

# JP PENG

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## EDUCATION

### North Carolina State University

Master of Financial Mathematics (GPA: 3.82/4.0)

Relevant Coursework: Stochastic Calculus, Derivatives Pricing (bonds, energy options/forwards, swaps), Monte Carlo Simulation, Machine Learning, Operations Research, Statistical Inference, Quantitative Trading, Yield Curve Bootstrapping & Fixed Income, Time Series

Raleigh, NC

December 2025

### University of California, Irvine

Bachelor of Science, Mathematics (GPA: 3.6/4.0)

Bachelor of Arts, Business Administration, Emphasis in Finance (GPA: 3.6/4.0)

Relevant Coursework: Partial Differential Equations, Advanced Linear Algebra, Vector Calculus, Stochastic Processes, Real & Complex Analysis, Business Management, Supply Chain Modeling (Newsvendor, MAPE), Business Analytics, DCF Analysis, Excel Modeling, International Finance

Irvine, CA

June 2024

## PROFESSIONAL SUMMARY

Quantitative Researcher and Financial Mathematics graduate with a strong foundation in financial modeling, quantitative analysis, and systematic trading. Experienced in DCF valuation, cash-flow forecasting, scenario analysis, and Excel-based financial modeling, alongside Python/SQL-driven time-series modeling, Monte Carlo simulation, risk attribution, volatility forecasting (GARCH/EGARCH), and portfolio optimization. Built production-grade data pipelines, backtesting frameworks, and risk models for equities and derivatives with robust out-of-sample performance.

## WORK EXPERIENCE

### Ubiquant

Quantitative Developer Summer Analyst

Tsinghua Science Park, Beijing

July 2025 – August 2025

- Orchestrated** Python pipelines for large-scale trade & market data, accelerating research and portfolio analytics
- Conducted** implementation shortfall and transaction cost analysis to evaluate execution quality and reduce slippage
- Developed** order-trade reconciliation tools to improve accuracy of portfolio P&L and performance attribution
- Automated** reporting dashboards for trading, P&L attribution, and real-time risk monitoring to support portfolio decisions

### Ubiquant

Quantitative Researcher Summer Analyst

Tsinghua Science Park, Beijing

April 2025 – July 2025

- Architected** SQL Server–Python (PYODBC) equity data warehouse; replicated *101 Formulaic Alphas* signals with liquidity filters
- Selected** factors via IC tests and Fama–MacBeth regressions for systematic portfolios
- Modeled** volatility with EGARCH & regime-switching Gaussian HMM to dynamically scale exposures
- Applied** Barra risk model (MSCI CNE5) & PCA risk-parity optimization; achieved Sharpe 1.2, max DD 6%, 14.4% return

### Safran Cabin, Inc.

Supply Chain Strategic Purchasing (Procurement) Intern

Huntington Beach, CA

June 2023 – September 2023

- Streamlined** statistical demand forecasting and cost analysis in Excel to optimize inventory and supplier decisions
- Calibrated** supply and P&L forecasts through financial models to support budgeting and operational efficiency
- Negotiated** aerospace vendor contracts and reduced 7.2% procurement costs; lowered potential production carbon emissions by 5%

## PROJECTS

### Multi-Alpha Trading Strategy & Portfolio Management (Project Leader)

August 2025 – December 2025

- Led** a team of seven to implement a daily-frequency trading strategy of the U.S. Nasdaq equities using fundamental trading signals
- Vectorized** core features utilizing Python Pandas and NumPy; applied Student-t hypothesis testing for signal reliability
- Analyzed** stock periodic movements through ACF/PACF time series lag tests & adjusted to Newey-West testing statistics accordingly
- Delivered** 1.4 strategy Sharpe, max DD 8%, 16.8% total return over a 2-year backtesting period

### iSoftstone Stock Monte Carlo Simulation Jump Diffusion GBM

January 2025 – March 2025

- Constructed** Monte Carlo jump-diffusion simulation engine for tail-risk modeling and portfolio VaR stress testing
- Accelerated** large-scale simulations using variance reduction techniques (Antithetic, Control Variates)
- Priced** and valued *iSoftstone* convertible bond under DCF & Black-Scholes; evaluated hedging strategies for downside risk

### Forecasting Bitcoin: A Comparison of Time Series & Machine Learning Approaches

August 2024 – December 2024

- Designed** crypto time-series pipeline with lagged features for volatility modeling
- Quantified** conditional volatility using GARCH/EGARCH and XGBoost, achieving ~0.90 R<sup>2</sup> out-of-sample
- Benchmarked** models via walk-forward holdout tests to select robust, production-ready signals

### Iowa Housing Price Prediction

August 2024 – October 2024

- Engineered** structured housing dataset with encoding, imputation, normalization, and feature selection; built end-to-end ML pipeline
- Trained** and tuned Ridge/Lasso regressions with cross-validation and regularization; achieved ~0.90 R<sup>2</sup> and low MAE out-of-sample
- Cross-validated** model for real-time price inference and feature attribution, delivering ~13% live forecasting error

### S&P 500 Return Variance Decomposition Principal Component Analysis (PCA)

Dynamic Deep Hedging Trading Strategy

Risk-Free Rate Change Forecasting – A Machine Learning Approach

## SKILLS

- Programming & Technical:** Python (NumPy, Pandas, Scikit-Learn, SciPy, Numba), SQL, R, Matlab, SAS, Machine Learning: PCA, Linear/Logistic Regression, Random Forest, XGBoost, K-means & KNN, SVM, LSTM
- Software:** DBeaver, Microsoft SQL Server, Excel (Financial Modeling, Scenario Analysis), Bloomberg Terminal, Interactive Brokers
- Language:** Bilingual: English & Mandarin