1)

Hello , my name is jack Featherstone , and I am a fourth year computer science student at university college cork , my final year project is about predicting price fluctuations of crypto currencies using a temporal convolutional network

My supervisor for this project is Dr Andrea Visentin

2)

Here we just have a bried outline of what I will be presenting

3)

At the time of recording this the global cryptocurrency capitalization market is worth 1.3 trillion dollars with jut over 18,000 crytpocurrencies available. Ssince this virtual explotiobn of cryptocurrencies , investors are always on the search for tools and techniques that increase profit and reduce risk . Naturally any instrument that would minimize risk would be highluy valued , not just to investors I believe this cryptocurreny fluctuation prediction is a conversation that can be shared across many different disciplines such as computer science , data science and economics.

4)

So what has been used in the past to forecast fluctuations in the cryptocurrency market ?

The most popular statistical forecasting method for finance is the Arima method , the main benefit of this model was that it transform non stationary data to data without seasonality or trends . Although like all models there are some caveats , it assumes statistical assumptions about the data . Since then new techniques in deep learning have come out , such as lstm , gru . Hamayel and Owda put forward a thesis where they tested a whole variety of rnn’s and they found the one that produced the best results for them was a gru network . The results of which are displayed here on the right (accurate) and the cryptocurrency data they used on the left

5)

So my data was collected from binance (binance is one of the largest crypto exchanges where uses can trade cryptocurrencies) , as you can see the dates are slightly different \*\* , the data consists of three different csv files , one for each crypto currency , diagrams

6)

The model I proposed as using as a baseline was a hybrid model , consisting of ..

The crypto currencies used to train the model were monero and Litecoin

On the right model

Bottom is the predictive results that were rather accurate , but something I believe we can improve upon using a tcn

7)

As of recording … , tcn is a vraiaiton of cnn w/ 2 addition , each hidden layer sam length as input layer this is achievecd using zero padding , second feature is that the networ only uses info from past time steps , achieved using dilated convolutions

2 adv, unlike rnn , tcn have a back propergation path different from temporal direction of sequenve , the gradients are not depended on the sequence of timesteps – reference table

The second adv , model can be trained in parallel , much faster training time a better gpu optimization .

8) By the end of the project I plan create a reliable model that produce excellent predictive results that can match or even surpass results gathered from the Baseline model.

Thank you