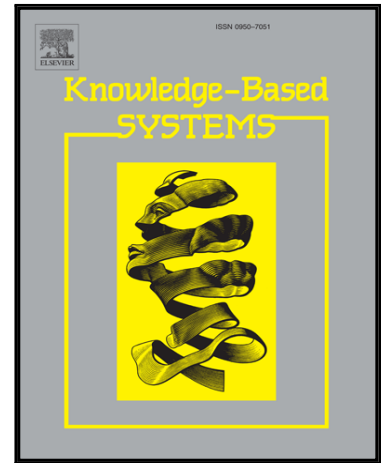


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# A deep learning-based sports player evaluation model based on game statistics and news articles

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## Abstract

Player evaluation is a key component of the question-answering (QA) system in sports. Since existing player evaluation methods heavily rely on game statistics, they cannot capture the qualitative impact of each player during a game, which can be exploited using news articles after the game. In this paper, we propose a deep learning-based player evaluation model by combining both quantitative game statistics and the qualitative analyses provided by news articles. Players are classified as positive or negative based on their performance during certain periods, and news articles in the same period are annotated using the player's class. Then, the relationship between news articles and the annotated polarity is investigated by a deep neural network, which can deal with the high dimensionality of the text data. Since there is no explicit polarity label for news articles, we use the change in game statistics in target periods to annotate related sentences. The proposed system is applied to a Korean professional baseball league (KBO) and it is shown to be capable of understanding the sentence polarity of news articles on player performances.

*Keywords: sports player evaluation, deep neural network, sentence polarity, baseball*

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