

## **The power of quantum computer and its limitations**

### **ABSTRACT**

Quantum computers have grown as an essential study in the field of physics and computer science throughout the country since 20 years ago although at the time, the existence of quantum computers is still a mystery. However, studies on quantum computers have successfully provided a new breath in the development of the latest technology. Thus, the brief descriptions in this paper are aimed to guide computer science experts to fully understand how the quantum computer differs from the current computer. Next, this study will explain the basic concepts of quantum mechanics that make quantum computers more powerful than other computers today. Then, two algorithms that apply the concepts in quantum computers will also be explained in details. Finally, this paper will describes the constraints faced when developing quantum computers in reality.

**Keyword:** Quantum computer; Quantum bit; Entanglement; Quantum cryptography; Image processing; Artificial intelligence; Quantum algorithm