A Comparative Study on Analysis of Various Shortest Path Algorithms on GPU using OPENCL

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Abstract

Finding shortest path for various applications is important in various domains. But to provide result for complex graphs in real time is a challenging task. So in this paper four shortest path algorithms namely Dijkstra’s algorithm, Floyd Warshall, Bellman Ford and Jhonsons algorithm are studied and analyzed to detect parallelism in them and the parallelized version of all three is implemented using parallel computing framework OpenCL. It is found that Bellman Ford and Floyd Warshall contains fine grained parallelism while Jhonsons has less parallelism.

References


**Index Terms**

Computer Science  
Algorithms

**Keywords**

Bellman-Ford, Dijkstra, Floyd Warshall