FACTS AND OPINIONS

Quantum computers

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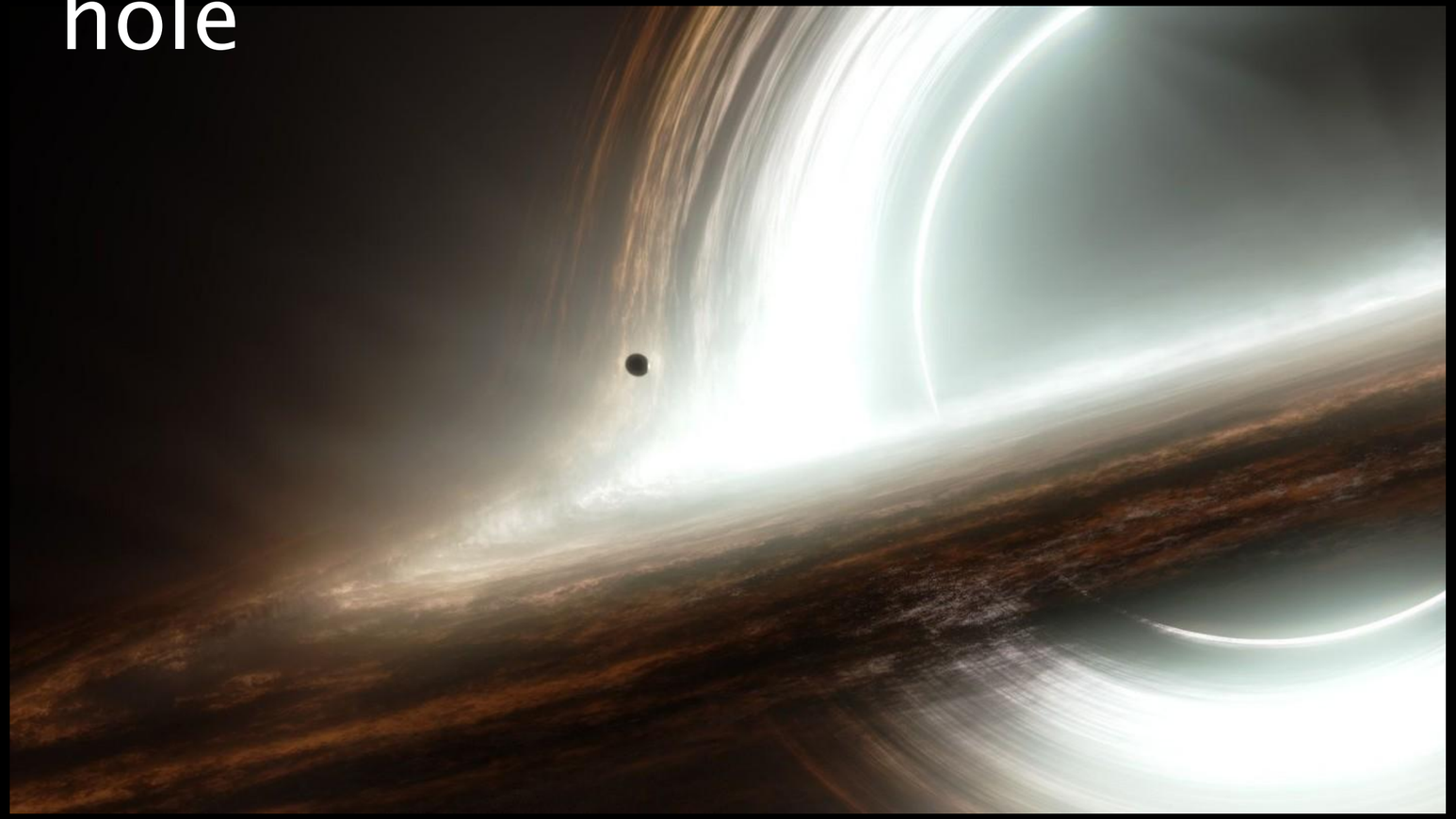
Interstellar:scene with black hole

