Opportunity and Significance

- Actively investing wisely in stocks is difficult and risky
- Existing investment advisors cost $200 to $400 an hour
- The GM FAT STAcK Py takes into account three popular stock market algorithms to help forecast the stock market and help make investment decisions.

Technical Objectives

- Predict stock market trends
- Maintain a risk adverse stock trading portfolio
- Minimize an investor’s time needed to use algorithms on latest stock data
- Useable and Simple for an investor

State of Practice and Goals

Current portfolio management can be either passive or active
Passive tracks a market index
Active involves managers who attempt to beat the market using algorithms and research on individual holdings.

Goals:
- Remove the need for private investors to learn algorithms
- Develop a robust prediction algorithm

Technical Approach, Accomplishments and Results

Approach:
Use a combination of Cross Moving Average, Fibonacci Retracement Line, and Exponential Moving Averages algorithms to create new prediction algorithm to manage a trading portfolio

Accomplishments
- Integration of CMA
- Integration of EMA
- Integration of FRL
- Margin of error values for predictions

Results
Actively managed portfolio by our algorithm of the SPDR S&P 500 over the span of 1 year with initial investment of $10,000

Next Steps for Development and Testing

- Decreasing the margin of error through further integration of new algorithms
- Integration of machine learning for more accurate shifts in the stock market
- Dynamic adjustment in the algorithm for smarter trading based on current closing prices
- Ability to quickly catch on to market trends at or above the level of a professional investor
- Active investing with the ability to manage individual personalized portfolios

Constraint

The stock market is ever changing and there are factors that an algorithm simply cannot predict such as a company declaring bankruptcy or another declaring to go public which can dramatically shift the market with no quantitative measurement available for an algorithm to use

Commercialization Plan & Partners

- Work was done with our client representing General Motors
- This is an R&D project which still in the development stages.
- Main hurdle is perfecting an algorithm that can perform at the same level of a professional financial advisor

Thank you to General Motors for sponsoring this project