Yichen Wang

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EDUCATION

University of California, Los Angeles, U.S.A. Sept. 2021 - Jun. 2025
B.S. in Applied Mathematics with Specialization in Computing
B.S. in Statistics and Data Science
GPA: 3.94 *Dean's Honored List*
Related Courses: Multi-variable Calculus, Linear Algebra (with proof), Differential Equations (Introduction, Nonlinear Systems, Ordinary), Real & Complex Analysis, Numerical Methods, Optimization, Statistical Models in Finance, Stochastic Process, Theory of Interest and Applications, Mathematical Modeling, Machine Learning, Algorithms, Probability and Statistics, R language: Data Analysis and Regression, Computational Statistics & Optimization with R, Introduction to Computer Science I, II (C++), Python with Applications I, II

PROJECT AND INTERNSHIP EXPERIENCE

Quantitative Research Intern, Financial Engineering Group, Changjiang Securities, Shanghai, China Aug. 2024 - Sept. 2024
Position: Quantitative Research Intern

- Conducted quantitative stock selection by researching and developing factor-based strategies using large statistical models.
- Utilized Python and other statistical techniques to mine factors that drive stock performance, contributing to the development of predictive models.
- Collaborated with senior analysts to backtest trading strategies.

Quantitative Research Intern at Guo Hong Asset Management, China Jun. 2024 - July. 2024
Position: Quantitative Research Intern

- Developed and implemented a novel stock selection strategy using the Turnover Rate Convergence Factor. (TRCF), processing large-scale financial datasets and conducting empirical analysis through Python to evaluate its predictive power in market behavior.
- Used a sophisticated Cutlets of Turnover Rate (CTR) factor model to capture investor heterogeneity, achieving enhanced predictive ability for future stock returns through integration of overnight returns data and advanced filtering techniques.
- Performed comprehensive statistical analysis including Information Coefficient (IC) calculations, t-tests, and portfolio simulations, demonstrating significant improvements in strategy performance through various rebalancing frequencies and sampling methods.
- Constructed and backtested portfolios based on factor scores, evaluating strategy performance through key metrics including Sharpe ratios, annualized returns, and maximum drawdowns to validate investment effectiveness.

Quantitative Analysis for *Gang Reduction and Youth Development* (GRYD), CAM Applied Math REU Program, UCLA Jun. 2023 - Aug. 2023
Position: Co-author, Paper: *AIYDA Activities in Gang Reduction: Comprehensive Evaluation and Peer Network Analysis*

- Spearheaded data optimization, performing meticulous cleaning and rearrangement of collected datasets.
- Engaged in comprehensive literature reviews, employing the Linear-in-Means Model and Dynamic Mode Decomposition to assess GRYD effectiveness.
- Engineered a Python-based network model, leading to pivotal data insights. This work culminated in the co-authored research paper aforementioned, published in Dec. 2023.

General Universal Convolution Study, collaboration with Prof. Greg. Dresden, Washington & Lee University Jun. 2021 - Feb. 2022
Position: Co-author, Paper: *General Universal Convolution*

- Undertook exhaustive research on *k*-bonacci sequence convolutions, synthesizing pivotal insights from past studies.
- Anchored in a robust foundation of number theory techniques, co-authored the papers accepted by *Mathematics*

Magazine.

Advanced Mathematical Research on *k*-bonacci & *k*-Lucas Sequences, collaboration with Prof. Greg. Dresden, Washington & Lee University Jan. 2021 - May. 2021

Position: Co-author, Paper: *Sums and Convolutions of k-bonacci & k-Lucas Numbers*

- Delved into the intricacies of generalized Fibonacci sequences, drawing significant conclusions.
- Collaboratively produced the paper earning a publication spot in Integers 2021, #A56.

Researcher at Prof. Ozcan's Deep Learning Lab, UCLA Sept. 2023 - Present

Position: Student Researcher

- Mastered Deep Learning knowledge and adopted them into Endoscopic pixel analysis
- Cultivated skills in mathematical modeling and real-world problem-solving techniques.
- Presented findings in a comprehensive report, leveraging the neural network model's outputs.

Option Pricing Prediction Deep Learning Project, UCLA Jan. 2024 - Mar. 2024

Position: Co-author

- Conducted research on using 1D-Convolutional Neural Network in Pytorch to predict intrinsic values of both call and put options.
- Constructed the CNN model in Python and all training, validation, and testing, analyzed results in depth and did visualization.

Image Classification of *Simpons* Animation Deep Learning Project, UCLA Jan. 2024 - Mar. 2024

Position: Co-author

- Developed and implemented 2D CNN model in PyTorch to accurately identify and categorize characters based on visual features extracted from animation frames.
- Contributed to the project's design, data preprocessing, model training, and evaluation phases, resulting in a robust and efficient character recognition system.

NBA Champion Prediction Deep Learning Project, UCLA Apr. 2023 - Jun. 2023

Position: Co-author

- Cultivated skills in mathematical modeling and real-world problem-solving techniques.
- Pioneered a Python-implemented deep learning model with peers, forecasting the NBA 2023 Champion, backed by data from official sources. This analysis yielded a successful prediction 2 days before the final result.
- Compiled and presented findings in a comprehensive report, leveraging the neural network model's outputs.

Research Assistant at Prof. Dolocek's QKD Lab, UCLA Feb. 2023 - Aug. 2023

Position: Student Researcher

- Learned LDPC Related knowledge, run complex C++ programs and produced test results for Non-Binary LDPC.
- Conducted various visualizations using R for Non-Binary LDPC related design data.

Mini Interactive Board Game Project in C++ Jan. 2023 - Mar. 2023

Position: Author

- Developed a C++ game featuring player avatars interacting with bank squares on a game board.
- Implemented functionalities including coin transactions, enemy interactions with vortexes, and random teleportation with subtle design.

SCHOOL ACTIVITIES

Chinese Calligraphy Club at UCLA, Los Angeles Sept. 2021 - Now

Position: President of the Club

- Pioneered the establishment of the club, promoting cultural exchange and enriching UCLA's cultural tapestry.
- Supervised and facilitated weekly lectures on calligraphy, seminars on Chinese characters, and held extensive cultural exhibitions, notably in May 2022.
- Championed the Lunar New Year 2023 & 2024 celebration, sharing insights into festive cultural knowledge.
- Conducted yearly recruitment drives and spearheaded fundraising endeavors, propelling the club's continued success.

SKILLS

- Languages: English(Fluent), Mandarin (Native), Cantonese (Fluent)
- Computer Skills: Python, R, C++, SQL, Git, MATLAB, HTML
- Software: Microsoft Office (Word, Excel, PowerPoint), LaTeX, Markdown, Visual Studio