

Internship - Financial Forecasting With Deep Learning

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1 Description

In this internship, we propose to study the problem of financial forecasting, i.e., predicting the future variation of the price of a financial instrument, using deep learning. The student will work on a new data source with a finer granularity than existing datasets. Because of the difficulty of obtaining data, previous works focused on price prediction at the scale of a day, a week, or a month. Our new dataset contains intraday information. Therefore, we can predict the price within a day and use multi-scale analysis. Besides, our new dataset contains different kinds of financial instruments (FOREX, crypto, options, futures) and additional information about the companies (description, financial reports, dividends).

2 Planning

In previous work, we studied the limitations of the current financial forecasting models. We concluded that there is a problem with the current training objectives and evaluation metrics. In the first part of this internship, the student will have to study our previous results and the tools we developed. Then, they will explore the existing metrics that can be used to train a model and eventually propose new metrics that can tackle the particular challenges.

This internship aims to publish results at a top conference.

3 Prerequisites

The intern should be involved in a master's program and have a good knowledge of machine learning, deep learning, and data processing. A good understanding of Python and the standard libraries used in data science (scikit-learn, PyTorch, pandas) is also expected. A previous experience with finance is appreciated but not required for this internship.

4 Work Environment

The internship will take place at Telecom SudParis, in Palaiseau. The intern will join the computer science department. The internship is paid and will last six months.

If you are interested, please send me your resume, a transcript of your grades, and a cover letter (in French or English).