Research software engineer

As a research software engineer, you will work with physicists and other software engineers to develop bespoke software programs for quantum applications. You could work for a research group within academia or for a company which carries out research. You will use your coding skills to research, develop, design and test new programs that will enable problems to be solved and new quantum devices to operate and communicate with other devices.

What does the role involve?

- Working with hardware engineers to understand technology software requirements
- Developing bespoke software for quantum technologies
- Testing new pieces of software
- Maintaining software by finding and fixing bugs
- Updating and adapting software by designing and implementing new features
- Writing software specifications

Where would I work?

Offices, sometimes remote working.

What subjects should I do well in at school?

Computer Science, Physics, Mathematics.

What qualifications do I need?

Minimum bachelor's degree in Computer Science, Physics, Mathematics, Engineering or another similar discipline.

What skills and attributes are required?

In depth knowledge of coding languages (e.g. C, C++, Python, Linux, Rust etc), ability to work independently and as part of a team, knowledge of cryptography, knowledge of quantum hardware, problem solving skills, analytical skills, attention to detail, adaptability.

What work experience would be helpful?

Software development experience, experience of research projects (even if just a project as part of an undergraduate degree) familiarity with collaboration tools such as Jira, commercial experience (could be from an internship).

What about career progression?

Research software engineers often move around and work on different projects. Progression isn't often linear; it could be that moving from academia to research or vice versa offers the opportunity to take up a more senior role.

CASE STUDY

Ania Brown

Ania studied for an undergraduate degree in Physics and Information Technology in Australia before undertaking a master's degree in Tokyo. She moved to the University of Oxford to work as a Research Software Engineer, on a project called QuEST. Ania worked to develop and speed up code that enabled quantum computers to be simulated on classical computers. She has now taken up a role in industry, to find out how the role of Research Software Engineer differs in academia and industry. Find out more about Ania's journey at: (***tinyurl.com/careersinquantum***).

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