

PhD THESIS ABSTRACT

PhD Candidate: Francesco Corea

Thesis Title:
Essays on Machine Learning for Economics and Finance

Keywords:

Sentiment Analysis; Big data; Insurance analytics; Regularization; Stepwise regression; Entrepreneurship.

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Thesis Committee:
Prof. Giuseppe Ragusa, LUISS Guido Carli University
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Prof. *Name Surname, Institution*

Abstract

The first chapters (Chapter 1 - 4) are going to introduce the new wave called machine learning or big data and they will explain the most common techniques used in the field, respectively regression, clustering, model selection, and tree-based models (Chapter 2); time series analysis (Chapter 3); and forecasting model with shrinkage methods (Chapter 4). Then, three applications are going to be provided.

In Chapter 5, it will be provided evidence against the adverse selection issue in European insurance markets. In this study, contrarily to Rothschild and Stiglitz (1976), we see low risk profile agents are the ones who buy more insurance.

In Chapter 6, a second application is going to be provided. It has been studied the effect of behavioural biases on entrepreneurial choices to insure their firms against kinds of corporate risks, finding that they under-insure themselves.

In Chapter 7, finally, an application to financial markets is going to be shown. The purpose of this study is to verify whether social data may have a predictive power for the stock prices, returns, and volumes. The analysis has been implemented for different large technology companies and the evidence shows that there is some intrinsic value in these new features, and that both the sentiment and the amount of tweets posted online can improve the forecast given by a baseline autoregressive model. Some additional variations have been tested eventually with the same dataset.