Abstract

Support vector machines (SVMs), though perfect, are not chosen in applications requiring great classification speed, due to the number of support vectors being large. To conquer this problem we devise a primitive method with the following properties: (1) it decouples the idea of basis functions from the concept of support vectors; (2) it materialistically finds a set of kernel basis functions of a specified maximum size ($d_{\text{max}}$) to approximate the SVM primitive cost function.
well; (3) it is efficient and roughly scales as $O(n d_{max}^2)$ where $n$ is the number of training examples; and, (4) the number of basis functions it requires to accomplish an accuracy close to the SVM accuracy is usually far less than the number of SVM support vectors.

References


Index Terms

Computer Science

Information Science

Keywords

Support Vectors (svs)  Svms  Classification  Sparse Design.