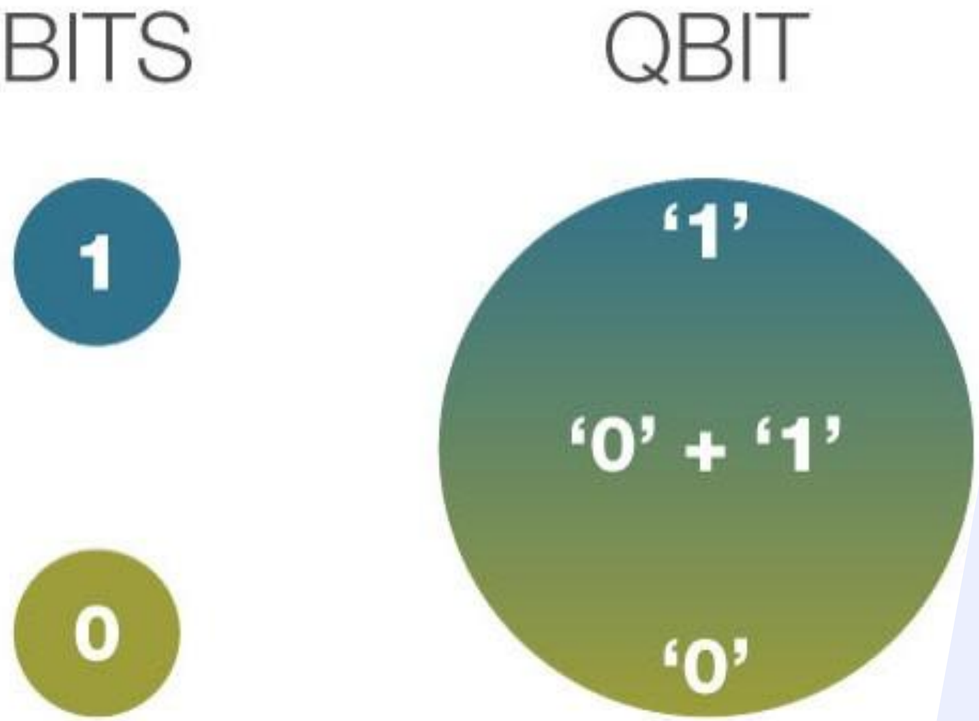


It took **100 hours** for a supercomputer with **30,000 processor cores** to render this frame

If they used a quantum computer, it would take **less than a second**

OUTLINE

- Interesting facts about quantum computers
- Opinions
- Conclusion
- References



1st fact

SUPERPOSITION

"Like bits, qubits can occupy two measurable states: 1 and 0. Unlike bits, the qubit can also occupy a third state in which it is simultaneously 1 and 0".

(Keplinger, 2018, p. 16)

2nd fact

"For example, a quantum computer with 300 quantum bits (“qubits”) could conduct more calculations than there are atoms in the universe." (Friedson&Herman, 2018, p.3)

3rd fact

IN JANUARY 2018 INTEL UNVEILED ITS 49 - QUBIT QUANTUM- PROCESSOR CHIP, DUBBED " TANGLE LAKE," WHICH USES SUPERCONDUCTING CIRCUITS AND OPERATES AT EXTREMELY COLD TEMPERATURES.

(FRIEDSON& HERMAN, 2018 , P. 15)

