

# INTUITIVE TRADING ALGORITHM

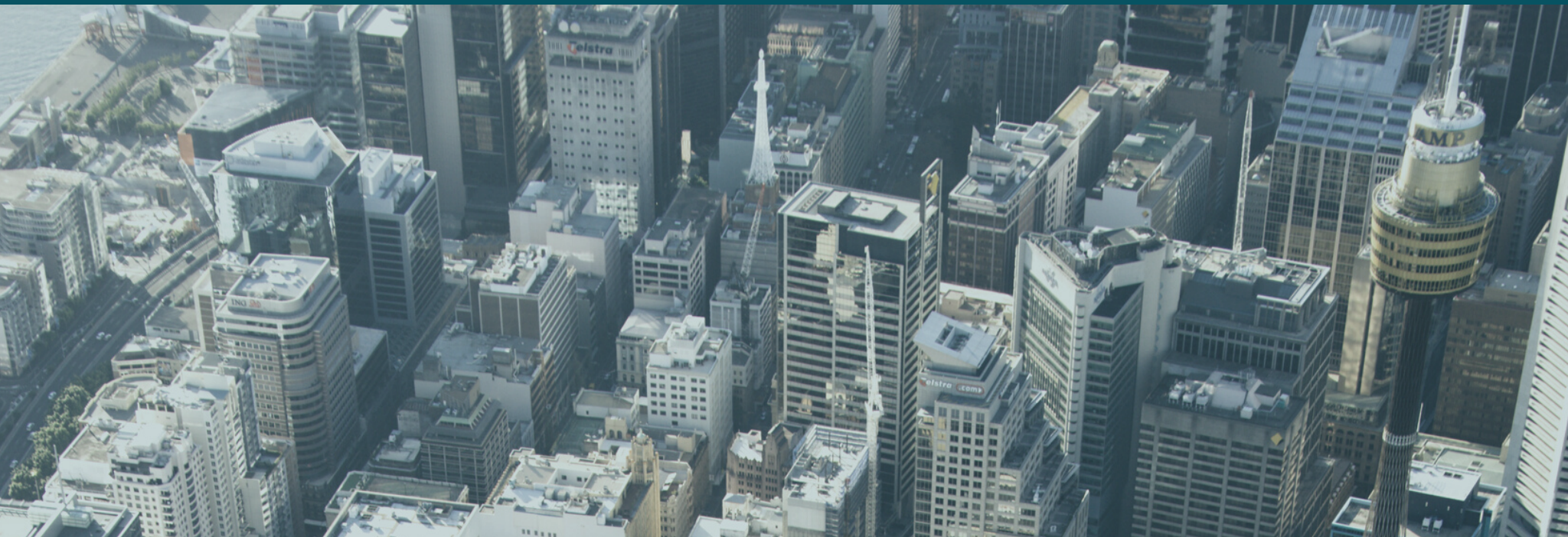
---

PAUL LOPEZ, ISAAC ISKRA, HU HOSSAIN,  
CHAIM KRIGER

## PROJECT 2

---

JAN 2022



# Why Algorithmic Trading?



A shocking fact that you may never have heard, is that 90% of investors lose money in the stock market. In a time when technology has never been more robust, there's no reason we can't turn to FinTech for a solution. That's where Machine Learning comes in. We can use the power of machine learning to empower the average investor to make better trading decisions by elimination bias tendencies such as emotion, fear, and greed. As long as the classification report generates an accuracy score above 50%, our trading algorithm should be profitable. The goal, eventually, would be to allow investors to use our trading algorithm to generate revenue for them without ever having to make a single trade.

# Creating the Algo



We have developed an algorithmic trading application that utilizes machine learning to buy and sell assets. We allow our user to pick the instrument we run the algorithm on by leveraging Amazon Lex . This adds a personalized edge to the experience. Pull data in from CSV files, and prepare it for the machine learning process.

Run the data through a function which gives us the optimal SMA and training period, and add Bollinger Bands by leveraging Finta.

Scale and fit the data, and predict the signal for the algorithm to trade off.

We used two technical analysis indicators, SMA, and Bollinger Bands, and feed it into both an SVC and Logistic Regression ML algorithm. We have a function that gives us optimal SMA and the best training periods for the model.

Print a classification report to confirm our accuracy score is over 50%

The purpose of our project is to give a user friendly trading algorithm for investors who would like to take a long position in a given asset class. We can customize the algorithm to any financial instrument by utilizing CSV files.

# Algorithm Results

## SVC Returns Chart and Confusion Matrix



	precision	recall	f1-score	support
0.0	0.50	0.07	0.12	475
1.0	0.53	0.94	0.68	533
accuracy			0.53	1008
macro avg	0.52	0.50	0.40	1008
weighted avg	0.52	0.53	0.41	1008

## Logistic Regression Return Chart



	precision	recall	f1-score	support
0.0	0.44	0.53	0.48	475
1.0	0.49	0.41	0.45	533
accuracy			0.47	1008
macro avg	0.47	0.47	0.47	1008
weighted avg	0.47	0.47	0.46	1008

Date	predicted_signal	Actual Returns	Strategy Returns	Entry/Exit	close	Position	Entry/Exit Position	Portfolio Holdings	Portfolio Cash	Portfolio Total	Portfolio Daily Returns	Portfolio Cumulative Returns
2017-12-26	1.0	-0.024324	-0.024324	NaN	63.458000	500.0	NaN	31729.0000	NaN	NaN	NaN	NaN
2017-12-27	1.0	-0.017807	-0.017807	0.0	62.327999	500.0	0.0	31163.9995	100000.0	131163.9995	NaN	NaN
2017-12-28	1.0	0.011937	0.011937	0.0	63.071999	500.0	0.0	31535.9995	100000.0	131535.9995	0.002836	0.002836
2017-12-29	0.0	-0.012716	-0.000000	-1.0	62.270000	0.0	-500.0	0.0000	131135.0	131135.0000	-0.003049	-0.000221
Date	predicted_signal	Actual Returns	Strategy Returns	Entry/Exit	close	Position	Entry/Exit Position	Portfolio Holdings	Portfolio Cash	Portfolio Total	Portfolio Daily Returns	Portfolio Cumulative Returns
2021-12-21	1.0	0.042881	0.042881	0.0	938.530029	500.0	0.0	469265.0145	115805.997	585071.0115	0.034104	3.460607
2021-12-22	1.0	0.074947	0.074947	0.0	1008.869995	500.0	0.0	504434.9975	115805.997	620240.9945	0.060112	3.728744
2021-12-23	1.0	0.057619	0.057619	0.0	1067.000000	500.0	0.0	533500.0000	115805.997	649305.9970	0.046861	3.950337
2021-12-27	1.0	0.025248	0.025248	0.0	1093.939941	500.0	0.0	546969.9705	115805.997	662775.9675	0.020745	4.053033

# **Personal Ticker Bot with AWS Lex**

**Streamlines buying stocks, cryptocurrency, and trading currencies.**

**Offers the user assets to look at based on the users search and trading history.**

**Gives the user a synopsis of the accuracy of the function being used to trade.**



# Next Steps

**Introduce a more in depth lambda function that adheres to the traders tendencies and interests that creates a more intuitive trading experience. We would move the code to amazon cloud, and from there run the program to our brokerage account and seamlessly start getting rich. In addition, we'd introduce a wider range of trading methods to diversify our account.**