Genetic Algorithm and Tabu Search for Feature Selection

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Abstract: In this paper we propose a wrapper approach to select features involving the Support Vector Machines (SVM) combined with a metaheuristic optimization algorithm: Tabu Search and Genetic Algorithms. Feature selection is efficient in searching the most descriptive features which would contribute in increasing the performance of the inductive algorithm by reducing dimensionality and processing time. The process we propose is based on the use of the rate of misclassification as an evaluating criterion. First, we used the tabu algorithm to guide the search of the optimal set of features; then a genetic algorithm is implemented to reach the same goal. This procedure is applied on data from regulation of urban transport network systems. A comparison between the performances of each search engine (TS and GAs) used is then presented.

Keywords: Features Selection, Support Vector Machines, Tabu Search, Genetic algorithm and urban transport regulation.