

E. Pintelas. [Deep Neural Networks for Bitcoin Price Prediction](#) . *Thesis*. Department of Electrical and Computer Engineering, University of the Peloponnese, 2020.



Abstract - Deep Neural Networks (DNNs) are modern and powerful machine learning techniques, which achieve state-of-the-art pattern recognition performance in many research areas. They constitute artificial neural networks with multiple layers between the input and output layers, aiming on modelling complex non-linear relationships. Their popularity has grown exponentially over the past decade, due to innovations which have recently occurred in their training methods. The aim of this thesis is the implementation, the hyperparameter tuning and the optimization of deep learning models, which have recently proposed in the literature, for Bitcoin price prediction based on time series data. The prediction of Cryptocurrency price can be considered as a common type of time series problems, like the stock price prediction. Traditional time-series models, like the popular ARIMA, have been applied for cryptocurrencies price and movement prediction. Nevertheless, the growing research and rapid advances of digital technology constitute in the exponentially generation of data in size, dimension and complexity. As a result these models lack of the ability to capture the non-linearity of samples in the training set. Therefore, DNNs probably constitute the most suitable and efficient way to tackle these problems.