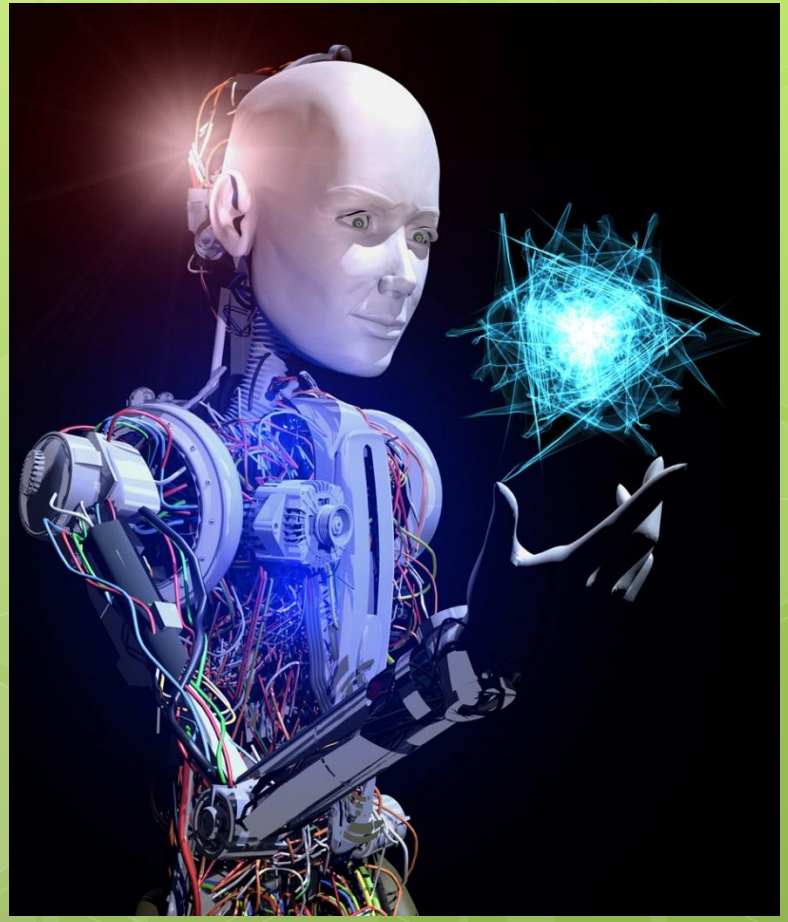


QUANTUM COMPUTING & ARTIFICIAL INTELLIGENCE

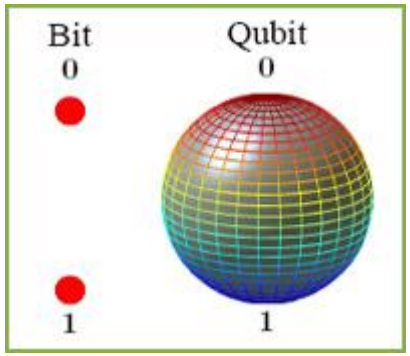
Carminati Giovanni

What is a Quantum Computer?

It's a computer that use some **quantum proprieties** for the manipulation of bits

NORMAL BIT

It has only two statement **0 or 1**



Q-BIT

Can be 0 and 1 at the same time, it's **based on probability**

Why is Quantum Computing important

Using a quantum computer is not the solution for all the problems

ADVANTAGES

- EFFICENCY IN SEARCH ALGORITHMS
- EFFICENCY IN PATH FINDING ALGORITHMS
- EFFICENCY WITH CRIPTOGRAFY
- MORE POSSIBILITY FOR MACHINE LEARNING
- USED FOR DEVELOP OF AI

