MacArthur Schultz

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Education

University of Michigan **Ann Arbor, MI**

Bachelor of Science in Mathematics of Finance; Bachelor of Business Administration | GPA 3.80 / 4.00 *May 2025*

Coursework: Big Data in Finance (F2024), Stochastic Analysis for Finance (F2024), Probability Theory, Mathematics of Finance, Options & Futures, AI & ML in Investment Strategies, Linear Algebra, Differential Equations, Elementary Programming Concepts (C++), Introduction to Programming in the Sciences (Python), Business Analytics and Statistics

Activities: Applied Economics Teaching Assistant, Michigan Ethical Investments (Co-President), Phi Beta Lambda Professional Fraternity, Michigan Sports Analytics Society, Michigan Poker Club

Experience

USAA **Plano, TX**

Quantitative Risk Analyst Intern *May 2024 – August 2024*

- Provided independent risk management analysis by comparing USAA capital ratios to peer banks with S&P Capital IQ Pro and earnings reports, determining potential for idiosyncratic balance sheet risk
- Created multiple balance sheet scenarios by adjusting loan and deposit growth assumptions to determine impacts to bank capital and liquidity metrics, measuring forward-looking risk of strategic initiatives
- Delivered PowerPoint presentation over results of peer review and what-if analyses to Bank Chief Risk Officer, providing leadership with insights necessary for decision-making regarding bank's current and future capital

University of Michigan Department of Mathematics **Ann Arbor, MI**

Mathematics Tutor *September 2023 – Present*

- Interpreted gateway and mastery exam results for Precalculus and Calculus I, II, and III, clarifying misconceptions regarding material and increasing frequency of satisfactory scores
- Evaluated homework questions ad-hoc using curriculum and improvised examples and methods, helping students complete assignments on time and pushing them beyond basic understanding
- Managed table in mathematics lab that often harbored 5-6 individuals at one time with calm, systematic approach, ensuring deep comprehension for largest number of students

Eydent Insurance Services **Mt. Pleasant, MI**

Summer Intern *May 2023 – August 2023*

- Researched potential client and composed report detailing operations, business model, and possible risks, providing to manager vital information for underwriting process
- Gathered and verified information in Excel from over 100 policies and 12 companies, allowing actuaries to seamlessly transfer data to pricing models for potential new insurance program
- Prepared new business and renewal accounts for underwriting by obtaining and interpreting loss runs, permitting underwriters to make timely and informed decisions

Projects

Chemicals Sector Equity Recommendation | *Python* **April 2024**

- Pulled insider stock acquisition and sale data using WRDS, scaled by shares outstanding, and offset by 4 days for reporting lag, allowing characteristic to be used for stock performance prediction
- Generated OLS and LASSO regression models as well as decision tree, random forest, and gradient boosting models from 30 years of S&P 1500 data, determining which of 16 characteristics contributes most heavily to returns
- Split data into training and testing sets and tuned hyperparameters of all non-OLS models, preventing overfitting to training data and producing more accurate predictions
- Applied model results to chemical sector S&P 1500 stocks with weighting of models determined by R-squared values and nonlinear nature of data, procuring list of top 5 chemical stocks by expected returns

College Football Data Analysis | *Python* **April 2023**

- Extracted data for more than 118,000 plays over 16 seasons from collegefootballdata.com using Python and built-in application programming interface (API), putting information into pandas DataFrame for future processing
- Identified relevant plays and removed extraneous or outlier data points using pandas, reducing volume of DataFrame by more than 95% and outputting comma-separated values (CSV) file
- Performed statistical analysis with SciPy library by comparing means of data sets and slopes of regression models when plotting made field goal percentage against length of kick, concluding that icing the kicker is effective in college football

Additional

Skills: Python (matplotlib, NumPy, scikit-learn, pandas, SciPy), C++, Radiant, Excel, PowerPoint, S&P Capital IQ Pro
Interests: Fly fishing, watching college football, listening to jazz