CONNOR SHEN

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EDUCATION

The University of Texas at Austin — Bachelor of Science, Economics — May 2026
Statistics and Data Science Minor
Overall GPA: 4.0

EXPERIENCE

National Aeronautics and Space Administration – ER4 Robotics Intern — June 2023 – September 2023

- Led the upgrade of the suspension system for the Space Exploration Vehicle by tuning PID controls and creating custom Python scripts, resulting in improved navigation on rough terrain during tests.
- Collaborated with multi-disciplinary teams to perform detailed systems analysis, delivering data-driven insights to ensure the reliability of space mission systems.
- Applied diagnostic and prescriptive analytics to design and test a custom circuit that assessed the impact of radiation on electronic systems, mitigating potential risks in future missions.

PROJECTS

Stock Analysis App – Pandas, Scikit-Learn, yfinance — Fall 2024

- Developed and deployed a data pipeline for real-time stock analysis using yfinance, extracting actionable insights through advanced technical indicators like RSI, Bollinger Bands, and ATR.
- Optimized Random Forest model performance by leveraging GridSearchCV for hyperparameter tuning, achieving high accuracy and AUC metrics while addressing class imbalance using SMOTE.
- Designed a feature-ranking system utilizing heapq to prioritize top indicators, enhancing model interpretability and improving stock price movement prediction strategies.

Algorithmic Trading with Machine Learning - Pandas, NumPy, Scikit-Learn — Spring 2024

- Developed an unsupervised machine learning trading strategy by analyzing S&P 500 stock data and selecting the 150 most liquid stocks, achieving higher portfolio returns through monthly aggregation.
- Optimized portfolio construction by implementing K-Means Clustering and Efficient Frontier optimization, resulting in a maximized Sharpe ratio and improved asset allocation.
- Conducted comprehensive performance analysis of trading strategies by integrating Fama-French factors and visualizing results, outperforming the S&P 500 by over 50%.

Risk Analysis & Prediction of the Magnificent 7 Stocks - Pandas, Matplotlib, Seaborn — Spring 2024

- Analyzed the risk and return profiles of the Magnificent 7 stocks using different data analysis techniques, enabling more informed investment decisions based on historical trends.
- Created visual representations of stock performance with Matplotlib and Seaborn, enhancing clarity in risk assessment through comparative charts and heatmaps.
- Performed advanced risk analysis using Monte-Carlo simulations to compare against traditional models, identifying potential variances in investment outcomes.

LEADERSHIP EXPERIENCE AND ACTIVTIES

Longhorn Racing Solar Vehicle Team – Power Generation System — Fall 2023 – Present

- Developed open-source software contributions to enhance solar panel optimization models, benefiting the broader renewable energy research community.
- Created data-driven simulations to maximize solar panel output using custom Python solutions, leading to sustained and efficient power generation tailored to the solar car's energy needs.
- Designed a database for solar cell simulation data using Python for the backend, Angular for the frontend, and PostgreSQL for querying, ensuring reliable storage and efficient data retrieval.

ADDITIONAL INFORMATION

Affiliations: Texas Economic Association, University Finance Association, Chinese Student Association

Technical Skills: Microsoft Excel, Microsoft Word, Python (Pandas, NumPy, Scikit-Learn, Matplotlib), R (dplyr, ggplot2), SQL (PostgreSQL), Statistical Modeling, Machine Learning, Data Cleaning, Data Visualization, Predictive Analytics, Tableau, Git/GitHub, SMOTE, Monte Carlo Simulations, GridSearchCV