Jacob C. Carroll
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Education

University of Chicago Chicago, IL
B.S. in mathematics, B.A. in statistics, B.A. in economics Expected May 2025
GPA: 3.54/4.00
Relevant Coursework: Abstract Algebra, Applied Regression Analysis, Honors Calculus, Investments, Linear Algebra, Options and Volatility Products, Probability, Real Analysis, Trading

Skills

- Programming languages: Python (NumPy, pandas, Matplotlib), R, and Java

Experience

CFX Labs Chicago, IL
Software Engineering Intern June 2024-August 2024
- Create web scraper API with puppeteer to pull USD/MXN rates of competitors
- Deploy website of USD/MXN rates to drive engagement in inactive users

Sneaker Reseller Chicago, IL and E-Commerce
Owner and Operator March 2020-Present
- Achieve over 420 sales and $100,000 in revenue by reselling sneaker inventory across various sales channels: consignment stores, online secondary markets, and direct-to-consumer
- Identify price trends and liquidity in the sneaker market from StockX.com data such as sales velocity, bid-ask spread, supply, and demand
- Attain 15% profit margins by analyzing previous price trends and identifying optimal buying and selling points

BMO Financial Group Chicago, IL
M&A Technology Analyst Intern June 2023-August 2023
- Develop sentiment analysis NLP model in Python based on Twitter mentions of ‘BMO’
- Build data pipeline using Twitter API and Tweepy library
- Utilize rule-based Valence Aware Dictionary and sentiment Reasoner(VADER) to analyze sentiment and categorize positive and negative Tweets
- Collaborate with customer service team to monitor and mitigate customer frictions identified from the sentiment analysis model
- Facilitate technology and data integration with BMO’s acquisition of Bank of the West

Alliant Credit Union Chicago, IL
Quantitative Credit Risk Intern June 2022-August 2022
- Build a credit line line decrease model for a $3 billion card portfolio resulting in $1 million in risk mitigation
- Use Python and SQL to find predictor variables of risk and asses unit and dollar loss rates of those variables against historical credit card portfolios
- Low FICO, low vantage, and low utilization card holders were riskiest in historical portfolio (10%+ delinquency rate)
- Design, present, and implement credit line decrease model where risky card holders have credit line taken down

Projects

Volatility Risk Premium (VRP) on S&P 500 October 2023
- Utilize pandas, numpy, and yfinance packages in Python to aggregate and parse 5 year historical price information on SPX(S&P 500) and VIX
- Compute the 21 day implied move of the SPX from VIX price level and compare it to the historical 21 day realized move of SPX which revealed leptokurtosis

Interests

- App development, basketball, poker, sneakers, soccer, speed chess, tennis