

Abstract Submitted  
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**The Deutsch-Jozsa algorithm as a suitable framework for MapReduce in a quantum computer** SAMIR LIPOVACA, None — The essence of the MapReduce paradigm [1] is a parallel, distributed algorithm across hundreds or thousands machines. In crude fashion this parallelism reminds us of the method of computation by quantum parallelism which is possible only with quantum computers. Deutsch and Jozsa [2] showed that there is a class of problems which can be solved more efficiently by quantum computer than by any classical or stochastic method. The method of computation by quantum parallelism solves the problem with certainty in exponentially less time than any classical computation. This leads to question would it be possible to implement the MapReduce paradigm in a quantum computer and harness this incredible speedup over the classical computation performed by the current computers. Although present quantum computers are not robust enough for code writing and execution, it is worth to explore this question from a theoretical point of view. We will show from a theoretical point of view that the Deutsch-Jozsa algorithm is a suitable framework to implement the MapReduce paradigm in a quantum computer. References: [1] Chuck Lam, *Hadoop in Action*, (Manning Publications Co. Greenwich, CT, USA ©2010). [2] Deutsch, D., Jozsa, R. 1992 *Proc. R. Soc. Lond. A* 439, 553-558.

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None

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