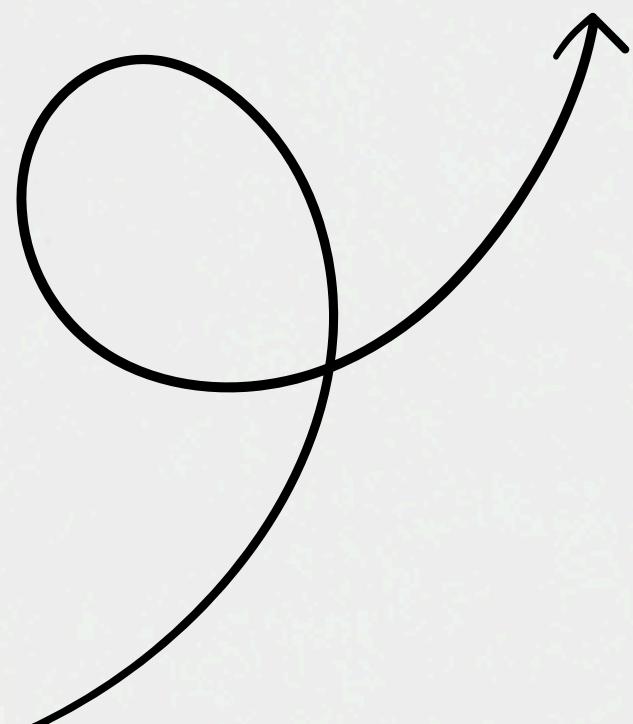


Understanding QUANTUM COMPUTING

By Sai Kundan



What is QC ? And we do we care ?



A computer that built on principals of Quantum mechanics

Lot of problem out there which cannot be solved
can produce better results in some scenarios

