

Computer scientist

As a computer scientist in quantum, you may work in a university or in a private company. There are a plethora of roles that a computer scientist could undertake in quantum, from building quantum computers to working on the security of quantum communications technologies or writing code for new software.



What does the role involve?

- Carrying out research on quantum technologies, including quantum computers or quantum cryptographic schemes
- Designing new quantum software and hardware systems
- Identifying and troubleshooting problems with software and hardware and their integration
- Testing and analysing the performance and security of quantum technologies
- Advising colleagues
- Presenting data to colleagues
- Writing reports and research papers



Where would I work?

Company or university offices and laboratories. Some travel to visit collaborators could be required. Remote working may be possible.



What subjects should I do well in at school?

Computer Science, Mathematics, Physics.



What qualifications do I need?

Minimum Bachelor's degree, it would be most common for this to be in Computer Science, however, it could be in related fields such as Physics and Mathematics. It is common for computer scientists in quantum to hold a Masters degree or PhD but this is not essential if you have equivalent skills and experience.



What skills and attributes are required?

Problem solving, critical thinking, reasoning, logic, attention to detail, data analysis, communication (oral and written), coding, teamwork, ability to work independently, resilience.



What work experience would be helpful?

Experience carrying out research in computer science or working in a computer science lab would be advantageous (this could be through a degree or internship).



What about career progression?

Along with the wide variety of roles available in this field, the career progression opportunities are vast too. If based in academia, it is possible to progress from a postdoctoral position to lecturer and subsequently professor. If based in industry, you could become a lead computer scientist, overseeing a team of people, or alternatively a technical director or even director of your own company.

CASE STUDY



Julio Hernandez-Castro

Having studied Mathematics and Computer Science at undergraduate level, followed by a PhD in Computer Science, Professor Julio Hernandez-Castro took up a career in industry, however, it was not for him. Julio decided to pursue a career in academia instead. Julio is now a Professor in Cyber Security at the University of Kent and works on many projects, including the Quantum Communications Hub, where he focuses on the certification of quantum random number generators. Find out more about Julio's journey at tinyurl.com/careersinquantum



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