

Abstract

Temporal information plays a large role in a vast amount of textual data in the world. A key component in the human understanding of text is the identification of the chronological ordering of events and times within a document. Natural language processing systems cannot yet identify such temporal relationships with acceptable degrees of accuracy. The project presented in this paper evaluates various convolutional neural network architectures with successively dilated convolutional layers to address the problem of temporal relation extraction. XML encoded word embeddings derived directly from tokens in the TimeBank 1.2 data set are used as inputs to the system. Part-of-speech tag embeddings are also found to perform well as replacements for corresponding word embedding inputs. Finally, the use of an embedding layer is evaluated in place of random word embeddings. The best performing model is a three-layer successively dilated convolutional neural network with dropout.