UNIVERSITY OF TECHNOLOGY SYDNEY

The Centre for Quantum Computation & Intelligent Systems

The Centre for Quantum Computation and Intelligent Systems (QCIS) is a University of Technology, Sydney Priority Investment Research Program. The Centre was established in April 2008. Its mission is to be acknowledged by research centres throughout the world as a pre-eminent research centre in quantum computation and intelligent systems, and to be acknowledged by Australian industry and government as a leading source of knowledge and expertise in quantum computation and intelligent systems.

The Centre's vision is to develop theoretical foundations in, and innovative technogies for, quantum computation and intelligent systems. Technology created by the Centre's research is providing next-generation enterprise intelligent information systems.

Since its establishment, QCIS has achieved:

- Fourteen ARC Discovery and Linkage grants, three ARC Future Fellowships, and several industry grants
- Major scientific breakthroughs in quantum computation in the areas of: Floyd-Hoare logic; solving the problem of bisimulation for quantum processes; and characterising the fundamental problem of perfect indistinguishability of quantum operations
- Participation in, and financial support from, the Capital Markets CRC
- Industry partnerships with Centrelink, Westpac, HCF, Coates Hire, Alcatel, IBM, and Optus
- Over 100 publications in high-profile A*/A journals and more than 75 publications in high-status conference proceedings.
- Each of the five QCIS laboratories has established research collaboration with leading experts of international renown
- QCIS core members actively participate in: key positions in international professional organisations; editorial roles for international journals; chairs at, and keynote speeches for, international conferences

The Centre's five major research programs cover quantum computation, knowledge discovery, decision support, innovation, and knowledge infrastructure enhancement. Together, these programs develop a set of innovative and practical methodologies and techniques for intelligent information processing and system building for a broad range of businesses in the finance, marketing, security, health, government, IT and e-services, and engineering sectors.

The five QCIS state-of-the-art research laboratories, listed in alphabetical order, are:

- Data Sciences and Knowledge Discovery Laboratory (DSKD Lab)
- Decision Systems and e-Service Intelligence Laboratory (DeSI Lab)
- Innovation and Enterprise Research Laboratory (Magic Lab)
- Knowledge Infrastructure Laboratory (KIL Lab)
- Quantum Computation Laboratory (QC Lab)

The Centre's achievements have resulted in the establishment of the Advanced Analytics Institute (AAI) which grew from the DSKD Lab. With strong research ties and mutual interests, QCIS and the Institute maintain a close working relationship.

QCIS is staffed by over thirty scientists and more than seventy research students. It is located in The University of Technology, Sydney, Building 10, on Jones Street at Broadway (Sydney). For more information, contact QCIS at UTS on (02) 9514 2000, by email at: qcis-centre@it.uts.edu.au, or visit the QCIS website at: www.qcis.uts.edu.au.

UTS:QCIS
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