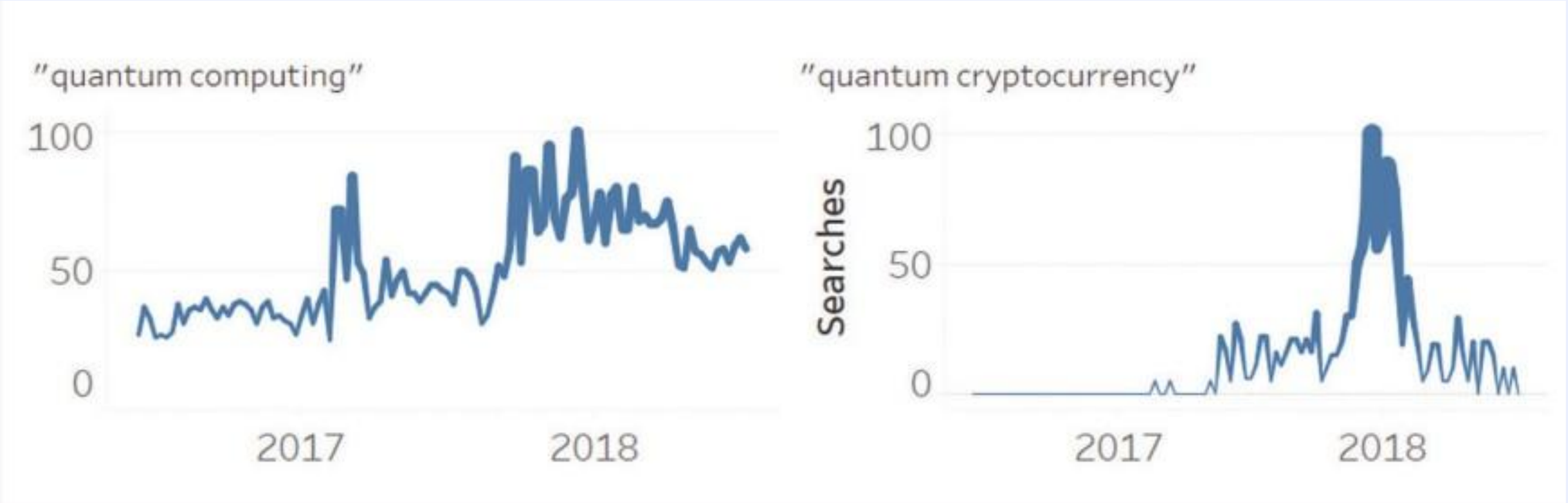


Figure 2: Interest in the search terms 'quantum computing' and 'quantum crypto-currency' in the past two years.

4th fact

Public interest

"Data from Google Trends, a popular open-source intelligence (OSINT) tool, shows that some public interest has been generated following last year's leaps in quantum computing technology (Figure 2, left), with most searches originating from China". (Keplinger, 2018, p. 17)

5 th fact

First quantum computer

"The first 2-bit quantum computer, completed in 1998 thanks to collaboration between industry and academia, came after researchers in 1997 discovered that nuclear magnetic resonance (NMR) systems – based on the same technology as medical imaging devices – could support a quantum computing state". (Keplinger, 2018, p. 17)

Opinions

1)Learn quantum programming if you want to stay ahead of the curve, and find practical ways to use the superposition's (that third bit state) characteristics to your work.(Keplinger, 2018)

2) Due in significant part to innovation and funding from the private sector, the United States is regarded as a leader in the field of quantum computing. (Friedson&Herman, 2018)

3) Some people have predicted that quantum computing will put an end to encryption as we know it.(Aumasson, 2017)

4) In order to prepare their systems for quantum attacks, companies must comprehend their particular risks.(Mosca, 2018)

5) The capacity to begin using quantum computing to solve classical issues is now becoming obvious thanks to quantum microchips. (Keplinger, 2018)

Conclusio

As you can see, experts' opinions about quantum computers vary. If some see it as an exceptional threat to state security, others see it as a benefit. In my opinion, quantum computers are like space: dangerous and unknown, but at the same time attractive

Opinions original

1) If you want to be ahead of the curve, learn quantum programming and find ways to implement the properties of superposition (that third bit state) in your everyday practice.
2) The U.S. is widely regarded as the leader in quantum computing, thanks largely to the innovation and resources of the private sector.
3) Quantum computing has been heralded by some as the death of cryptography as we know it.
4) Organizations must understand their specific risks and plan for their systems to be resilient to quantum attacks.
5) With quantum microchips, the ability to start solving classical problems with quantum computing is now becoming manifest.

REFERENCES

Aumasson, J.P.(2017). The impact of quantum computing on Cryptography. *Computer Fraud & Security*.https://www.sciencedirect.com/science/article/abs/pii/S1361372317300519

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