Position: Postdoctoral Research Fellow - Spin system quantum computing architectures.
Position ID: SPIN001

Place: Center for Quantum Software and Information, Faculty of Engineering and IT, University of Technology Sydney. Sydney, NSW, Australia

Pay scale: Base Salary Range: $125,240AUD to $148,229AUD pa (Level B) + 17% superannuation

Duration: Fixed term 2 year position with extension subject to performance and funding.

Reporting to: Prof. Simon Devitt, Research Director, Center for Quantum Software and Information.

Closing date: Applications will be considered until position filled.

About the Centre

The mission of the UTS Centre for Quantum Software and Information (UTS:QSI) in the School of Computer Science is to research and develop software for quantum computers and to discover new information processing applications for quantum technologies. The aim is to advance quantum software science and technology to drive quantum computers into the future. The UTS:QSI's expertise in the software and information processing capabilities of quantum computing and communication technologies places it in a world leading and unique position in the Australian quantum technology research community, with a software and theory research program that complements the hardware focus of other Australian teams.

About the Role

As the Postdoctoral Research Fellow, you will undertake research on quantum error correction and large-scale, error-corrected system design utilising Quantum dot qubits in Silicon. You will be required to act as principle architectural scientist for UTS:QSI's quantum compilation system, Rottnest. Your role will be to work with the Rottnest design team and leading researchers and industry partners focused on quantum computing in Silicon quantum dot systems to integrate large-scale architectural models for silicon spin quantum computers with our Rottnest compiler framework. You will also be involved in creating new techniques and software tools to perform near real time resource estimation and derive performance analytics on the physical resource costs associated with implementing algorithms on fully error-corrected fault-tolerant quantum computers.

You will also be free to pursue other research endeavours of interest to the quantum technologies as scale group (www.quantumts.org) and the center as a whole. Up to 20% of your time can be focused on innovative new research unrelated to core activities of the center or the group.

Criterion: About You

The incumbent is expected to have relevant experience in developing quantum architectures, error-correction and fault-tolerance, measurement based quantum computing or universal computational models. A high level of competency in programming and developing software tools in quantum information science will be advantageous. Your role will be interdisciplinary, interfacing experimental and industrial projects with in-house theory and software engineering teams.

Criterion: As the successful applicant, you will have;

- A PhD Degree in Quantum Information, Quantum physics, Computer Science, Mathematics, Physics or a very closely related field
- Familiarity with relevant computer software and research & teaching practices
- Sound knowledge of python, C, C++, Julia or related programming languages
- High quality publication record in Quantum Information science
- Significant experience in attracting and managing research projects
- Excellent experience in supervising and teaching in the area of Information Technology and collaborating with interdisciplinary teams.
- Working knowledge in Silicon spin qubits, primarily gate defined quantum dots.
- Ability to interact with theorists, experimentalists and software engineers and translate complex ideas to a variety of audiences.

Remuneration/Salary

Base Salary Range: $125,240AUD to $148,229AUD pa (Level B)

This role attracts 17% superannuation (pension) in addition to the base salary.

This position is full-time and an appointment will be made on a fixed term basis for 2 years.

UTS staff also benefit from a wide range of Employee Benefits, including flexible work practices, child care centres, generous parental leave and salary packaging opportunities.

How to Apply

To apply, please submit your application directly to Prof. Simon Devitt (**simon.devitt@uts.edu.au**). Your application should include:

- A cover letter (maximum 2 pages) stating your motivation for applying, as well as addressing the selection criteria found above.
- A copy of your CV

Please ensure that each document submitted includes your name and contact details and the position ID: **SPIN001**

For specific inquiries or issues with your application, please contact Prof. Simon Devitt **simon.devitt@uts.edu.au**

Position will remain advertised until filled.

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