



# Impact of word embedding models on text analytics in deep learning environment: a review

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## Abstract

The selection of word embedding and deep learning models for better outcomes is vital. Word embeddings are an n-dimensional distributed representation of a text that attempts to capture the meanings of the words. Deep learning models utilize multiple computing layers to learn hierarchical representations of data. The word embedding technique represented by deep learning has received much attention. It is used in various natural language processing (NLP) applications, such as text classification, sentiment analysis, named entity recognition, topic modeling, etc. This paper reviews the representative methods of the most prominent word embedding and deep learning models. It presents an overview of recent research trends in NLP and a detailed understanding of how to use these models to achieve efficient results on text analytics tasks. The review summarizes, contrasts, and compares numerous word embedding and deep learning models and includes a list of prominent datasets, tools, APIs, and popular publications. A reference for selecting a suitable word embedding and deep learning approach is presented based on a comparative analysis of different techniques to perform text analytics tasks. This paper can serve as a quick reference for learning the basics, benefits, and challenges of various word representation approaches and deep learning models, with their application to text analytics and a future outlook on research. It can be concluded from the findings of this study that domain-specific word embedding and the long short term memory model can be employed to improve overall text analytics task performance.

**Keywords** Word embedding · Natural language processing · Deep learning · Text analytics

## 1 Introduction

This research investigates the efficacy of word embedding in a deep learning environment for conducting text analytics tasks and summarizes the significant aspects. A systematic literature review provides an overview of existing word embedding and deep learning models. The overall structure of the paper is shown in Fig. 1.

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