

## 論文の内容の要旨

論文題目    Joint Learning for Task-Oriented Representations in  
Natural Language Processing  
(自然言語処理におけるタスク指向表現の同時学習)

氏    名    橋本 和真

Neural networks have been actively applied in the field of natural language processing in the recent years. Most of the neural network models in this field try to learn representations of meanings of words, phrases, sentences, and documents, using mathematical expressions. In existing neural network models in natural language processing, the overall systems are pipelined; that is, the overall systems consist of several sub-processes such as pre-processing (e.g., word segmentation and syntactic parsing). Moreover, each task is often handled separately, which leads to the absence of task-oriented information in lower-layer tasks, and to error propagations throughout the overall systems. In this dissertation, I propose joint learning methods to incorporate task-oriented information into representation learning for natural language processing. In experiments, I empirically show that learning task-oriented word embeddings, learning task-oriented semantic compositionality of phrases, and learning latent graph structures for sentences by a joint many-task model are all effective in improving accuracy on corresponding target tasks. I believe that the proposals in this dissertation have the promising potential to break the limitations in the existing pipelined natural language processing tasks.