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Computer 942

Team Project

Grover’s algorithm

Grover’s algorithm falls under the category of a quantum algorithm and is used for the purpose of having high probability while seeking out the unique input of a black box function in the event that the black box function. This is accomplished with the usage of the C:\Users\justin\Desktop\al4.PNG function evaluations. N in this case would be the size of the function’s domain. Grover’s algorithm was initially devised by Lov Grover in 1996 and has had its purpose be defined as “searching a database” and “inverting a function”.

Steps:

Let |s} be the denotation of the uniform superstition. 

The Grover diffusion operator would be known as C:\Users\justin\Desktop\al2.PNG

1. The algorithm would be completed with an initializing of the system to the state.C:\Users\justin\Desktop\al3.PNG
2. The "Grover iteration" will be performed *r*(*N*) times, the *r*(*N*) function being asymptotically *O*(*N*1/2) and detailed below.

C:\Users\justin\Desktop\al5.PNG

1. The measurement Ω will next be performed, resulting in the eigenvalue *λω,,* establishing the probability of approaching 1 for *N* ≫ 1.