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Quantum Computing

Reading 4

Quantum mechanical computers

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Abstract

In this text, that is based on the paper: "Quantum Mechanical Computers" by Richard Feynman, two ideas are extracted arbitrarily and discussed, according to the interest of the author.

1 Idea 1

Surely Mr Feynman was joking...

There is a person I admire the most and I have always looked up to for almost all of my life. That man is Leonardo Da Vinci; getting to know him was my first approach to the Renaissance, and or many, he is a source of inspiration, as he was so good at various activities at the same time. I believe Feynman was like Da Vinci, they would do things their way. In his book, Feynman talks about how he had his own abstractions of mathematical concepts that had little to do with the conception he was taught at school. This fact is incredibly genius! I believe that the fact that he was able to learn on his own helped him as he knew no barriers and did not have to fight against pre established paradigms about how to solve something. This ability of solving problems his own way would make him one of the most prolific physicists of the twentieth century.

I haven't stopped admiring Da Vinci, and probably never will, but right now in this stage of my life, I look up to Feynman and the traits that made him a legend, not because all of the scientists should pursue becoming a legend ourselves, but because we look to advance in science and the traits Feynman had made a remarkable scientist. In this paper and in the last one, Feynman talks about very complex things in a very understandable way; he surely pursued the ultimate sophistication... Simplicity.

2 Idea 2

What can compute?

When we say the world "computer", we imagine a device that has a screen, a keyboard, and some other features, but the screen and the keyboard are the most important ones; with the screen you can receive information from the computer, and with the keyboard you can input information to the computer. In a wider sense, we can say that etymologically, anything that computes is a computer. The origins of the world compute, are two Latin words "com" and "putare", together they mean, to settle an account. The Cambridge Dictionary defines "compute" as: "to calculate an answer or amount by using a machine:".But then, what is a machine? Of course that the definitions for computing, and for machine may vary. It is up to each person if they agree or not with a certain definition.

I believe that there are many things that can compute, for example, if we throw a ball from a certain height, the ball will accelerate towards the centre of the earth until it reaches an object that stops its motion, or until it reaches the centre of the earth. In this case, we could argue that nature is computing all the variables that concern to this phenomenon such as speed, position, and direction. I am moving to something more useful. Let us suppose that I want to know the best orientation on which I should position some solar panels, in order to get the most solar power during the day, I could use a set of flowers, and then analyse their growth patterns to determine a pretty good orientation; in this case, the plants were the computers and they were used to solve a tangible problem.

Under this idea, I believe that there is a lot of room to explore in computer science about alternate forms of computing.