Abstract

In this paper, the basic concepts and survey of the available literature on Support Vector Machines (SVM) in data mining and soft computing research area is provided. While at the time of survey several new methods were found related to SVM like as Support Vector Representation and Discrimination Machine (SVRDM), Recursive SVM (RSVM), On-line Independent SVM (OISVM), Pruning SVM, Fast Nearest Neighbor Condensation classifier (FCNN-SVM), Improved SV Clustering (iSVC), Cost-sensitive SVM (2v-SVM), 2C-SVM, Profile SVM (PSVM), Twin SVM (TWSVM), Twin Bounded SVM (TBSVM), Parametric-margin n-SVM (par-n-SVM), Twin Parametric-Margin SVM (TPMSVM), Structural Twin SVM (S-TWSVM), Hierarchical Linear SVM (H-LSVM), Bio-SVM, FuzzySVM-CIL, Kernel Fuzzy C-Means clustering-based Fuzzy SVM (KFCM-FSVM), Multi-Class Instance Selection (MCIS). After studied these methods a comparative and analytical survey upon those methods are presented here. Also a large future scope is available on several techniques and they are discussed in this paper.
- Jiawei Han, Micheline Kember, Jian Pei, "Data Mining Concepts and Techniques", 3rd Edition, Morgan Kaufmann, 2012.
- Pei-Yi Hao, "New support vector algorithms with parametric insensitive/margin model", Neural Networks 23 (2010) 60–73.
- Masayuki Karasuyama, Student Member, IEEE, and Ichiro Takeuchi, Member, IEEE, "Multiple Incremental Decremental Learning of Support Vector Machines", IEEE Transactions on Neural Networks, Vol. 21, No. 7, July 2010.
- Ricardo Santiago-Mozos, Member, IEEE, Fernando Pérez Cruz, Senior Member, IEEE, and Antonio Artés-Rodríguez, Senior Member, IEEE, "Extended Input Space Support Vector Machine", IEEE Transactions on Neural Networks, Vol. 22, No. 1, January 2011.
- Xinjun Peng, "TPMSVM: A novel twin parametric-margin support vector machine
- Sangjun Lee, Changyi Park, Ja-Yong Koo, “Feature selection in the Laplacian
- Pengfei Zhu, Qinghua Hu, “Rule extraction from support vector machines based on consistent region covering reduction”, Knowledge-Based Systems 42 (2013) 1–8, SciVerse ScienceDirect.

**Index Terms**

Computer Science  
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**Keywords**

Data Mining  
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SVM  
Maximum Margin  
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Kernel Trick.