; portfolio sorts and WLS Fama–MacBeth regressions found positive intraday but negative overnight IVOL–return relations.

TechSharpe Quantitative Investment Co., Ltd — Beijing, China
Quantitative Research — Apr. 2025 - Aug. 2025

- **Strategy Design:** Researched a momentum-style strategy targeting small-cap equities (float market cap < $600M; P/E < 80) that reached intraday limit-up within the prior 10 trading days; addressed rare-event class imbalance through majority-class undersampling.
- **Feature selection:** Designed a multi-layer filtration framework for short-horizon features (e.g., flow persistence/limit-up frequency/intraday VWAP deviation), screening for predictive accuracy (Precision@K), group-wise aggregation (ANOVA F-tests), and correlation pruning.
- **Prediction modelling:** Forecasted next-day limit-up probabilities from 21-day feature histories using a three-layer LSTM with temporal attention pooling; concatenated the resulting sequence embedding with current cross-sectional features and passed them through an MLP for final prediction.
- **Backtesting & execution:** Converted model predictions into positions in top-scoring candidates, accumulating positions before limit-up and exiting via next-day TWAP. The strategy achieved a 74.3% net-of-cost annualized return, 2.85 Sharpe, and 8.95% maximum drawdown (Sep. 2024–Jul. 2025), while revealing key shortcomings (e.g., underinvestment/concentration risk/earnings-event exposure).

SKILLS AND INTERESTS

Languages: Mandarin Chinese (Native); English (Fluent);

Computer Skills: *Python (NumPy, Pandas, Scikit-learn, Matplotlib, PyTorch, Joblib, Requests), MATLAB;Linux OS, MS Office, Git.*