

TRANSFER LEARNING

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Abstract. Transfer learning has emerged as a new machine learning framework that investigates how to transfer knowledge from auxiliary source domains to facilitate a new learning task in the domains of interest. Transfer learning is especially useful when the data of each task has a low sample size, in which case transfer learning allows for the use of data of other related tasks in an appropriate way, to compensate for the sample shortage in each learning task. The idea behind transfer learning is that the involved domains share some common latent information (transfer factors or transfer components), which can be uncovered and exploited using different techniques as the bridge for knowledge transfer.

This work presents several algorithms for transfer learning and their application to various learning scenarios: bioinformatics, medical image analysis, preference learning, etc.