- qbits
- Super Position
- entaglement
- interference

Measure of
problems

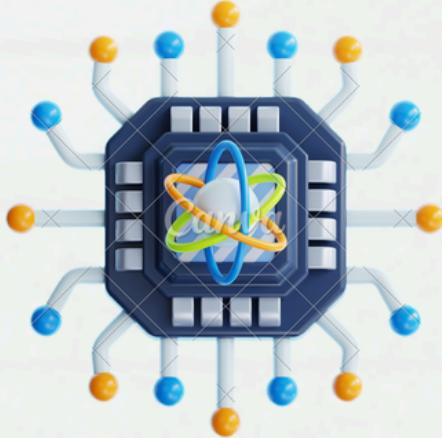
Famous Q algo

qisikt

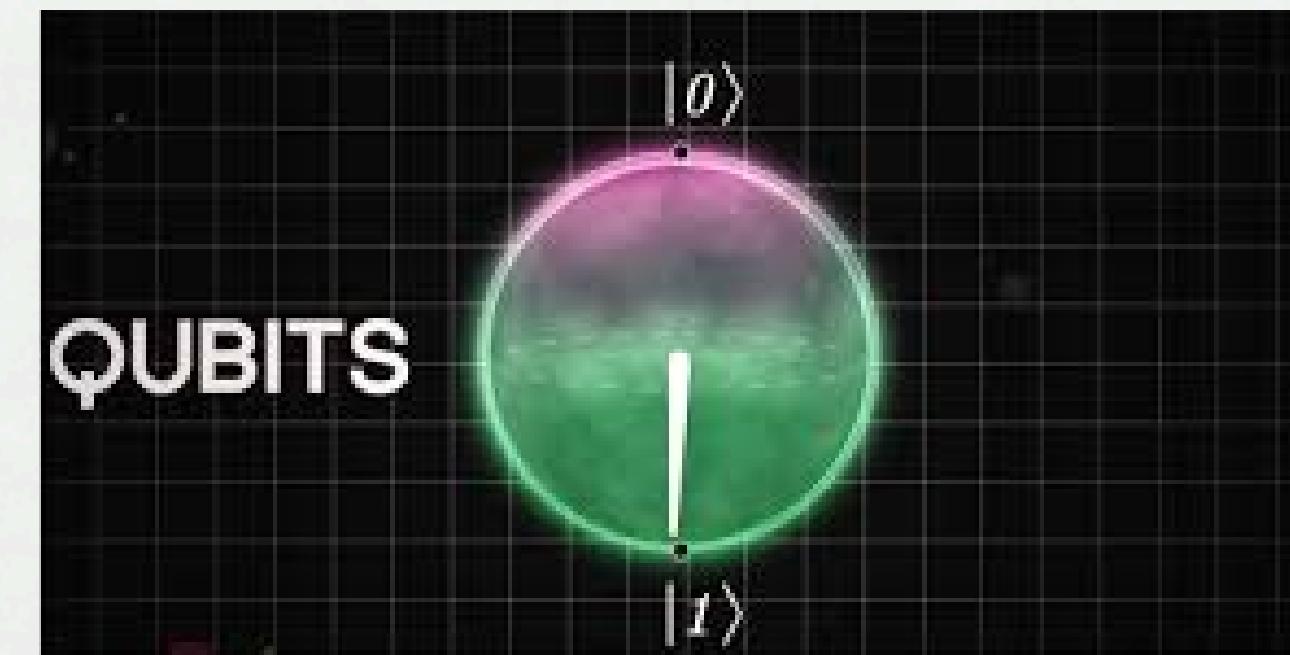
conclusion

- potential application of QC hype running towards Q advantage

