

Jialiang (Jack) Chen

Address: 554 Salvatierra Walk, Stanford, CA 94305 | Mobile: (+1)646-906-6026 | E-mail: jialiangchen2024@gmail.com

EDUCATION

Stanford University

Stanford, CA

Master in Computational and Mathematical Engineering (ICME), Mathematical Finance track

Sep 2022 – Dec 2024

- **Cumulative GPA:** 3.63/4.00
- **Core Courses:** Statistical Inference, Applied Statistics I, Time Series Analysis, Convex Optimization, Financial Statistics, Market Microstructure, Deep Reinforcement Learning, Natural Language Processing, Cryptograph and Blockchain

New York University, Leonard N. Stern School of Business

New York, NY

Bachelor of Science in Business, concentration in Finance

Aug 2018 – May 2022

Bachelor of Arts in Honors Mathematics, Courant Institute of Mathematical Sciences

- **Cumulative GPA:** 3.84/4.00; **Math Major GPA:** 4.00/4.00; **Honors:** Magna Cum Laude, Dean's List (2019-2022)
- **Core Courses:** Derivative Securities(grad), Portfolio Management(grad), Econometrics, Probability Theory(grad), Stochastic Calculus(grad), Real Analysis, ODE, Data Structures, Algorithm, Machine Learning(grad), and Deep Learning(grad)

WORK EXPERIENCE

Citadel Securities

New York, NY

Trading Intern, Credit/Rates Trading

Jun 2024 – Aug 2024

- Completed comprehensive lecture series on Options, ETFs, Fixed Income, and Poker; Designed and implemented trading bots to engage in trading simulations with fellow interns; Participated in market-making exercises and strategic board games
- Rotation 1: Credit Trading Desk: Developed tools for real-time analysis of market dealer inventory, segmented by sector, maturity, liquidity, and ratings; Enhanced existing trading tools through parallel computing; Conducted in-depth research on the correlation between market inventory levels and future spread changes using linear regression, provided actionable insight
- Rotation 2: Semi-Systematic Rates Trading Desk: Enhanced the CPI prediction model using a proprietary dataset, leading to improved accuracy in forecasting the monthly price index for used cars and trucks, achieving an R^2 of 0.65
- Built a model from scratch to predict monthly Airfare and Hotel CPI using credit card data; achieved R^2 of 0.7 and 0.8
- Researched the impact of corporate bond issuance on Interest Rate Swap price spikes using qualitative/quantitative methods

Barclays

New York, NY

Electronic Trading Quant Intern, Credit Systematic Market Making Desk

Jun 2023 – Aug 2023

- Developed and implemented linear and tree-based models for Corporate Bond Portfolio Trading (PT) margin prediction utilizing TRACE, Bval, ETF datasets and internal signals
- Achieved 16% R^2 for Investment Grade (IG) bonds and 11% R^2 for High Yield (HY) bonds with linear models
- Built linear models for Credit ETF Creation Basket Prediction with linear models; achieved 90% accuracy and 0.37 Pseudo R^2

Telepath AI

New York, NY

Machine Learning Research Intern

Jun 2022 – Aug 2022

- Built DL models (CNN, LSTM) as prototypes for time-series forecasting tasks (sales prediction, weather prediction)
- Researched local feature importance in RNN models in different time-series prediction tasks by attention mechanism

RESEARCH EXPERIENCE & PROJECTS

Intel Large Language Model

Stanford, CA

Research Project, advised by Ke Ding

Sep 2023 – Dec 2023

- Developed an efficient QA Chatbot specialized in providing reliable answers a wide scale of mathematical questions; Improved accuracy on multiple benchmark datasets through parameter-efficient fine-tuning(LoRA) and model quantization
- Fine-tuned a 7-billion Llama2 model on a dataset of 262k mathematical problems, reducing trainable parameters by 99.94% while achieving 50% accuracy of the Full-Weight Finetuned model(18% compared to 39% accuracy)

SpyRL – Playing Codenames with Reinforcement Learning (Second Place final project for CS224R)

Stanford, CA

Final Project for CS 224r: Deep Reinforcement Learning (DRL)

Apr 2023 – Jun 2023

- Proposed multiple RL agents(A2C, PPO, BC) as the clue giver to solve a specific text-based card game “Codenames”

Retail Marketing Digital Twin

New York, NY

Research Assistant, advised by Prof. Zhengyuan Zhou

Jun 2022 – Aug 2022

- Implemented a novel History Block MDP model and apply RL algorithms to model coupon recommendation problems

Volatility Forecasting via Physics-informed Neural Networks (PINNs)

New York, NY

NYU Stern Honors Program Thesis, advised by Prof. João Sedoc

Sep 2021 – May 2022

- Proposed a novel architecture of PINN that imposed Black-Scholes PDE constraints to predict future realized volatilities

SKILLS AND INTERESTS

- **Technical Skills:** Python (Pandas, NumPy, Scikit-learn, PyTorch), C/C++, Java, R, Linux, AWS, Bloomberg, LaTeX
- **Languages:** English (fluent), Chinese (native)
- **Interests:** Classical Music (a fan of Gustav Mahler), League of Legends (diamond player), LEGO building