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## Alice&Bob raises €3M and enters the race to produce the world's first fault-tolerant quantum computer

Alice&Bob's ambition is to become the leading provider of quantum computing power using a universal fault-tolerant quantum computer. An ambition supported by Elaia and Breega, with whom Alice&Bob is today finalising its first round of funding of €3 million to accelerate the construction of its first prototype.

**The market for quantum computers is estimated between €400 and €800 billion.**

*"The quantum computer drastically accelerates the solving of certain problems that are too complex or unimaginable, even for today's best supercomputers, such as finding the optimal shape of an aircraft or designing a new generation drug,"* explains Théau Peronnin, CEO of Alice&Bob. As the quantum revolution will ultimately impact all industrial sectors, the market for quantum computers could reach between €400 billion and €800 billion within fifteen years (source: Boston Consulting Group).

### **Solving quantum errors, the main challenge**

Today, persisting quantum errors, that limit considerably the impact of the first prototypes, are the main obstacle to developing machines. Alice&Bob's superconducting cat qubits are interrupting the *status quo* by greatly simplifying the design of the ideal machine. Indeed, they have been engineered to be intrinsically insensitive to one of the two types of possible quantum errors – the first prototype having already reduced their rate of occurrence by a factor of 300!

### **Alice&Bob lay the foundations of the ideal computer**

Alice&Bob is putting together a team of quantum engineers and physicists to rethink the computer from first building blocks. Alice&Bob's wish to reach the Grail: the logical qubit in which all errors are corrected. The next step will be to assemble these blocks in a modular way to form the first processors.

### **French academic excellence at the heart of the project**

Co-founded in February 2020, Alice&Bob was born from the meeting of two young doctors from ENS (École normale supérieure) in Paris and ENS de Lyon, Théau Peronnin and Raphaël Lescanne both started their PhDs in the same group of quantum circuits, Théau on modular architecture and Raphaël on the first prototype of cat qubit. Gradually, it became clear to them that there was a unique know-how in quantum physics in France that deserved to be transformed into a federative entrepreneurial project.

### **Six academic laboratories come together to support the project**

To make its ambition a reality, Alice&Bob is developing jointly with INRIA, ENS Paris, Mines ParisTech (within the Quantic team), ENS de Lyon and CEA, an innovative superconducting microwave quantum bit: Schrödinger's cat qubit. Thanks to this unique technology, Alice&Bob addresses the problem of quantum error correction and plans to offer its first universal machine in just 5 years.

### **An adventure supported by an unparalleled scientific and entrepreneurial ecosystem**

Beyond the promise of technology, it was the gathering of the main scientific figures in the field in their scientific council that convinced the founders to take the plunge. Winners of Bpifrance's i-PhD prize, and accompanied by CNRS-Rise, Agoranov, PULSALYS and strategic Business Angels, Raphaël and Théau set sail last winter to conquer the quantum world. Today the innovation capital funds, Elaia and Breega are also joining the adventure.

Anne-Sophie Carrese, Partner at Elaia explains: *"After analyzing quantum computing projects, we were convinced by Alice&Bob's solution, based on the latest advances in French research, the resonant cavity theory of the 2012 Nobel Prize in Physics, which the management team has completed with an operational prototype that is very well followed by the market".*

*"Alice&Bob's ambition requires, in addition to the funding, high-level research and technical know-how. The two main challenges were therefore to structure a round of financing that would live up to this ambition and to bring together teams and technologies from several research laboratories. We are delighted to support the team in achieving these two key steps through our Elaia PSL Innovation Fund".*  
- Sofia Dahoune, Investment Director, Elaia.

*"Alice&Bob is shaping the future. Their work will help change the world of IT as we know it and more broadly that of the entire industry. Pioneers in the field, Théau and Raphaël are working to build the first error-free quantum computer, which should, thanks to their efforts, see the light of day within a few years instead of the decade initially imagined. Breega is proud to be part of this exciting adventure".* - Maximilien Bacot, Founding-Partner, Breega

### **About Elaia:**

Elaia is a European top-tier VC firm with a strong tech DNA. We back tech disruptors with global ambition from early stage to growth development. For the past 17 years, our commitment has been to deliver high performance with values. We are proud to have been an active partner in over 100 startups including success stories such as Criteo (Nasdaq), Orchestra Networks (acquired by Tibco), Sigfox, Teads (acquired by Altice), Mirakl and Shift Technology. Learn more <http://www.elaia.com> • [@Elaia Partners](#)

### **About Breega:**

Breega is a founder-friendly VC, with €250M under management, investing in promising European high tech startups at Seed/Series A stage. Breega provides much more than just capital. Built by founders for founders, Breega supports its portfolio companies through each phase of their development, providing them with free-of-charge operational expertise (HR, biz dev, marketing & legal) and international development opportunities. Breega invests in trailblazing companies such as

Exotec Solutions (robotics), Ibanfirst (fintech), uDelv (autonomous vehicles), FoodChéri (foodtech), Curve (fintech) or Fretlink (marketplace). For more information: [www.breega.com](http://www.breega.com)