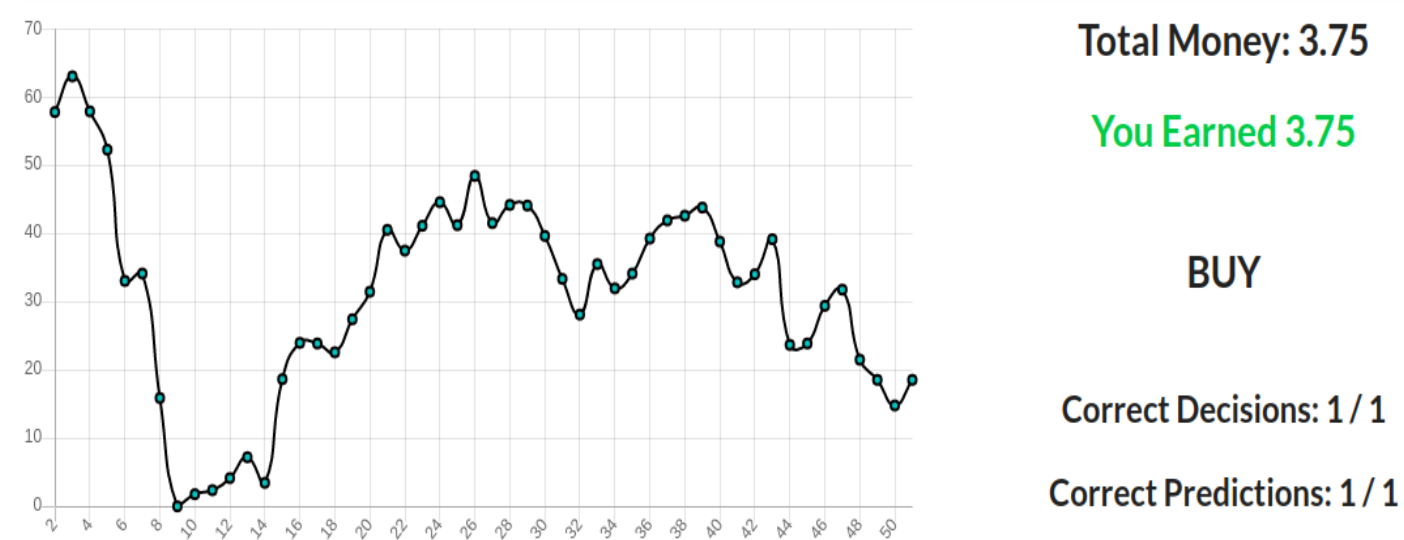


# TRUST IN PREDICTION ALGORITHMS

## ABSTRACTS

Algorithms are being increasingly used to make decisions involving the investment of money. We conducted an experiment to analyze the effect of the algorithm's accuracy on trust shown by participants in algorithms. We created a game involving decisions based on the prediction of the stock price. We used two different accuracies of the algorithm and studied whether participants followed the price trend or the forecast. We also examined the correlation of participants' general trust in humans with the trust established in the game.



## METHOD

24 University students participated in the experiment (Average age = 22.79, Std Dev = 1.65).

Participants were shown a chart of the closing price of a randomly chosen stock from the NASDAQ index. The graph included a line-chart of closing prices for 50 days and the game would go on for the next thirty days simulated as events.

As shown in the figure, they were also given a prediction of whether the stock price would go up (emulating a BUY by investors) or go down (SHORT).

Participants were told that the algorithm used to make predictions has an average of 80% or 70 % accuracy. Participants were randomly assigned to one of these groups.

Participants filled a form which involves standard general trust survey questions and their rating on how much they will trust the algorithms.

\*Trust was defined as number of times decision matches with prediction in all thirty days.

## RESULTS

### CORRELATIONS:

- Trust\* vs Accuracy:  $r = 0.2$ ,  $p = 0.3$  \*\*
- Trust\* vs General Trust:  $r = 0.38$ ,  $p = 0.07$  \*\*
- Trust\* vs money earned:  $r = 0.45$ ,  $p = 0.025$

### CHI-SQUARED TESTS

- 80 percent Accuracy : ( N = 16 ):
  - Decision matched with prediction ( $p = 0.00001$ )
  - decision matched with trend ( $p = 0.1$ ) \*\*
- 70 percent Accuracy : ( N = 8):
  - Decision matched with prediction ( $p = 0.04$ )
  - decision matched with trend ( $p = 0.0001$ )

### CONCLUSIONS

Participants trusted the algorithm at both accuracies, but they also followed the trends strongly when accuracy was lower.

\*\* insignificant at  $p < 0.05$