Classical vs Quantum



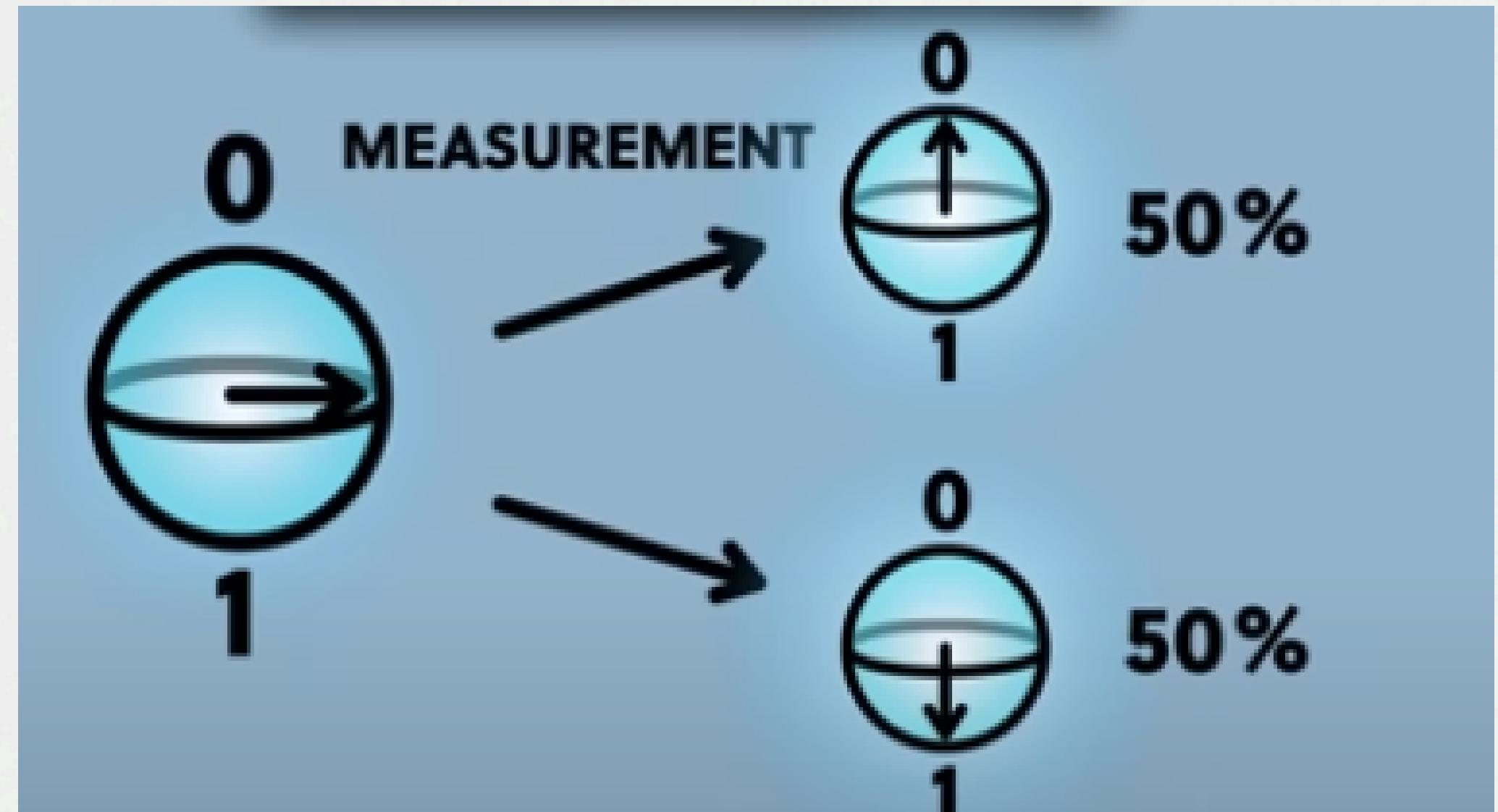
single state at a time



Many states at a time

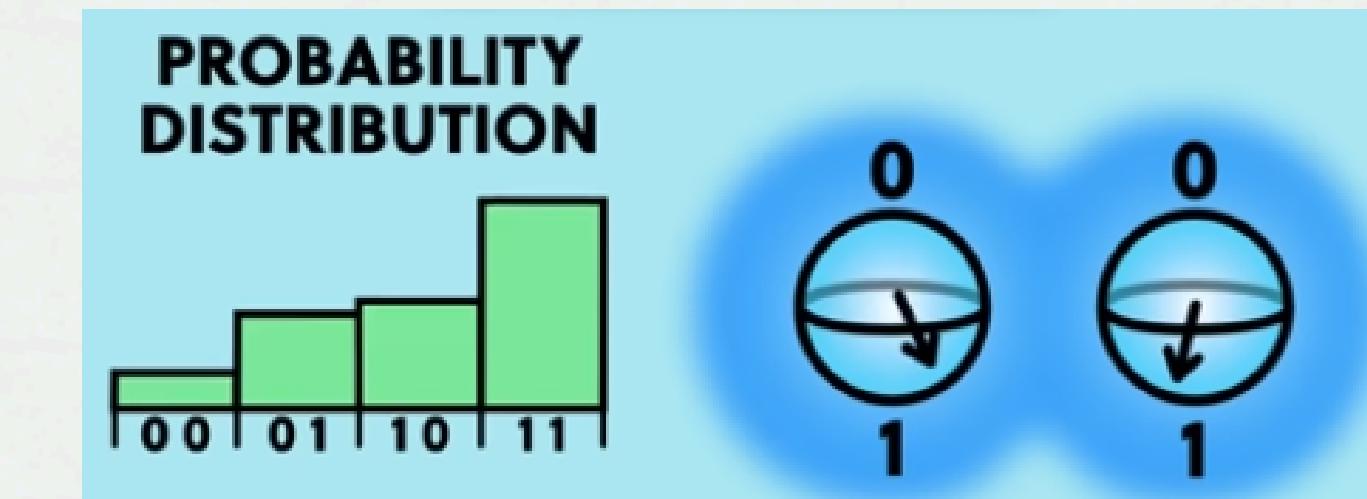
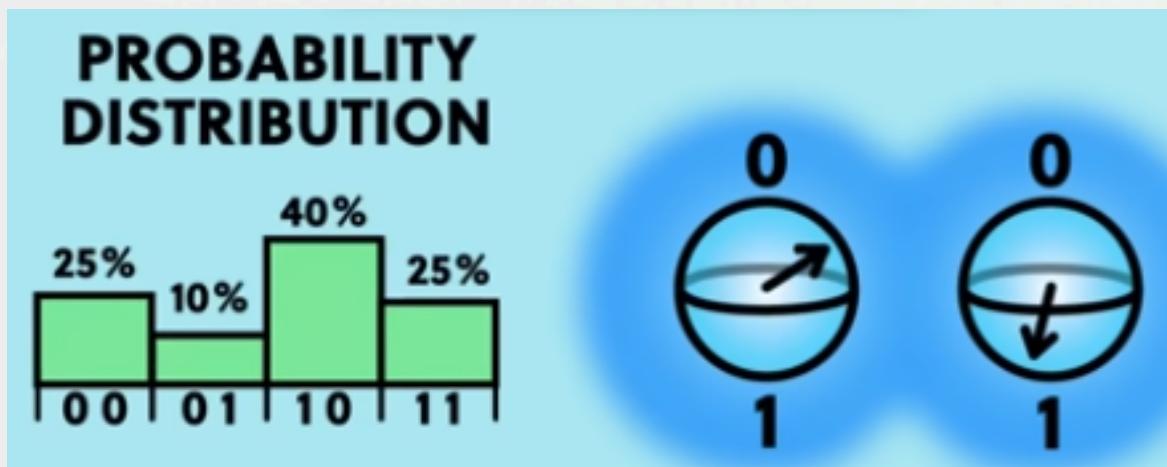
Qubits are in a combined
state together

