Dijkstra Algorithm Heuristic Approach for Large Graph

Sahar Idwan and Wael Etaiwi

ABSTRACT

In this study, we developed an algorithm that improves a Dijkstra implementation in a large and dense graph based on hMetis partitioning. hMetis is a hyper graph partitioning algorithm that divides the massive graph into sub-graphs. The algorithm is called h-Dijkstra consists of pre-processing the flat graph by partitioning it onto a sub graph then building a two-level hierarchal graph. The shortest path algorithm computes on the top-level graph. Our experimental results show the dominance of our algorithm over the traditional Dijkstra algorithm and other alternative solutions based on the time and the number of Input/Output (I/O) operations.