

A Hybrid System for Boreholes Soil Sample

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Abstract : Data reduction is an important topic in the field of pattern recognition applications. The basic concept is the reduction of multitudinous amounts of data down to the meaningful parts. The Principal Component Analysis (PCA) method is frequently used for data reduction. The Support Vector Machine (SVM) method is a discriminative classifier formally defined by a separating hyperplane. In other words, given labeled training data, the algorithm outputs an optimal hyperplane which categorizes new examples. This study offers a hybrid approach that uses the PCA for data reduction and Support Vector Machines (SVM) for classification. In order to detect the accuracy of the suggested system, two boreholes taken from the soil sample was used. The classification accuracies for this dataset were obtained through using ten-fold cross-validation method. As the results suggest, this system, which is performed through size reduction, is a feasible system for faster recognition of dataset so our study result appears to be very promising.

Keywords : feature selection, sequential forward selection, support vector machines, soil sample

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