Hybrid Self-Organizing Map Approach for Traveling Salesman Problem

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ABSTRACT

As efficient planning and design of transportation route can reduce transportation cost of an organization, the development of an effective algorithm for solving this problem can be used as a guideline for developing the route and transportation cost. Currently, several studies focus on the study and development of the Traveling Salesman Problem (TSP), which is largely similar to transportation route. One of the algorithms that helps solve this type of problem quickly is the Self-Organizing Map (SOM), which is adapted from the Artificial Neural Networks algorithm. However, using SOM to solve TSP problem does not provide the shortest path, nor is it the optimal solution. Therefore, this study aims to develop the solution based on SOM together with Local Search algorithm to provide better quality solution. The results of this research, both in terms of processing time and quality of solution, were compared to the results of previous research. The findings indicated that the solution from the proposed algorithm improved the processing time when compared to every problem in previous research.

Keywords: Hybrid, Traveling Saleman Problem (TSP), Self-Organizing Map (SOM), Algorithm