YIMING ZHANG

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EDUCATION

CARNEGIE MELLON UNIVERSITY — New York, NY
Master of Science in Computational Finance – MSCF — ***GPA: 4.0 / 4.33*** — Sept 2021 – Dec 2022

BARUCH COLLEGE / CUNY — New York, NY
Dual degrees with SWUFE (China), Finance and Mathematics — ***GPA: 4.0 / 4.0*** — June 2015 – May 2020

GEORGIA INSTITUTE OF TECHNOLOGY — Online
Online Master of Science in Computer Science — *Professional Development* — Jan 2024 – Present

WORK EXPERIENCE

J. P. MORGAN — New York, NY
Associate, Securitized Products Group (SPG) Quantitative Research — Feb 2023 – Present

- **Automated Pricing:** Researched on CLO (Collateralized Loan Obligation) BWIC coverage prices, and deployed to production a Machine Learning ensemble model to suggest bid prices, with customized estimators including decision trees and time series components, which achieved better reference quality over vendors and justified revenue contributions
- **Trading Tools:** Developed an end-to-end suite of trading tools for consumer loan ABS, including predictive models for asset-level default/prepayment, versatile bond calculators for scenario analysis, and real-time TRACE trades enrichment. Delivered analytics through a reusable framework incorporating both backend logic and user-friendly web interfaces
- **CDS Modeling:** Supported Asset-Backed Credit Default Swap (ABCDS) (e.g. single names, CMBX) models, revived the pricing methodology, curve calibration and risk calculations; improved system integration and developed trading utilities for desks
- **Machine Learning:** Modeled prepayment rate using decision tree (LightGBM) for non-Agency CMBS loans; performed hyperparameter tuning, monotonic constraints, and SHAP analysis, which improved performance (ROC-AUC) by 5%
- **Securitized Products:** Executed ad-hoc business projects, including pricing embedded bond options for securitization deals, cash flow and risk assessments for proposed securitized products structures and scenarios

MORGAN STANLEY — New York, NY
Analyst (Returned from Summer and Part-Time Analyst), Firm Risk Management — (post-undergraduate) June 2020 – July 2021

- **Automation:** Initiated projects to facilitate data processing and report generation creatively using VBA and SQL; established a reusable optimization framework that speeded up the long-standing templates by 80% on average
- **Data Analysis:** Analyzed large data sets to identify characteristics of corporate global credit exposures, and developed visualized reports for risk committees; delivered quantitative support, data insights, and commentary to desks on special risk topics

SUNDAY FUND MANAGEMENT — Chengdu, China
Quantitative Research Intern, Equity — Sept 2017 – Mar 2018

- **Strategy Implementation:** Implemented a pairs trading stock-selection framework in Python from internal research which leveraged statistical tests on the correlation of factor-adjusted residuals in determining pairs
- **Trading Signal:** Devised a Bollinger Band-like technical indicator depicted by the confidence interval of a mean reversion model on residual returns, which generated signals for trading team

QUANT RESEARCH / TRADING EXPERIENCE

RESEARCH PROJECTS — Self-directed, discussed with professionals

- **Fixed Income Modeling:** Developed an open-source Python pricing package that follows design pattern of market, model, and instrument modules with proper market conventions, achieving reliable decimal accuracy against industry benchmarks
  - Currently supports risky pricing of bonds with survival curves, CDS Pricing / curve calibration, Bond Basis Solver, and Parametric Bond Survival Curve model. See demo — Nov 2023
- **Statistical Jump Model:** Researched latest literatures on market regime detection, and implemented the model that optimizes a refined clustering algorithm with jump penalty crossing states, which achieved robust time persistence and interpretable probability estimations for classification of price regimes. See demo — Oct 2023
- **Portfolio Optimization:** Strengthened the classic model using robust optimization that considers uncertainty of signals, and applied shrinkage on covariance matrix, which universally boosted factor performance (e.g. 0.3+ higher Sharpe for Momentum); advantages hold in general for other portfolio constraints (long only or transaction costs)

COURSEWORK/SKILLS

- **Finance:** Fixed Income, Derivatives, Corporate Finance, Macroeconomics, Algo Trading and Market Microstructure
- **Mathematics:** Calculus, Linear Algebra, Probability, Stochastic Calculus, Optimization Methods
- **Statistics:** Financial Data Science, Time Series Analysis, Machine Learning, Monte Carlo Simulation
- **Programming:** Python, VBA, SQL | C++, R Programming, LaTeX | Linux, Front-end web development

ADDITIONAL INFORMATION

Certifications: Passed CFA Exam Level I; 10+ online certificates in Data Science, Programming, and Machine Learning
Interests: Photography, Badminton, Hiking