PERFORMANCE TEST OF HYBRID SUPPORT VECTOR MACHINE AND SIMULATED ANNEALING FOR PATTERN RECOGNITION PROBLEM

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ABSTRACT

Analysis and pattern recognition is one of the methods assigned to recognize the data pattern and plays an important role in artificial intelligence and computer science problem. One example of the problem is pattern recognition in biomedical data classification such as data Hepatitis and Breast Cancer. The biomedical data requires high accuracy since the results of the decision will affect someone’s health.

In this final project, Support Vector Machine method will be applied to solve classification problems for some dataset, especially in biomedical pattern recognition. SVM methods will be combined with Simulated Annealing algorithm as SVM algorithm parameter selection. The final project also implements the Gradient Descent method as kernel weighting method to improve the accuracy. Hybrid of SVM method, SA, and weighted kernel on the test data will generate up to 98.75% accuracy. Based on the test results, the hybrid of SVM method, SA, as well as the weighted kernel can maximize classification accuracy.

Keywords: Classification, Support Vector Machine, Simulated Annealing, Parameter Optimization.