Is the evolution of search algorithms finished?

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Group 933/2

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F.2 ANALYSIS OF ALGORITHMS AND PROBLEM COMPLEXITY

F.2.2 Nonnumerical Algorithms and Problems

Sorting and searching

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2. History and Evolution of Search Algorithms
3. Latest step: Quantum Search, ElasticSearch and OpenSearch
4. Experimenting with OpenSearch
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# The Applicative Part of the Paper

The main purpose of this paper is to emphasize on the idea that search algorithms are always on the verge of evolution and that there will always be an increasing demand for search algorithms to perform faster and on much larger data sets.

The methodologies used to prove the statement above will be the following. I will research articles, reports and books on the topic of search algorithms to observe their evolution process and to find out more about upcoming demands. Moreover, I want to study the data already published about results and comparisons on old and current search algorithms highlighting the massive difference and improvements when it comes to algorithms such ElasticSearch and Grover’s algorithm. As for personal experimentation in this domain I will use the following methods and tools: using Amazon OpenSearch Service to search and analyze on big data (petabytes of test and unstructured data), study the results and compare my own practical evolutions and tests to data already published on the reflected topic.

The expected results will provide answers to the research questions as well as proving the efficiency and correctness of the newly and evolved search algorithms. Furthermore it will show that with the increasing demand for the current versions of the algorithms, they will have to continually evolve and new discoveries will have to be made, similar to the case of Quantum Computers.

# Possible Original Contributions

My approach to an original contribution will consist of the following. I will be testing the newest search algorithm by using the AWS OpenSearch with data sets of different sizes and structures and the results as well as the computation times will be processed and compared. I also want to make a prediction on the possible evolution of the search algorithms based on the way they advanced so far and on the current demands.

Some of the research questions the article will answer:

* How did the search algorithms evolve through time and different technologies?
* How can you evolve a presumably optimized search algorithm?
* Are there limitations when it comes to the evolution of an algorithm?
* How important is searching for the right algorithm?
* What are the factors that push the search algorithms to continually change and become faster?
* How and when are old search algorithms useful?
* Why can a Quantum Computer search faster?
* Is Amazon’s OpenSearch faster than the ElasticSearch?
* In which direction are the current search algorithms heading?
* What predictions can be made regarding the future of search algorithms?
* Just how hast and helpful are the latest search algorithms?
* Will the evolution process of search algorithms find an end? When?

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