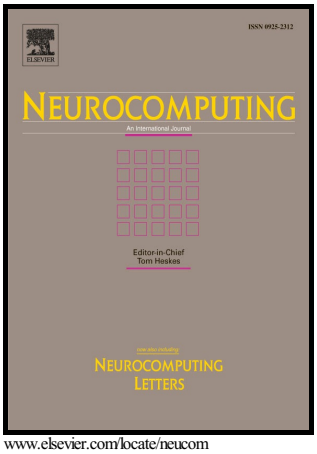

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Predicting the Popularity of Viral Topics Based on Time Series Forecasting

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Abstract

Thanks to social media platforms, topics get diffused online. The ones which diffuse rapidly and widely are known as viral topics. Predicting the popularity of viral topics is important to online recommendation systems and marketing services. However, the task is still challenging due to the fact that the popularity of viral topics is highly dynamic and little research has been focused on how to predict the popularity accurately for viral topics. This paper first uses data collected from the largest BBS in China to show that there is high correlation for the short-term popularity of viral topics. Based on this finding, this paper then utilizes a time series feature space to capture the behaviors of popularity of viral topics and present a method for predicting the short-term popularity of a given viral topic by using only data of historical popularity of the topic. This paper demonstrates that our method outperforms a baseline model and one of the most sophisticated methods in the terms of MAPE (mean absolute percentage error) and RAE (relative absolute error). Furthermore, this paper gives out how long the minimum observation period is in order to predict promptly. Finally, this paper uses two cases to show the effectiveness and simplicity of our method.

Keywords: popularity prediction, viral topics, time series forecasting, viral topic behavior

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