

# Use of Item Features for Initializing Item Embedding in Session-based Recommender Systems

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*Abstract*—Session-based recommender systems aim to predict the transitions of user preferences in a short session. Recently, some recurrent neural networks (RNNs) have been proposed to model the transitions of user preferences. These approaches focus on resolving the long-term dependency and interest drift problems by modifying the RNN structure and employing appropriate loss functions. The inputs to the RNN of these methods are the feature vectors obtained via item embedding which is randomly initialized. In this paper, we observe that the performance of such RNN-based systems can be improved by initializing item embedding with item features obtained by an autoencoder. In particular, we show that conventional gated recurrent unit (GRU) with conventional cross-entropy loss function can outperform the-state-of-the-arts when the proposed initialization for item embedding is employed. It is shown that the proposed GRU-based system is considerably simpler to implement than the recent RNN-based techniques.