Xiaozhe (Josh) ZHANG

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Education

Boston University, Questrom School of Business, Boston, MA — Expected Jan 2025
M.Sc. Mathematical Finance & Financial Technology
- **Courses**: Statistics, Econometrics, ML, Deep Learning, Stochastic Calculus, Credit Risk, Fixed Income

Lehigh University, Bethlehem, PA — May 2023
B.Sc. Finance / Minor: Fintech, GPA: 3.8

Skills

Programming: Python, R, SQL, Java, C++, Scikit-learn, TensorFlow
Methods: Fixed Income Models, Derivatives Pricing Models, Econometric Analysis, Statistical Modeling

Work Experience

Rebel Financial, Columbus, USA — May 24 – Aug 24
Investment Intern
Equity-Driven Portfolio Performance Analysis
- Validated the diversifying effects of equity and high-yield bonds on equity-bond portfolios by implementing different allocation strategies, potentially benefiting 10% of client products.
- Collaborated with senior analysts to design a quantitative algorithm to dynamically backtest and adjust mixed portfolios, enhancing portfolio growth and tax efficiency.

Risk Assessment on Top Investment Model
- Applied VaR and CVaR models using Historical, Parametric, and Monte Carlo methods to assess risk in a diversified mutual fund portfolio.
- Programmed Python functions to simulate portfolio returns, calculate risk measures, and perform comparative analysis, enhancing risk management accuracy and efficiency.

Johnson Controls, Milwaukee, USA — May 22 – Aug 22
Finance Intern
- Developed a machine learning-based cost projection model using moving average and pressure tests, enhancing outlier detection and improving expense and budget forecast accuracy by 10%.

Projects

Climate Risks Analysis and Weather Derivative Modeling — Spring 24
- Modeled a denoised temperature time series using a linear model and Fourier Series to extract residuals.
- Developed an OU process-based temperature model with spline interpolation to simulate temperature volatility.
- Priced weather derivatives using Black-Scholes approximation and Monte Carlo simulation.

Robust Bond Portfolio Construction via Saddle Point Optimization — Spring 24
- Utilized saddle point optimization and the Hull-White model to develop robust long-only bond portfolios, ensuring stability under adverse market conditions.
- Transformed complex convex-concave problems into solvable convex optimization problems using CVXPY for comprehensive risk and worst-case scenario analysis.

Kaggle Competition - Credit Risk Model Stability, *Silver Medal (Top1% Ranking)* — Summer 24
- Designed a voting ensemble model combining CatBoost and LightGBM classifiers with cross-validation.
- Reduced memory usage of large datasets by 25% and enhanced data quality through data transformation.
- Engineered 400+ features using statistical measures and categorical data handling to improve model input.