Superposition



Note: Diagram sourced from YouTube video :Quantum computing road map

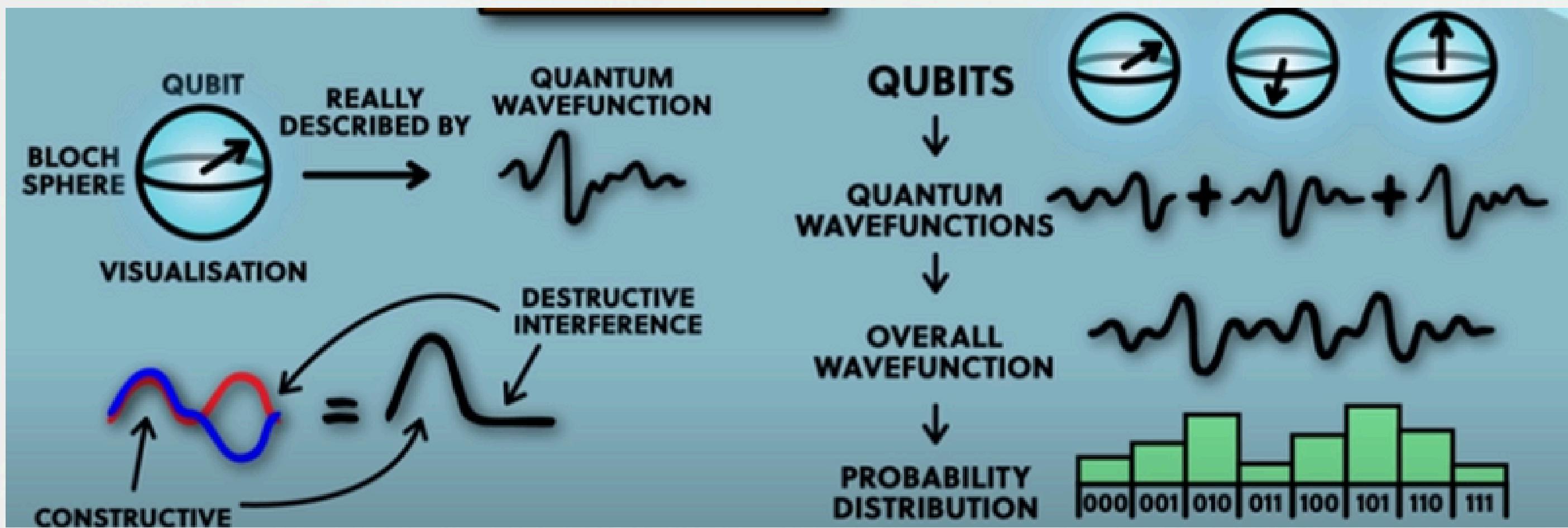
Entanglement



Number of Qubits	Number of States
1	2
2	4
3	8
