A combined and enhanced statistical learning model for the prediction of the EURO 2024 tournament

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Abstract. Conventional approaches that analyze and predict the results of international matches in football are mostly based on the framework of Generalized Linear Models. The most frequently used type of regression models in the literature is the *Poisson model.* It has been shown that the predictive performance of such models can be improved by combining them with different regularization methods such as penalization (see, e.g., Groll and Abedieh, 2013; Groll et al., 2015).

More recently, also methods from the machine learning field such as *boosting* (Groll et al., 2018) and *random forests* (Groll et al., 2019) turned out to be very powerful in the prediction of football match outcomes. Here, we propose our current modeling approach, which based upon our previous research, namely a combined and enhanced statistical learning model for the prediction of the EURO 2024 tournament which is promising with regard to prediction performance. The model is fitted to match data from previous UEFA European Championships (EUROs) and based on the corresponding estimates all match outcomes of the EURO 2024 are repeatedly simulated (100,000 times), resulting in winning probabilities for all participating national teams.

Keywords: Football, UEFA European Championships, Forecasting, Machine Learning.

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