Abstract

Today’s real world faces different kinds of complex optimization problems. The existing methodologies can’t cope of with such complex problems. This paper presents classification rule mining as a multi-objective problem rather than a single objective one. Multi-Objective optimization is a challenging area and focus for research. Here two modern domains of research are discussed one is swarm intelligence and other is data mining. In this paper PSO is taken as a swarm intelligence algorithm and classification rule mining is taken as the problem domain. In classification rule discovery, classifiers are designed through the following two phases: rule extraction and rule selection. In the rule extraction phase, a large number of classification rules are extracted from training data. This phase is based on two rule evaluation criteria: support (coverage) and confidence. An association rule mining technique is used to extract classification rules satisfying pre-specified threshold values of minimum support (coverage) and confidence. In second phase, a small number of rules are targeted from the extracted rules to design an accurate and compact classifier. In this paper, I used PSO for multiple objective rule selection to maximize the accuracy of the rule sets and minimize their
complexity.

References


PSO based Swarm Intelligence Technique for Multi-Objective Classification Rule Mining


Index Terms

Computer Science

Information Sciences

Keywords

Classification, multi-objective optimization, particle swarm optimization, multi-objective classification problem, pattern recognition, data mining.