

SI-HUI TAN

Nationality: Singaporean \diamond Gender: Female
Bomporten 2 \diamond 2820 Gentofte \diamond Denmark
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EDUCATION

Massachusetts Institute of Technology (MIT)

September 2010

Ph.D. in Physics

Overall GPA: 4.5

Thesis advisor: Seth Lloyd

Thesis: Quantum State Discrimination with Bosonic Channels and Gaussian States

California Institute of Technology (Caltech)

June 2004

B.S. in Physics (with Honors)

Overall GPA: 3.9

HONORS AND AWARDS

MIT Presidential Fellowship (2004), A*STAR National Science Scholarship (BS-PhD), Honorable Mention in First-Step to Nobel Prize International Competition (1999), 1st Prize in Singapore National Science Talent Search (1999)

RESEARCH EXPERIENCE

Singapore University of Technology and Design (SUTD)

October 2013 - Present

Research Scientist

Advisor: Joseph F. Fitzsimons

- Currently developing new quantum cryptographic primitives for secure delegated quantum computing.
- Working with experimental collaborators to create physical implementations of quantum protocols, and interpret their experimental data.
- Was co-Principal Investigator on US AFOSR grant #15IOA082 of US\$598,734.77 for “Quantum primitives for secure computing”. Helped to manage projects on the grant, and to set up a US\$93K in-fiber quantum optics lab.
- Co-supervising 1 PhD student.

A*STAR Data Storage Institute

December 2010 - October 2013

Research Scientist

- Developed theoretical models for a team of quantum optical experimentalists to interpret and analyze experimental data.
- Studied partial distinguishability in single photon quantum interference, and its effect on a sampling task known as Bosonsampling.
- Supervised 1 undergraduate intern, and 1 junior college intern.

Department of Physics, MIT

September 2006 - October 2010

Ph.D. student

Advisor: Seth Lloyd

- Developed a quantum target detection protocol for distinguishing quantum channels in the presence of loss and noise with entangled Gaussian state inputs.
- Developed structured receivers for quantum communication and quantum imaging protocols.

National University of Singapore (NUS)

Summer 2003

Summer intern

Advisor: Berthold-Georg Englert

- Examined the security for a two-photon, four-qubit state quantum cryptographic protocol based on the Mean-King problem.

REVIEWER

Physical Review Letters, Physical Review A, Scientific Reports, Quantum Information and Computation, Journal of the Optical Society of America B

TEACHING

Centre for Quantum Technologies, NUS

Instructor for QT5198 (Graduate Seminar in Quantum Information)

Spring 2018

MIT

Teaching Assistant for 8.011 (Physics I)

Spring 2006

Teaching Assistant for 8.01T (Physics I)

Fall 2005

Caltech

Teaching Assistant for Ph 7 (Nuclear Physics Lab)

Spring 2004

Teaching Assistant for APh 23 (Optics)

Winter 2001 & Winter 2002

Teaching Assistant for APh 24 (Optics Lab)

Spring 2002 & Spring 2003

ACTIVITIES

Council member, SUTD Postdoc Society, 2018-present. Vice-President, SUTD Wine Appreciation Club, 2018-present. Co-President, SUTD Postdoc Society, 2016-2017. MIT Club of Singapore, Executive Committee member, 2010-2013. MIT Physics Graduate Student Society, Representative, 2008-2009. Caltech Dance of the Roses 2004 Competition, Chief Organizer. Officer, Caltech Ballroom Dance Team, 2002-2003. President, Caltech Singapore Student Society, 2001-2004. Interests include dancing, hiking, and cooking.