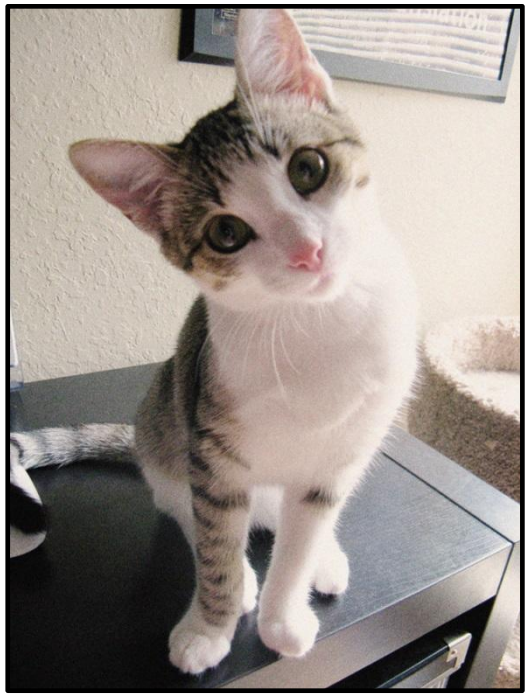
PROBLEMS

- TEMPERATURE
- ENERGY
- SENSIBILITY
- COST

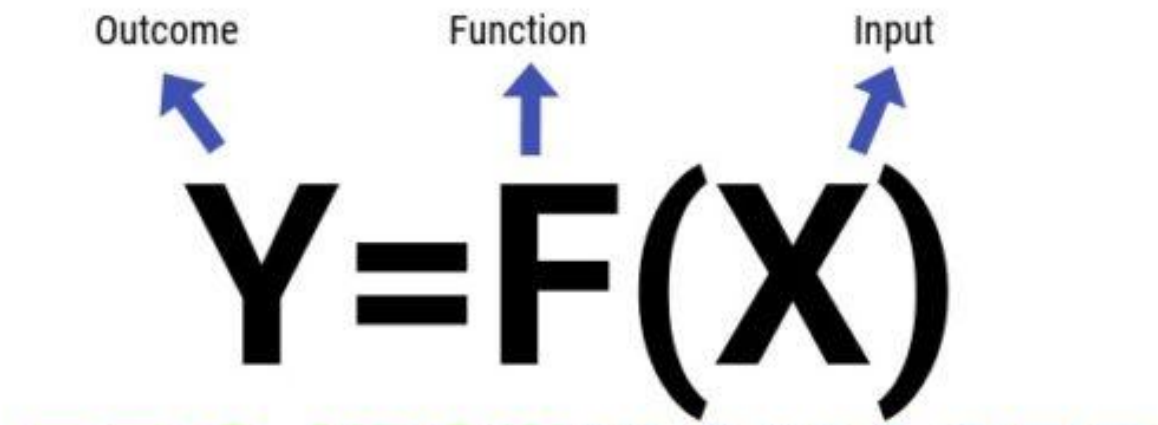
What is artificial intelligence (AI)

It's when a computer:

- **MAKE DECISION**
- **MAKE PREDICTION**



What does AI do



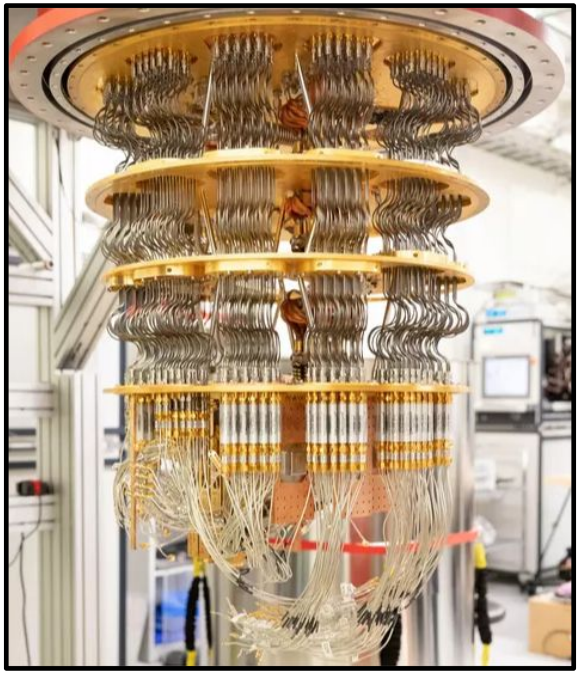
INPUT (x)	FUNCTION f	OUTPUT Y
4	?	16
5		25
7		49
9		81

QUANTUM SUPREMACY

It's similar to cold war, it's the **competition** between big companies to build the computer with the most number of QBIT

Google

At the moment Google has the quantum supremacy.
It has **54Qbits** and it solve in 200s a problem that normal computer solve in 10000years



https://www.theverge.com/2019/10/23/20928294/google-quantum-supremacy-sycamore-computer-qubit-milestone