

الجمهورية الشعبية الديمقراطية الجزائرية
République Algérienne Démocratique et Populaire
وزارة التعليم العالي و البحث العلمي
Ministère de l'Enseignement Supérieur et de la Recherche Scientifique
المدرسة العليا للإعلام الآلي .08 ماي 1945. بسيدي بلعباس
École Supérieure en Informatique
-08 Mai 1945- Sidi Bel Abbès



THESIS

To obtain the diploma of **Master**
Field: **Computer Science**
Specialty: **Ingénierie des Systèmes Informatiques (ISI)**

Theme

**The Application of Deep Learning in Financial Time
Series Forecasting**

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Submission Date: **June, 2022**
In front of the jury composed of:

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Academic Year : 2021/2022

Abstract

Financial time series forecasting is a challenging problem at the intersection of finance and computer science. It is the most widely known subset of artificial intelligence for finance researchers in both academic field and the finance sector due to its widespread application areas and great impact. Researchers in machine learning have developed numerous models, and a great number of related studies have been published. Accordingly, there are a significant amount of publications covering machine learning studies on financial time series forecasting.

Recently, deep learning models have emerged in the sector, greatly outperforming the classical machine learning approaches. Therefore, the purpose of this study is to present a comprehensive state-of-the-art of deep learning researches on the implementation of financial time series forecasting. The study begins with an introduction to artificial intelligence, the financial industry, and the fundamentals of trading. In addition to this, providing a review of the problem "financial time series forecasting" across a variety of markets and exploring the various approaches discussed in the relevant academic literature. We classified the papers according to their intended application areas for forecasting, namely the cryptocurrency, stock, and forex markets, and we picked the most recent and well-known deep learning models, such as LSTM, GRU, and CNN...

Keywords— Deep Learning, Machine Learning, Artificial Intelligence, Time Series, Technical Analysis, Financial Forecasting, LSTM, GRU, CNN