



XXXV SALÃO de INICIAÇÃO CIENTÍFICA

6 a 10 de novembro

Evento	Salão UFRGS 2023: SIC - XXXV SALÃO DE INICIAÇÃO CIENTÍFICA DA UFRGS
Ano	2023
Local	Campus Centro - UFRGS
Título	Predicting football matches results with PoARX-Copula models
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Abstract

Justification: Football, year after year, becomes a sport that increasingly moves billions of dollars around the globe. Thus, in recent times, there has been a great interest in predicting the matches results. Fitting a Poisson Model to the goals scored by a team in a competition has become a basic tool for these analyses and other approaches have also been used. In this context, Poisson Autoregressive with Exogenous Covariates is an attractive option, since both past number of goals and other relevant covariates can be included in the model to bring additional predictive information. Furthermore, taking into account (via copulas) a possible nonlinear dependence between the number of goals pro and against can improve the predictions. **Objectives:** Perform counts time series forecasting using copula. We analyze and compare the forecasting performance of the methods. **Methods:** In this work we integrate Poisson Autoregressive with Exogenous Covariates and Copula (PoARX-Copula) models for predicting the results of the last 2022/23 Football Premier League Season matches in England. We evaluate and compare the forecasts obtained with distinct dependence settings for scored goals by home and away teams. In addition, we test the use of covariates to explain the strengths and weaknesses of the opponents. Finally, we assess how the use of copulas affects the predictions of the matches results, since the assumption of independence between home and away number of scored goals is common in this context. **Results:** In our results we see that the independent model with covariates performed best in our sample analysis and the PoARX-Copula was the second best performer. It's interesting to explore more seasons in the training data set and more results for testing data. Other covariates and values for model parameters can be explored for forecasting accuracy.

Keywords: football results, copulas, PoARX, predictions, Premier League.
