

Ranking news feed updates on social media: A comparative study of supervised models

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Abstract. Social media users are overwhelmed by a large number of updates displayed chronologically in their news feed. Moreover, most updates are irrelevant. Ranking news feed updates by relevance has been proposed to help users catch up with the content they may find interesting. For this matter, supervised learning models have been commonly used to predict relevance. However, no comparative study was made to determine the most suitable models. In this work, we select, analyze, and compare six supervised learning algorithms applied to this case study. Experimental results on *Twitter* highlight that ensemble learning models are the most appropriate to predict the relevance of updates.

1 Introduction

Social media such as *Facebook*, *Twitter*, and *LinkedIn* are used by hundreds of millions of users worldwide. Due to the large number of members and the large amount of data posted and shared, users are overcome by a flow of updates displayed chronologically in their news feed (Ghazimatin et al., 2019). For example, a survey of 587 *Twitter* users showed that 66.3% of them cannot keep up with the large number of updates in their news feed (Bontcheva et al., 2013). Moreover, most of those updates are considered irrelevant. For example, the survey of 587 *Twitter* users revealed that 70.4% of them have trouble finding the relevant updates in their news feed (Bontcheva et al., 2013). Therefore, large data volume and irrelevance make it difficult for users to catch up with the relevant updates in their news feed (Piao and Breslin, 2018).

In several research approaches, ranking news feed updates in descending relevance order has been proposed to help users quickly catch up with the content they may find interesting (Vougioukas et al., 2017). For this matter, supervised learning models have been commonly used and seem suitable to rank news feed updates (Belkacem et al., 2019). Indeed, using labeled training data, these models analyze users' past behaviors to predict whether they will find an update relevant or not in the future (Sammut and Webb, 2011). However, each research