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IEEE/ACM Transactions on Audio, Speech and Language Processing - Special issue on continuous-space and related methods in natural language processing

Natural Language Processing (NLP) aims to analyze, understand, and generate languages that humans use naturally. Significant progress in NLP has been achieved in recent years, addressing important and practical real-world problems, enabling mass deployment of large-scale systems. New machine learning paradigms such as deep learning and continuous space methods have contributed to inferring language patterns from increasingly large real-world data and to making predictions about new data more accurate.

One of the challenges in NLP is to represent language in a form that can be processed effectively by computing algorithms. Words in sequence are traditionally treated as discrete symbols, which has its advantages and limitations. The research on continuous space methods provides a promising alternative that describes words and their semantic and syntactic relationships in a different way. In continuous space language modeling, we represent words with real-valued vectors. In this way, conditional probability distributions of words can be learned and expressed as smooth functions of these vectors; similar words are therefore described as neighbors in a continuous space. A Neural Network Language Model is a typical example of such continuous space methods.

Building on the success of acoustic and statistical language modeling, research on artificial (deep) neural networks and continuous space models in general has seen significant progress in mitigating data sparseness, incorporating longer contexts, and modeling morphological, syntactic and semantic relationships across words. As a result, continuous space models are now embedded in many state-of-the-art speech recognition and machine translation systems. This special issue provides a forum to discuss the latest findings on research problems related to the application of continuous space and related models in NLP. We invite papers on various NLP topics, including but not limited to:

* Automatic speech recognition
* Speaker recognition
* Language modeling
* Machine translation
* Spoken language understanding
* Spoken document retrieval

* Text mining
* Computational semantics
* Morphological analysis
* Syntactic parsing
* Discourse and dialogue
* Machine learning methods

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* Notification of first round review: Oct. 1, 2014
* Notification of acceptance: Dec. 1, 2014
* Final manuscripts due: Dec. 15, 2015

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