Hamzeh Hamdan

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Education

Harvard University B.A., Computer Science & Statistics (Honors). Minor in Mathematics. GPA: 3.72. Thesis: Cross-Market Signals: Economic Spillovers Across Markets

Coursework: Probability, Statistical Inference, Linear Models, Algorithms, Systems Programming and Machine Organization, Data Science, Deep Learning for Unstructured Data, SWE with Generative AI.

Experience

Comcast

Finance Intern

- Developed the first internal generative AI tool for finance teams using the Azure OpenAI API.
- Integrated database connections and management, file search, report generation, and data analysis and visualization in the application through a Python user interface.
- Initial testing with equity-based compensation analyses reports increased efficiency by ~93%.

Propel Bio Partners (Biotech Hedge Fund, \$150M AUM) **Data Science Intern**

- Developed a Python class that runs Monte Carlo simulations to estimate portfolio return. •
- Provided methods for estimating the margin of error Propel Bio has for their estimates of the probability a long-term investment will be successful, and for assessing the risk of investments.
- Created a dashboard that displays simulation results and investment analyses. •
- Received a return offer for my junior summer internship and for a fulltime graduate position.

Projects

ARIMA-based Pairs Trading of Bitcoin and Ethereum

- Trained an ARIMA model on the log price spread and the log returns spread of BTC and ETH on • data from 2016 to 2021, with test sign prediction accuracies of 52.2% and 74.8%, respectively.
- Implemented a pairs trading strategy using the price spread that returned 23.5% on 2022-2023 testing, during which holding BTC and ETH would've returned -40% and -56%, respectively.

Estimating Company Similarity from Embeddings of SEC 10-K Filings

- Built a web app that uses BERT-like embeddings of SEC 10-K filings to compare companies' similarity by specified subsections of their 2023 10-K filing.
- Created a Python class that allows for replication with newer data, providing methods for • tokenizing and embedding text, clustering companies, visualization, and result validation.

Awards

MIT iQuHACK 2024 | 2nd Place in Moody's Challenge Mean-VaR Portfolio Optimization with Simulated Quantum Annealing

Developed a mean-VaR (value at risk) portfolio optimization algorithm, framed as a quadratic unconstrained binary optimization problem and solved using simulated quantum annealing.

Skills

Technical: Python, Linux, SQL, Azure Services

January – February 2024

May 2024

May 2024

Cambridge, MA February 2024

Philadelphia, PA

May 2024 – Current

Cambridge, MA

May 2025

Remote