

# Deep Learning (CS230) Course Project Milestone

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## Title

Algorithmic Trading of Cryptocurrencies Using Neural Networks

## 1 Introduction

Cryptocurrencies became the talk of the financial world in 2017. With the surge of Bitcoin, Ethereum, Litecoin, and many others, everyone from institutional investors to the world's youth poured in money and interest. This relatively new asset class is just beginning to be explored by the forces of quantitative finance due to the development of data stores, established exchanges, and the increase in trading volume. Yet, this field is different than typical asset classes such as equities or fiat currencies with the dearth of regulation, no closing bells, and no friction between borders. This project seeks to explore the dynamics of this market through the lense of trading algorithms. These algorithms will capture linear and complex relationships through auto-regressive and beural network architectures.

## 2 Approach

### 2.1 Data

#### Plots

- time series
- histogram of returns
- performance of algo by equal allocation

#### Table/Metrics

- sharpe
- scorintino
- accuracy (precision)
- returns
- correlation of coins

#### Conversation

- Size of data sets; logic of splits
- Where we got the data

## 2.2 VAR

### Plots

- loss function by epoch
- Basic algo performance

### Table/Metrics

- sharpe
- scorintino
- accuracy (precision)
- returns
- training time

## 2.3 VARIMA

## 2.4 RNN

### Plots

- loss function by epoch
- Basic algo performance

### Table/Metrics

- sharpe
- scorintino
- accuracy (precision)
- returns
- training time

## 2.5 R2N2

### Plots

- loss function by epoch
- Basic algo performance

### Table/Metrics

- sharpe
- scorintino
- accuracy (precision)
- returns
- training time

## 2.6 Division of labor

### Conversation

- Who did what

## 2.7 Work Moving Forward

### Conversation

- Overfitting to training?
- Who did what
- exploring other loss functions?

## 2.8 Future Project Ideas

### Conversation

- Many ideas for future projects that have already come up