Support Vector Machines

By

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ABSTRACT

Support Vector Machines is a supervised machine learning technique invented by Vladmir N. Vapnik and Alexey Ya. Chervonenkis in 1963. SVMs are generally used for creating a hyperplane, from which can be used for classifying information with n-dimensions or features. In this project, this machine learning technique will be applied to classifying a set of data points belonging to one of multiple classes, as to which class it best represents.

The application will be a form of color recognition utilizing SVMs. The colors can be represented as vectors of (red, green, blue) components and the SVM will attempt to classify the input using the created hyperplane.

Incremental Design:

I will start with writing the SVM for this particular application using a query to the user to test how well a particular color was classified. Later I will expand on this using visualization tools to show the hyperplane drawn, to provide a better benchmark for its performance.

(Optional):

An additional part to testing the work of SVMs, could be using a linear kernel technique to provide a way to accurately classify input with lots of features. Another addition to the project could be to classify written numbers, where the pictures would be of a small pixel density and the numerical data itself, could be represented again by color vectors.