4	16
5	32
...	...
n	2^n

Note: Diagram sourced from YouTube video :Quantum computing road map

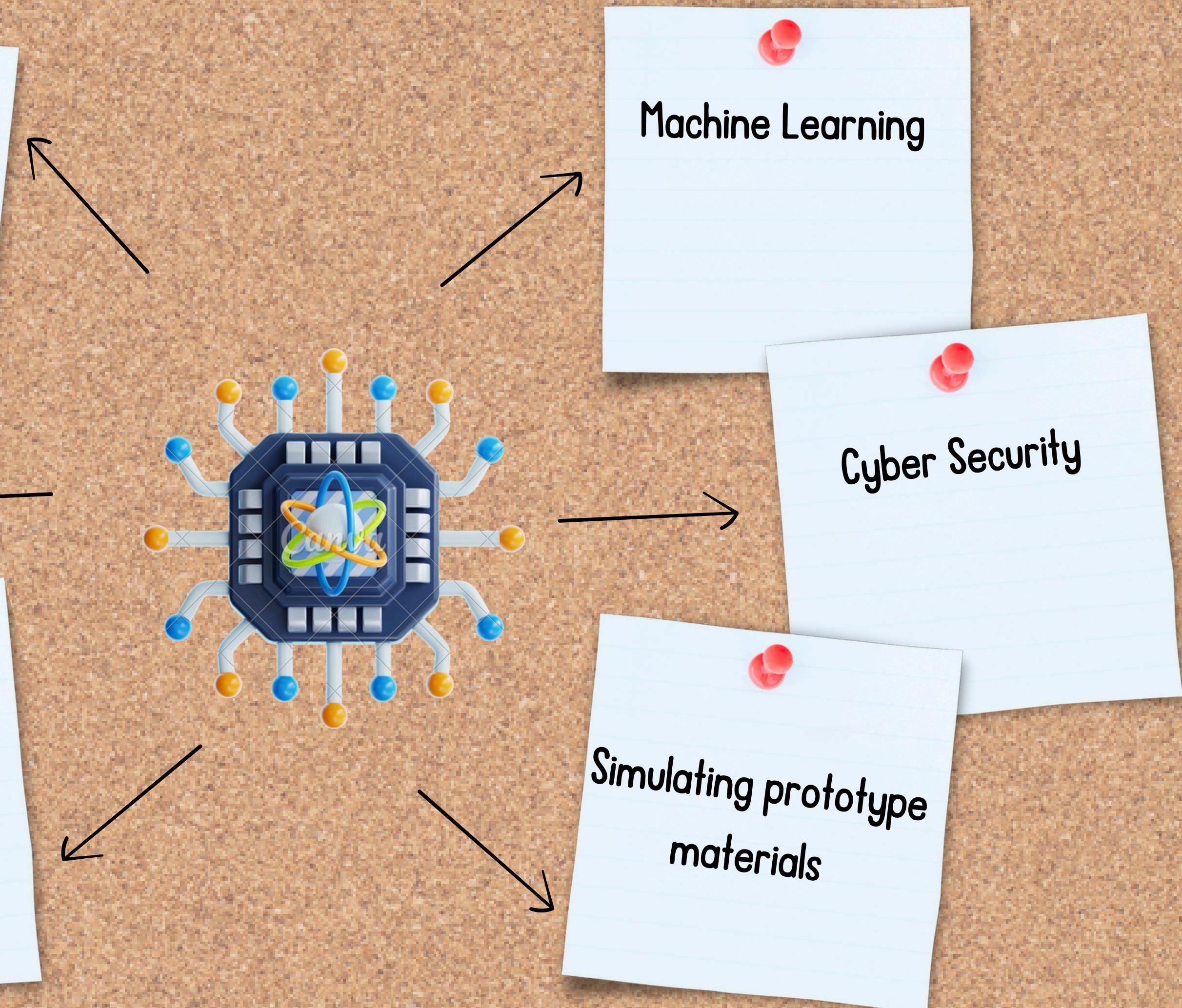
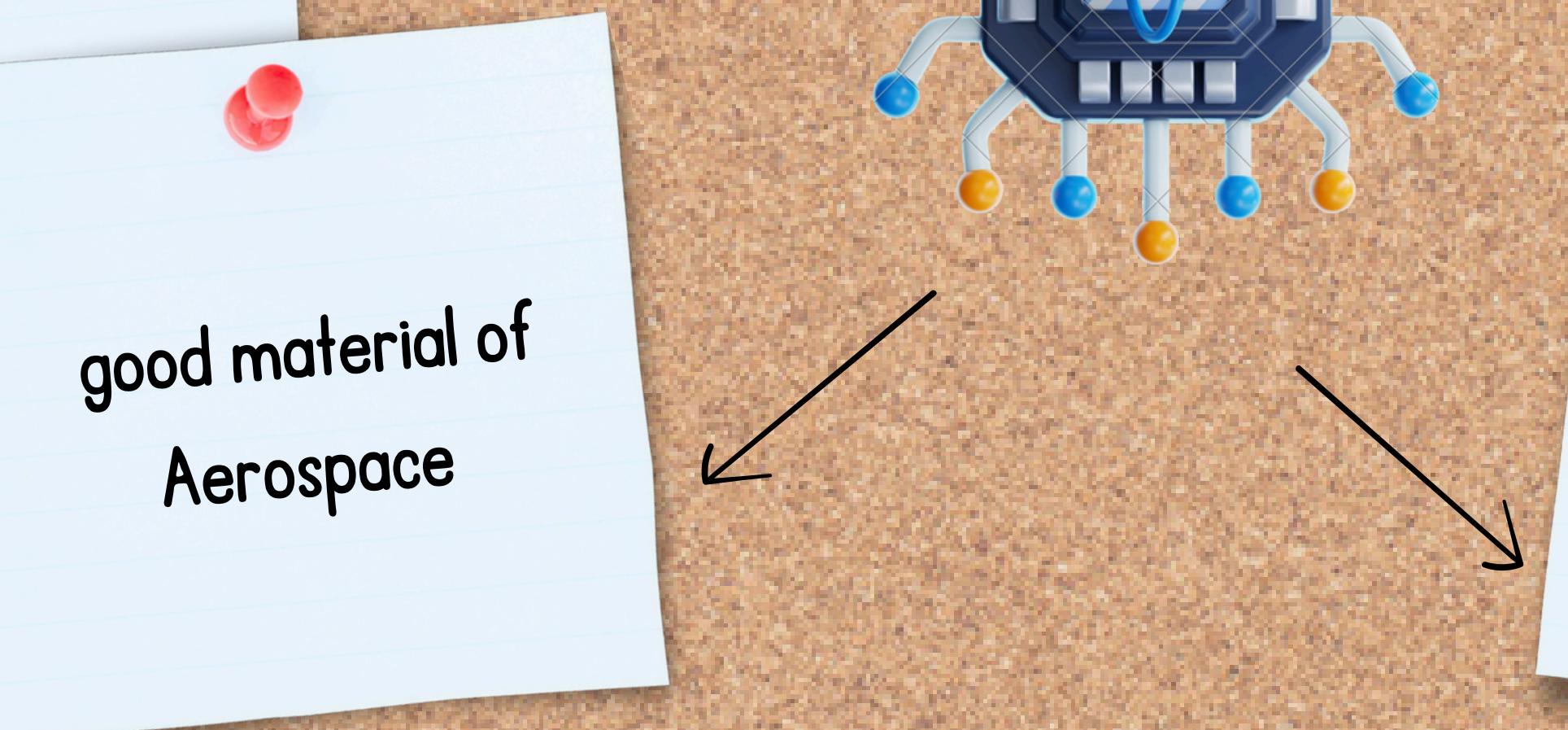
Interference



