Target Audience = Assume that people reading have knowledge on the mandatory modules but no optional modules.

And please do write in fluent, easy-to-read styles

Introduction (tell the reader what im gonna tell them)

#FOR WHEN WE GET OUR RESULTS

The models show excellent predictions depending on the mean absolute percentage error (MAPE). Results obtained from these models show that the gated recurrent unit (GRU) performed better in prediction for all types of cryptocurrency than the long short-term memory (LSTM) and bidirectional LSTM (bi-LSTM) models. Therefore, it can be considered the best algorithm. GRU presents the most accurate prediction for LTC with MAPE percentages of 0.2454%, 0.8267%, and 0.2116% for BTC, ETH, and LTC, respectively. The bi-LSTM algorithm presents the lowest prediction result compared with the other two algorithms as the MAPE percentages are: 5.990%, 6.85%, and 2.332% for BTC, ETH, and LTC, respectively. Overall, the prediction models in this paper represent accurate results close to the actual prices of cryptocurrencies

Motivate and abstractly describe the problem you are addressing and how you are addressing it.

What is the problem? Why is it important? What is your basic approach? A short discussion of how it fits into related work in the area is also desirable. Summarize the basic results and conclusions that you will present.

* Background information
* Introduce the project ( why you are doing it , what the project is about , whether they have the necessary background to read the rest of the report, what part of your degree it takes , what the aims where.)
* Introduce the report

Don’t go into too much detail . Don’t assume that the reader has knowledge they don’t .

Temporal Convolutional Networks have been showing promising results in Finanacial Time Series.

Both crypto and stocks can go up and down in value, so buying either one involves risk. But crypto has gained a reputation for sudden and drastic changes in value that can happen without warning. Stocks, on the other hand, are directly linked to companies that must publicly and regularly share how they’ve been doing and how they expect to do in the future. Investors can potentially use that information to reduce the risk of volatility.

  In this study, responding to RQ1, works have been found that make use of different methods of machine learning or statistical analysis to find the market closing prices.

others seek the best machine-learning algorithm to predict its price;

. Therefore, it can be concluded that, separately, the works are not effective, but as a whole, important conclusions can be drawn for users who intend to operate in this market

**Introduction**

**1 Project Background**

Since April 2011 , when Bitcoin first surpassed $1 the term crypto-currency has become progressively recognized as something that is here to stay, rather than some convoluted pyramid-scheme .

Despite this I seem to always find myself in a predicament where I catch someone utter the abbreviation ‘NFT’s’ (Non-Fungible Tokens) or ‘Crypto’(Cryptocurrency) as their attempt to appear abreast of the financial market, although without actually knowing anything about the inner workings of such a digital asset. Which is quite confusing for me especially considering the fact that ‘crypto’ is now accessible to the public and also being valued worth over 3 trillion dollars.

What is crypto?

Is a piece of data that is used as a medium of exchange without the need of a third-party intervening (bank). It’s goal is to be as commonly accepted as cash or credit.

Crypto vs Stocks

There is this common misnomer that crypto is just like a stock , this is just not the case. When we buy a stock offered by a particular company , we own a percentage in that company(assets / profit) .

When we buy crypto , we are given a certain amount of that digital currency in which we can do as we please. We only own the rights of a particular amount of a digital currency.

Although Stocks and Crypto are fundamentally different , the way in which they are treated are quite typically the same . As of 2022 the majority of day-day companies still do not accept crypto as an acceptable form of credit. As a result the primary role crypto plays is a store of value in which you can hold onto or sell. This is the same ideology as stock market operates on only rather than store of value , you own a store of ownership.

It is no secret that Stock markets are rather unpredictable and are affected by many factors causing the high volatility in the market . The exact same can be said about cryptocurrency if not more factors that contribute to the volatile behaviour, thus predicting something in this unstable market will be extremely difficult.

Why this project

Cryptocurrency price prediction has become a trending research topic globally and it has created a big opportunity for researches

Over the last few years , crypto has become the centre of attention , which can largely attribute to technology advances . Investors search for tools and techniques that would increase profit and reduce risk. The prediction of the fluctuations of these crypto currencies are of great importance ! Imagine being able to maximize your profits while keeping the risk low . Imagine being able to invest your money in a crypto currency that you know will not decrease in price over time. I believe this type of crypto fluctuation prediction is a conversation that can be shared among various different disciplines , including Computer Science , Mathematics , Data Science and economics .

I will be using Machine Learning techniques to predict fluctuations using 3 Time-series data from cryptocurrencies.

I believe as technology is advancing this is the opportunity to find the most informative indicators to make better predictions.

Time-Series Forecasting

A time-series is a sequence of data points that are listed in order of time. Time-series forecasting is a common technique used in many real-world applications such as weather forecasting and financial market prediction. It uses the continuous data in a period of time to predict the result in the next time unit.

Many time-series forecasting algorithms have shown their effectiveness in practice. The most common algorithms are no based on Long-Short Term Memory Networks which are based off Recurrent Neural Networks. Stock market is a typical area that presents time-series data and many researchers study on it and propose various models.

One particular model that was been showing promising results in Financial Time Series is the Temporal Convolutional Network (TCN).

In this project , I aim to apply a TCN to predict the fluctuation of Cryptocurrency prices.

**A Final Year Research Project On :**

**Predicting Price Fluctuations Of Cryptocurrencies Using A Temporal Convolutional Network**

**Presented To**

**The School Of Computer Science And Information Technology.**

**University College Cork**

**Project Student : Jack Featherstone**

**Project Supervisor : Andrea Visentin**

Abstract

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One page summary of the report , including the key results. Standalone page .

For people who have only time to read one page (100 words)

Advert for the rest of the report : after reading this they should know if they are interested or not.

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Price forecasting for cryptocurrency has become a trending research topic globally and it has created a big opportunity for research.

Despite the various factors that contribute to cryptocurrencies volatile behaviour , Temporal Convolutional Networks have been showing promising results in Financial Time Series.

This is the network I will be using to predict the fluctuations of cryptocurrency prices.

\*\*Results\*\*

Models such as this one , can be rather quite important for Investors , as they are always on the search for tools and techniques that would increase profit and reduce risk.

I believe this type of crypto fluctuation prediction is a conversation that can be shared among various different disciplines , including Computer Science , Mathematics , Data Science and economics .