

# Alice & Bob and Thales Develop Quantum Algorithms for Next Generation Aerospace Equipment

*The €2.6M project will focus on improving France's aerospace equipment by developing new fault-tolerant quantum algorithms*

PARIS, FRANCE, September 19, 2024 /EINPresswire.com/ -- [Alice & Bob](#) and Thales announced



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*Théau Peronnin, CEO of Alice & Bob*

today a partnership to develop quantum algorithms capable of accelerating the simulation of aerospace equipment, such as radar or telecommunications antennas.

These algorithms will be developed for the new generation of "error resilient" quantum computers, known as FTQCs (Fault Tolerant Quantum Computers). Quantum computers can be classified as analog, noisy or fault tolerant. In line with the French government's recommendation that priority should be given to the latter, Alice & Bob and Thales are today joining forces to make France a

frontrunner in the development of mature quantum technology.

The project evaluates whether these computers will be able to exponentially accelerate electromagnetic simulations, opening the door to the optimization of airborne equipment designs for the aerospace industry.

It will also assess accurately what resources will be needed, and therefore give a timeline on the time when quantum computers will be available to achieve this. Alice & Bob and Thales will work on the development of quantum algorithms for advanced electromagnetic simulation then test them on airborne equipment, such as radars and antennas. This will make it possible to estimate the exact number of qubits needed to industrialize and scale up these solutions.

The i-Démo Régions project, part of the France 2030 plan, has a budget of 2.6 million euros over 3 years, and has been accredited by the Systematic competitiveness cluster in the Paris region.

"The pursuit of this project demonstrates that our organizations are committed to being world leaders in quantum computing and understand how to do it," said Théau Peronnin, CEO of Alice & Bob. "By sponsoring the development of fault-tolerant quantum computers with high-quality qubits, France will position itself to reap the first fruits of quantum tech."

"This cooperation builds on the complementary expertise of Alice & Bob and Thales," said Bernhard Quendt, Chief Technology Officer of Thales, during his visit to Alice & Bob's headquarters in Paris. "Our combined expertise will enable technological advancements in aerospace."

This unprecedented cooperation draws on the synergistic know-how of Alice & Bob and Thales, with the support of Inria. Inria will develop and supply the programming and compilation tools for the quantum algorithms, which will be adapted and implemented by Alice & Bob on their FTQC quantum calculator demonstrators. Thales will define the use cases, benchmark the algorithms and test their performance.

#### About Alice & Bob

Alice & Bob is a quantum computing company based in Paris and Boston whose goal is to create the first universal, fault-tolerant quantum computer. Founded in 2020, Alice & Bob has already raised €30 million in funding, hired over 100 employees and demonstrated experimental results surpassing those of technology giants such as Google or IBM. Alice & Bob specializes in cat qubits, a pioneering technology developed by the company's founders and later adopted by Amazon. Demonstrating the power of its cat architecture, Alice & Bob recently showed that it could reduce the hardware requirements for building a useful large-scale quantum computer by up to 200 times compared with competing approaches. Alice & Bob cat qubit is available for anyone to test through cloud access. Follow Alice & Bob on LinkedIn, X or YouTube, visit their website [www.alice-bob.com](http://www.alice-bob.com), or join The Cat Tree on Slack to learn more.

#### About Thales

Thales (Euronext Paris: HO) is a global leader in advanced technologies specialized in three business domains: Defence & Security, Aeronautics & Space, and Cybersecurity & Digital Identity. It develops products and solutions that help make the world safer, greener and more inclusive.



From Left to Right: Bernhard Quendt (Global CTO Thales), Frederic Barbaresco (Segment Leader of Key Technology Domain PCC (Processing, Control & Cognition) Thales) Theau, Raphael, Cécile Perrault (Head of Partnerships, Alice & Bob)

The Group invests close to €4 billion a year in Research & Development, particularly in key innovation areas such as IA, cybersecurity, quantum technologies, cloud technologies, and 6G.

Thales has nearly 81,000 employees in 68 countries. In 2023, the Group generated sales of €18.4 billion.

#### About Inria

Inria is the French national institute for research in digital science and technology, and since January 2024 has been responsible for the Agence de programmes Numérique (Digital Programs Agency), designed to strengthen the collective dynamics of higher education and research. Its DNA is based on world-class research, technological innovation and entrepreneurial risk. Within 220 project teams, most of which are shared with major research universities, more than 3,800 scientists are exploring new avenues, often in interdisciplinary collaboration with industrial partners, to meet ambitious challenges. As a technology institute, Inria supports a wide range of innovation paths: from open source software publishing to the creation of technology startups (Deeptech).

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