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A review of optimization algorithms in SVM parameters

Abstract

The SVM is a widely known machine learning, which is very useful for regression applications and pattern classification. These machines have been used successfully in several domains to address numerous real-world challenges. In this context, parameter optimisation for an SVM is a widely researched topic, which has attracted attention from several research domains. Algorithms facilitating optimisation have been of greater interest compared to other algorithms. Algorithmic approaches allow the optimal parameters for an SVM to be determined, after which the model can be adapted for several other applications. During the last two decades, several enhancements have been brought about to facilitate better optimisation of SVM models to offer enhanced performance. This paper focuses on the several algorithms currently employed to optimise support vector machines in their basic and modified forms. This paper comprises a comprehensive analysis of algorithms and aims to ascertain the present challenges relating to algorithms used for SVM parameter optimisation. This study cannot evaluate all the details; however, the significant theoretical aspects are covered using references to existing literature.