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Home >> List of Issues >> Table of Contents >> Abstract

<< previous article | next article >>

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Inside the Journal

About COLI
Editorial Info
Abstracting and Indexing

Release Schedule
Advertising Info
Rights & Permissions
Submission Guidelines
Most Downloaded Articles
Most Cited Articles
Publication Agreement
Author Rights & Permissions FAQ

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Cross-lingual Sentiment Lexicon Learning With Bilingual Word Graph Label Propagation

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In this article we address the task of cross-lingual sentiment lexicon learning, which aims to automatically generate sentiment lexicons for the target languages with available English sentiment lexicons. We formalize the task as a learning problem on a bilingual word graph, in which the intra-language relations among the words in the same language and the inter-language relations among the words between different languages are properly represented. With the words in the English sentiment lexicon as seeds, we propose a bilingual word graph label propagation approach to induce sentiment polarities of the unlabeled words in the target language. Particularly, we show that both synonym and antonym word relations can be used to build the intra-language relation, and that the word alignment information derived from bilingual parallel sentences can be effectively leveraged to build the inter-language relation. The evaluation of Chinese sentiment lexicon learning shows that the proposed approach outperforms existing approaches in both precision and recall. Experiments conducted on the NTCIR data set further demonstrate the effectiveness of the learned sentiment lexicon in sentence-level sentiment classification.

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