THIS IS QUANTUM CITY

AN INTERVIEW WITH ARACELI VENEGAS-GOMEZ

Founder and CEO of QURECA



After six years as an aerospace engineer at Airbus, Araceli Venegas-Gomez swapped aerospace for quantum. She completed a Masters in Medical Physics while at Airbus, then a Master of research and a PhD in Quantum Optics at the University of Strathclyde, before launching her start-up QURECA (Quantum Resources and Careers).

HOW DID YOU MOVE FROM INDUSTRY TO WHERE YOU ARE TODAY, AND WHAT DREW YOU TO QUANTUM?

I'm an aerospace engineer and worked in Germany for Airbus for six years, but working full time wasn't enough! I did a distance-learning Masters in medical physics, and studying magnetic resonance imaging introduced me to the world quantum. MOOCs were just starting, and after my first one I spent almost all my spare time studying quantum. I even took holidays to attend conferences.

I asked myself what I wanted to do with my life. I could return to industry any time, but if I was going to change paths, it had to be then, not in 10 years. People everywhere told me I couldn't do a physics PhD as an engineer. Eventually, a professor I met on an online course introduced me to someone moving from the US to Glasgow. After a year of emails, he invited me to Glasgow for a week of quantum physics exercises. He said I was the most motivated person to do quantum he'd ever met, but a PhD would be a risk for him, so he hired me for a one-year Masters by research first. I quit my job, moved to Glasgow, and at the end he offered me the PhD.

YOU ARE AN EXECUTIVE FELLOW AT THE UNIVERSITY OF BRISTOL QUANTUM TECHNOLOGY ENTERPRISE CENTRE (QTEC). HOW DID THAT COME ABOUT?

As an older PhD student, I felt I had to catch up with the rest, and I got involved in everything: outreach, public engagement, conferences. At events I saw a gap between people doing fundamental research and those pursuing quantum technologies as a business, since most researchers had never been in business. Coming from industry, I felt I could sit in the middle and communicate with both sides and the public.

I started asking people what the community needed and built a big network on Twitter. People suggested I apply for the OSA Milton and Rosalind Chang Pivoting Fellowship, which supports career changers, and I was successful last year. That was the push I needed, and my mentor advised me to create a company. QTEC's fellowship helps quantum scientists become entrepreneurs; they liked my idea and offered me the executive path, so I can stay in Glasgow while benefiting from their mentorship.

WHAT IS QURECA AND WHAT ARE ITS GOALS?

People told me how hard it was to find employees with the right skills, and others said quantum was hard to understand because existing resources were very specific and technical. My first idea was a recruitment company, but I didn't want to just be a recruiter! I realised what I'd done at Airbus applied to quantum technologies, so I packaged it together and registered QURECA. The online training came about because people asked for it, and by partnering with experts we can build programmes together.

Registration on the website is free, whether you're an individual looking for a job or training, or an organisation looking to hire or train. I want to support people like me, matching their skills and interests with what companies need.

HAVE YOU EXPERIENCED ANY BARRIERS AS A FEMALE ENTREPRENEUR?

In aerospace and physics I've always been surrounded by men, and that felt normal. Only later did I realise some things that were happening to me. At one point I was a foreigner, an engineer, a woman and young, telling men 20 or 30 years older what to do. I think a man would have achieved the same things in less time. In physics there are many women at undergraduate level, but it's a leaking pipeline. I'm now part of the gender balance group at the Quantum Flagship, looking at what we can do at European level. As an entrepreneur I haven't experienced barriers; it feels closer to 50/50. My team is almost all women, though all my mentors are men, but I think that's changing.

’s the skill I’ve developed most, getting people interested and excited, which is a really useful skill in industry.

YOU'RE ALSO COORDINATOR OF THE INTERNATIONAL GRADUATE SCHOOL IN QUANTUM TECHNOLOGIES. WHAT DOES THAT ENTAIL?

It's part-time, so I can still have my own adventures. It's a PhD-level collaboration between Heriot-Watt, Strathclyde and Glasgow universities; I organise joint activities and discuss collaborations with industry. The aim is to bring people to Scotland, which is a hub in itself, and the scenery is amazing! Students looking for PhDs should talk to us.

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WHAT DOES BEING A QUANTUM AMBASSADOR INVOLVE?

That came with the OSA fellowship. My role is to talk to people, find out what they need and provide it. I literally went around the world speaking to people in industry, academia, outreach and policy, because government and the public are key pillars of the system.

WHAT DOES BEING A QUANTUM AMBASSADOR INVOLVE?

There isn't one, and I love that! I prepare talks for different audiences and speak to people across the whole ecosystem, all over the globe. I'm completely in the middle, which is what I wanted.

WHICH APPLICATION OF QUANTUM TECHNOLOGIES EXCITES YOU MOST?

I feel like we're in the 1950s, with computers full of tubes, unable to imagine mobile phones. We know quantum sensors, computers and communications will change things, but it's early days. Everyone around the world is working on quantum; it's not a race between nations. The unknown is my answer!

WHAT ARE YOUR HOPES FOR THE FUTURE?

I'd love anyone who wants to know anything about quantum to come to QURECA as the centre for resources. I also hope we avoid a quantum winter. The economic situation is hard, but we need innovation, and I hope people won't lose hope.

WHAT ADVICE WOULD YOU GIVE YOUNG PEOPLE HOPING FOR A CAREER IN QUANTUM?

Not only physicists will make up the quantum workforce. There will be quantum engineering degrees and jobs, and people in finance or marketing can be part of it too. But you need to genuinely like quantum and understand it at some level. If you want to switch into quantum, come to me! Keep an eye on what's going on, ask questions and attend events.