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Transfer collaborative filtering from multiple sources via consensus regularization

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Abstract

Collaborative filtering is one of the most successful approaches to build recommendation systems. Recently, transfer learning has been applied to recommendation systems for incorporating information from external sources. However, most existing transfer collaborative filtering algorithms tend to transfer knowledge from one single source domain. Rich information is available in many source domains, which can better complement the data in the target domain than that from a single source. However, it is common to get inconsistent information from different sources. To this end, we proposed a *TRAnsfer* collaborative filtering framework from multiple sources via *ConsEnsus* Regularization, called TRACER for short. The TRACER framework handles the information inconsistency with a consensus regularization, which enforces the outputs from multiple sources to converge. In addition, our algorithm is to learn and transfer knowledge at the same time while most of the traditional transfer learning algorithms are to learn knowledge first and then transfer it. Experiments conducted on two real-world data sets validate the effectiveness of the proposed algorithm.

Keywords: collaborative filtering, transfer learning, multiple sources, consensus regularization

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