Note: Diagram sourced from YouTube video :Quantum computing road map :

Shor's algorithm

factors of Number 14 -> 7 and 2



qiskit

step 1 : create circuit

step 2 :optimizing it

step 3 :Use premitivies

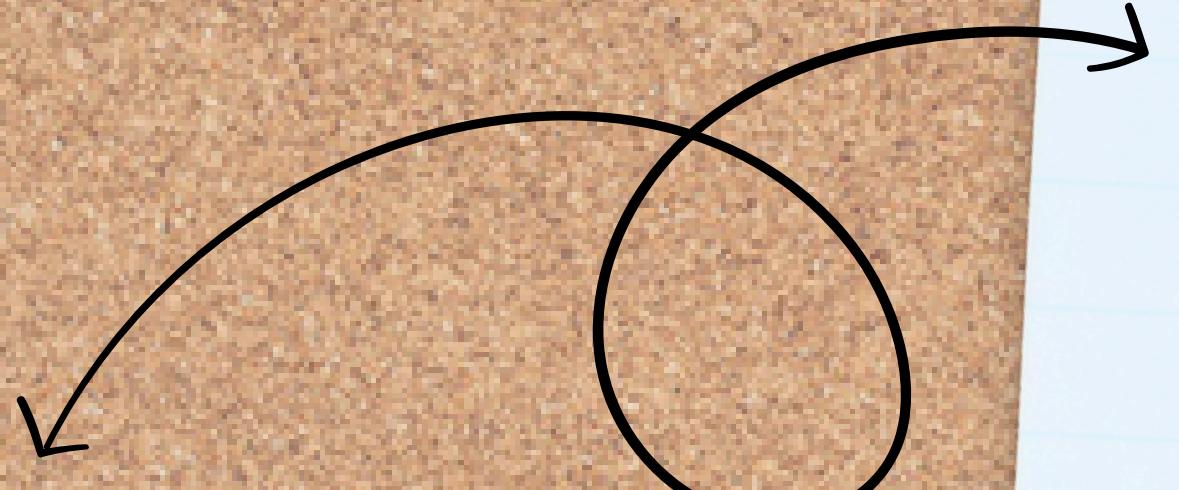
step 4: run it

```
from qiskit import IBMQ
```

```
# Load your IBM Quantum account  
IBMQ.save_account('YOUR_API_TOKEN') # Save your  
token for future use  
provider = IBMQ.load_account() # Load your account
```

```
# Now you can access the quantum devices
```

Quantum error & reality



Thanks!

Q/A ?

