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PARALLEL GENETIC ALGORITHMS FOR SHORTEST PATH ROUTING IN HIGH- PERFORMANCE COMPUTING

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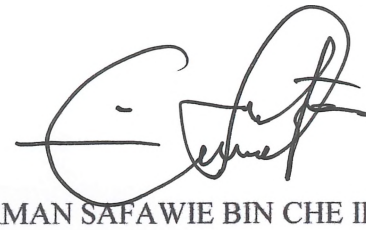
DECLARATION

I certify that this thesis and the research to which it refers are the product of my own work and that any ideas or quotation from the work of other people, published or otherwise are fully acknowledged in accordance with the standard referring practices of the discipline.



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ABSTRACT

Nowadays, there are a lot of applications that affect the speedup of a computer which reduce its performance. High-performance computer is important because it is implemented in sectors where distributed parallel computing is needed to solve large scientific problems such as storing and processing large amounts of data. This project focuses on step-up cluster computing and a parallel Genetic Algorithm. The objectives of this project to set-up Beowulf cluster computer to apply the Travelling Salesman Problem in parallel by using Genetic Algorithms and evaluate sequential algorithms and parallel algorithms by Genetic Algorithms. This project has the capability to reduce the execution time of application problem using parallel algorithms to increase efficiency of cluster computing. As a result, the network system successfully set-up by clustering computer that named Beowulf clusters and the application problem can be tested on this set-up to show that an increase in processing efficiency by manipulating the reduced communication latency among processors or compute nodes. This project recommended that the efficiency of the algorithm can also be improved by dynamically varying the set-up with other more powerful processor, more main memory capacity as well as faster interconnects. Hopefully, that this project will give benefits to all students and lectures to do the right research direction and fortunately this will provide future research work with ample room for problem testing and measurement of parallel processing.

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