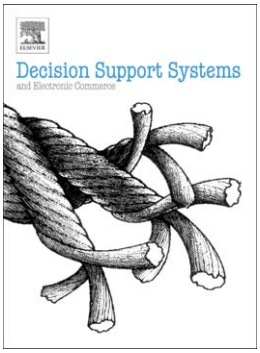

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Predicting Process Behaviour using Deep Learning

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Abstract

Predicting business process behaviour is an important aspect of business process management. Motivated by research in natural language processing, this paper describes an application of deep learning with recurrent neural networks to the problem of predicting the next event in a business process. This is both a novel method in process prediction, which has largely relied on explicit process models, and also a novel application of deep learning methods. The approach is evaluated on two real datasets and our results surpass the state-of-the-art in prediction precision.

Keywords: Process management, Runtime support, Process prediction, Deep learning, Neural networks

1. Introduction

Being able to predict the future behaviour of a business process is an important business capability (Houy et al., 2010). As an application of predictive analytics in business process management, process prediction exploits data on past process instances to make predictions about current ones (Breuker et al., 2016). Example use cases are customer service agents responding to inquiries about the remaining time until a case is resolved, production managers predicting the completion time

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