Xueyan (Aaron) Shi

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EDUCATION

GEORGIA INSTITUTE OF TECHNOLOGY — **Atlanta, GA**
Master of Science in Quantitative and Computational Finance — *08/25 – 12/26*

UNIVERSITY OF CALIFORNIA, SAN DIEGO — **San Diego, CA**
Bachelor of Science in Computer Science — *09/21 – 06/25*
Bachelor of Science in Cognitive Science: Machine Learning and Neural Computation — *09/21 – 06/25*

- GPA: 3.88/4.0
- Relevant Coursework: Deep Learning, Linear Algebra, Vector Calculus, Numerical Analysis, Differential Equation, Advanced Data Structures, Statistics Methods

PROFESSIONAL EXPERIENCE

Icarus Fund LLC. — **New York, NY**
Quantitative Analysis Intern — *06/24 – 08/24*

- Developed and implemented a custom momentum-based portfolio strategy, achieving a 19-fold return over a 10-year period by optimizing basket length and hyperparameters.
- Employed graph models such as MST, TVP-VAR, and PMFG to uncover dynamic relationships between global ETFs, enhancing portfolio diversification strategies.
- Utilized advanced statistical methods, including ARIMA models, to validate data suitability, ensuring accurate time series analysis and model reliability.
- Performed comprehensive data analysis, including descriptive statistics, stationarity checks, and autocorrelation assessments, to ensure the robustness of financial models. Conducted multiple statistical tests to validate model assumptions, enhancing the predictive accuracy and reliability of investment strategies.

Orient Securities Co., Ltd. — **Shanghai, China**
Quantitative Trading Intern — *06/23 – 08/23*

- Spearheaded the development of a minute-wise prediction model, refining trading strategies by leveraging machine learning and deep learning models, such as LightGBM and LSTM, with best results having a precision of 80% in test datasets.
- Extracted and analysed high-frequency factors from OHLCV datasets using advanced technical indicators and tools like Tune-TA and TA-lib, enhancing the predictive power and accuracy of the trading model.
- Developed and implemented efficient data processing pipelines, optimizing key stages such as data pre-processing, feature detection, and model training. Achieved a 30% reduction in pre-processing time and accelerated model deployment, improving overall project efficiency and effectiveness.

PROJECTS

Attention LSTM Stock Forecasting Project | UCSD — **San Diego, CA**
Individual Quantitative Researcher, Project Paper — *03/25 – 06/25*

- Designed a novel attention-based LSTM architecture for predicting NVDA returns using stock metadata, macroeconomic indicators, and commodity price data (e.g., copper, lithium, gold) besides OHLCV information.
- Aligned and normalized multi-source datasets from Yahoo Finance and FRED with total of 21 different features; implemented time series cross-validation to prevent leakage; Outperforming baseline models on directional F1 score by 3.1%
- Conducted comparative analysis across models and evaluated performance with classification metrics over regression outputs for financial relevance.

Sentiment Based Trading Strategy Project | UCSD — **San Diego, CA**
Quantitative Strategy Developer, Project Website — *09/24 – 12/24*

- Team lead of a quantitative trading strategy project based on news sentiment analysis for S&P 500 ETFs.
- Developed a customized Transformer encoder classifier model and tuned over 20 hyper parameters for performance.
- Data visualizations for pre-processing. Sentiment analysis and work tokenization's with noise words removal.
- Experimented other models like traditional machine learning and LSTMs for comparisons.
- Test dataset accuracy of 60% on predictions and backtest resulted 10% profit over 6 months while stock price staggered.

Blockchain-based Insurance Solution for Pets | Franklin Templeton — **San Diego, CA**
Quantitative Developer, GitHub — *02/23 – 06/23*

- Pioneered the development of a blockchain-based solution for pet medical data management, contributing to the advancement of decentralized finance (DeFi) applications in the emerging field of pet healthcare.
- Integrated technologies including Polygon, Web3.js, React.js, and MySQL, to create a robust and user-friendly platform that addresses the needs of pet owners, healthcare providers, and insurance companies in the cryptocurrency ecosystem.
- Awarded for outstanding innovation and technical expertise in blockchain development, earning the 1st place winning team of the Franklin Templeton 2023 Blockchain Contest with $15,000 prize.

SKILLS AND INTERESTS

Programming: Python, C/C++, Java, JavaScript, Solidity, CSS, HTML, Bash, R
Frameworks: PyTorch, Transformers, LSTM, React, NumPy, Pandas, Rest API, Node, GitHub, GDB/Valgrind, Junit