



Department of Computer Science
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Presents

Support Multi-mode Tensor Machine for Multiple Classification

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In recent years, the support vector machines (SVM) have been very successful in the two-class classification. However, with the advent of the era of big data, the multi-label data which has spatial structure information and various categories has been widely used in many fields, such as computer vision, machine learning, image processing area and so on. The traditional vector-based and feature aligned SVM algorithm can lead to the loss of structural information. Although the support tensor machine (STM) that utilizes a projection in each mode has extended the traditional vector-based machine learning techniques to tensor space model, it only classifies the data from one single view. How to formulate an accurate framework for the multiple classification is still a very challenging task in the tensor space model. In this thesis proposal, we exploit the advantages of the tensor-based framework and propose a Support Multi-mode Tensor Machine for multiple classification and a corresponding efficient solution. For the first time, we apply the multi-mode product in the formulation with tensor information as the input directly and meanwhile achieve multiple classification. Preliminary experimental results show that advantages of the proposed algorithm.