Yu(Anna) Luo

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Research interests

○ Geometric Quantitative Trading

○ Computational Geometry

○ Data Science in AI

○ Optimization

○ Tensor Decomposition

Education

2023 – present

University of California, Davis

PhD in Applied Mathematics

Davis, CA

2020 – 2022

Columbia University

BS in IEOR (Financial Engineering);

Minor: Applied Mathematics

New York, NY

2017 – 2020

Dickinson College

BS in Mathematics;

Minor: Economics

Carlisle, PA

(3+2 Combined Program: dual bachelorâs degrees from Dickinson and Columbia)

Current situation

Expected to graduate by June 2028 **PhD in Applied Math**

- Advised by Profs. Alex Wein and JesÃº s De Loera; conducting research in tensor decomposition and combinatorial slicing optimization using mathematical softwares (SageMath, Maple, Macaulay2).
- Completed all core sequences of the program. Earned Master's degree along the way.

Working Experience

Oct. 2022 – April. 2023. **Quantitative Trading Assistant**

Beijing Boyudingshi Management and Consulting Co.

- Analyzed stock market trends with advanced Time-Series and Neural Network models using algorithms build from scratch by our own in **Python**.
- Trained predictive models on 700+ ETFs and A-shares in the Chinese stock market.
- Supported portfolio management of a $3M$ fund, enhancing trading strategies.

April 2020 – April 2021 **Tech Department Manager (Part-time Internship)**

Jetzy Co.

- Led a cross-functional team of 20+ engineers on app development and data analysis.
- Reported directly to the founder; hosted weekly departmental meetings.
- Conducted 10+ technical interviews, improving intern recruitment and selection.

Projects

Time-Frequency Analysis for Non-Stationary Signals, with Chen Qian. Applied two harmonic analysis methods (PWVD and WPT) each combined with a different machine learning method (CNN and Random Forest) to stock price forecasting and compare their performance using **Python**, achieving a mean win rate of **72.61%**.

(Ongoing) **Critical Moments of the Slab**, advised by Prof. De Loera. Collaborative work with Marie-Charlotte Brandenburg and Meroni Chiara. Used Sage and Maple to compute extreme values and critical values of volume and moments of a slab (same-dimensional slice of the hypercube) in 4D.

Symmetric Extension of Overcomplete Tensor Decomposition via Koszul-Young Flattenings, advised by Prof. Wein. Computed rank and decomposition of symmetric overcomplete 3D tensors.

Traders in a Strange Land: Agent-Based Discrete-Event Market Simulation of the Figgie Card Game, DiSilvio, S., Luo, Y., Ozerov, A. (2021). : https://arxiv.org/abs/2110.00879