

**CAN YOU TELL ME A LITTLE BIT ABOUT HOW YOU GOT TO WHERE YOU ARE TODAY?**

For my undergraduate, I studied Physics with a European Language, in my case German, which meant I was lucky enough to spend my third year in Munich at the Ludwig-Maximilians-Universität. It was there that I took a course on Quantum Communication and Computation, having become vaguely aware of it when reading about the Multiverse in popular physics books, and it just blew my mind! You could say that was the start of my journey; after my degree I briefly worked as a sales engineer at a photonics company, but after reading about the Quantum Hubs I realised, I definitely needed to get involved.



So I did an Industrial PhD jointly with the University of Cambridge and Toshiba Research on implementation security of single photon detectors in secure quantum communications, after which I joined a start-up working on satellite quantum communications. I then briefly worked in the public sector, looking at resilient position, navigation and timing in the maritime sector for the General Lighthouse Authorities R&D department before starting my current role as Director of Quantum Technologies at Lumino Technologies.

**WHAT ARE YOU WORKING ON AT THE MOMENT AND WHAT ARE THE APPLICATIONS OF THIS?**

I'm working on a mix of things, but I'd say my focus is developing our entangled photon sources (EPSs), which are a key part of the quantum internet. EPSs distribute pairs of entangled photons, which can be used for connecting quantum devices together. That means you can do things like very secure communications which overcome some particular security side-channels in the system or linking quantum computers or clocks to enhance their processing power or accuracy. There is no doubt plenty of applications we haven't even thought of.

**WHAT WOULD A TYPICAL DAY AT WORK BE FOR YOU?**

It's a cliché, but no two days are the same; I could be writing a proposal for a new project, working up in our labs in Edinburgh, reviewing design documentation, thinking of new ways to improve our EPS, speaking at a conference, staying up to date with the literature, or something completely new.

## **IS THERE A CERTAIN APPLICATION OF QUANTUM TECHNOLOGIES THAT YOU ARE PARTICULARLY EXCITED TO SEE THE DEVELOPMENT OF IN YEARS TO COME?**

The area of quantum networking that I work in has a lot of potential, as connecting quantum devices together could dramatically improve their capabilities. I'm excited to see that applied in the context of extremely accurate timing, as this has such a wide range of applications, like making energy grids more efficient, improving the bandwidths of telecommunication networks, as well as enabling things like autonomous navigation and removing our dependence on satellite timing signals which are becoming increasingly vulnerable. No doubt there are things we haven't thought of yet.

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I always caveat answers to this question, by saying that I have been very lucky in many ways, so my experience may not translate to advice that is helpful for everyone. I was able to pursue something I was really interested in and passionate about, which provided me with a natural, intrinsic motivation to succeed, and perhaps that is something to consider - find something that excites you. But also, surround yourself with people who foster a supportive environment geared towards your success and definitely put an effort into building and maintaining your network. Finally, always take the opportunity to learn something new, you never know when you might apply it or when it will come in handy.