# Computational Reduction Method for Support Vector Machine

By

### Ms. Ritu Ramkumar Agrawal 110370702006

Ms. Purnima Singh M.Tech. (CS) Assistant Professor Computer Science & Engineering Department Parul Institute of Engineering & Technology Limda, Vadodara

A Thesis Submitted to Gujarat Technological University in Partial Fulfillment of the Requirements for the Degree of Master of Engineering in Computer Engineering

MAY 2013



Computer Science & Engineering Department, Parul Institute of Engineering & Technology Limda, Vadodara – 390019, Gujarat

# "Computational Reduction Method for Support Vector Machine"

Submitted By

Ritu R. Agrawal

#### Supervised By

Ms. Purnima Singh M.Tech (C.S.), Assistant Professor

## ABSTRACT

The data classification is the main analyzing method for the information extracting. Classification in data mining has gained a lot of importance in literature and it has a great deal of application areas from medicine to astronomy, from banking to text classification, and so on. It can be described as supervised learning algorithm as it assigns class labels to data objects based on the relationship between the data items with a pre-defined class label. The classification techniques are help to learn a model from a set of training data and to classify a test data well into one of the classes.

This dissertation builds upon the ideas introduced work by Vladimir N. Vapnik, Y. J. Lee and O. L. Mangasarian in *Support Vector Machine for data Classification Problems*. This research is related to the study of the existing SVM classification algorithm and new scheme that reduces the complexity of SVM. The proposed scheme describes the new scheme based on computational reduction in support vector machine that provides reasonably increase the evaluation speed without affecting the performance of the standard support vector machine. It helps other researchers in studying the existing algorithms as well as developing innovative algorithms for applications or requirements which are not available. From the results, we conclude that with the help of proposed RSV approach, no. of support vectors for temporal dataset reduces compared to standard SVM. Hence it gives faster execution and better performance for real time large databases applications. Therefore Efficiency of SVM algorithm should also increase in case of temporal dataset analysis compared to standard SVM.