ALEX PYO

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EDUCATION

Northwestern University **Evanston, IL**

Bachelor of Science in ***Industrial Engineering and Management Science & Statistics*** *Expected June 2026*

- Cumulative GPA: **3.71/4.00**
- Coursework: Applied Linear Algebra, Multivariable Calculus, Probability, Statistics/Statistics Theory, Stochastic models, Statistical learning for Data Analysis, Statistical Modeling, Computer Programming, Sequences and Series

WORK / LEADERSHIP EXPERIENCE

Consolidated Trading LLC **Chicago, IL**

Derivatives Trading Intern (Vix Desk) *June 2024 – September 2024*

- Developed a program to keep track of 20 delta risk reversals, monitoring the change in implied volatility skew along with ATM straddles to keep track of changes in volatility
- $15,000 PnL in simulation trades, gaining proficiency in various option trading strategies and understanding of the Greeks
- Shadowed senior traders, gaining insights into market mechanics and high-level trading strategies
- Collaborated with the trading team to refine risk management processes, contributing to more robust trading operations

Blackmore Partners Inc. **Chicago, IL**

Private Equity Business Development Intern *June 2023 – August 2023*

- Utilized software and database management tools to manage relationships with private equity groups and C-suite executives
- Worked directly with executives to develop plans for future growth, PE deals, and working capital
- Conduct industry, private equity, and company research using D&B Hoover, Pitchbook, and Cyndx
- Assist with the preparation and participation for the BlackmoreConnects conference with executives and Capital providers

American Society of Mechanical Engineers (ASME) **Evanston, IL**

Treasurer *June 2023 – Present*

- Developed long-term financial goals and strategies for the club's growth and sustainability
- Maintained accurate and organized financial records, including receipts, invoices, and bank statements
- Worked with the club president and club sponsor to conduct periodic financial audits
- Ensured responsible financial practices, staying within allocated funds and seeking approval for any deviations

PROJECTS / RESEARCH

Published Research: Benchmark Study for Limit Order Book Forecasting **Python / Linux**

- Replication of results from *LOB-Based Deep Learning Models for Stock Price Trend Prediction: A Benchmark Study* evaluating fifteen DL models (MLP, LSTM, CNN1, CNN2, CNNLSTM, DLA, etc) on SPTP with LOB data.
- Developed LOBCAST framework for data preprocessing, model training, and profit analysis to execute models on exclusive USA and China futures contract datasets, enriching comparative analysis.
- Integrated regression tasks (MLP, LSTM, CNN) and metrics (R2, correlation) into the research paradigm and introduced time series regression models (PatchTST, STanHop, Crossformer, DLinear, etc), benchmarking on proprietary datasets.
- Utilized remote Linux desktop via SSH for concurrent deep-learning model execution.

Research: Ambiguous Data Correlation with Stock Price Movement **Python**

- Employed Language Model (LLM) to analyze patents, leveraging ChatGPT API for grading novelty and assessing their impact on stock price movements.
- Implemented varied time horizon periods for patent submission dates, generating multiple data points for correlating with stock price fluctuations, thereby enriching the analysis.
- Extended analysis to H1-B Visa submissions, applying similar methodologies to examine correlation with stock dynamics.
- Orchestrated research methodology encompassing LLM analysis, ChatGPT API integration, and time horizon segmentation to elucidate the interplay between patent novelty, H1-B Visa trends, and stock price variations.

Project: High, Low, Closing Stock Price Prediction Using LSTM Machine Learning **Python**

- Designed and implemented a robust machine learning algorithm utilizing LSTM neural networks to forecast the high, low, and closing stock prices of Tesla
- Preprocessed historical stock data, incorporating data normalization and feature scaling to enhance model performance
- Fine-tuned the LSTM model through iterative experimentation, balancing network complexity and training efficiency to achieve optimal prediction results

ADDITIONAL

Activities: Northwestern Capital Management, NU Blockchain, NTECH, ASME, KASA

Skills: Korean (Native), Python (Pandas, SciPy, Numpy), LINUX, Java, Matlab, SQL, Word, Powerpoint, Excel

Interests: Weightlifting, Swimming, Classical Piano, Poker, Sneakers, Breakfast