2160F Torgersen Hall, 620 Drillfield Dr.
Blacksburg, 24061, VA, USA
+1 (540) 231 1172
✉ atul.mantri91@gmail.com
🌐 www.atulmantri.com

Atul Mantri — Curriculum Vitae

Education

Aug'23 - Present	**Assistant Professor**, *Dept of Computer Science, Virginia Tech*
Jan'20 - July'23	**Research Associate**, *University of Maryland*, College Park, USA
Feb'19 - Dec'19	**Research Associate**, *University of Edinburgh*, Edinburgh, United Kingdom
Sep'14 - Feb'19	**Ph.D. Candidate**, *Center for Quantum Technologies (CQT), National University of Singapore and Singapore University of Technology and Design*, Singapore
Aug'09 - May'14	**B.S.- M.S. Dual Degree (Major: Physics)**, *Indian Institute of Science Education and Research (IISER)*, Mohali, Punjab, India

Doctoral thesis

Title	Secure Delegated Quantum Computing.
Supervisor	**Prof. Joseph Fitzsimons**, *Singapore University of Technology and Design (SUTD) and Center for Quantum Technologies (CQT), National University of Singapore (NUS)*, Singapore
Focus	To design new protocols for information-theoretic secure delegation of quantum computation and to study the role of interaction in various client-server settings.

Master thesis

Title	Study of Magnetic Traps and Radio Frequency Dressed State Potentials.
Supervisor	**Prof. Mandip Singh**, *Indian Institute of Science Education and Research (IISER)*, Mohali, Punjab, India
Focus	To study the radio frequency dressed state potential for Bose-Einstein Condensation and to explore the practical implications for atom interferometry.

Awards, honors, and fellowships

Jul'16	Outstanding Graduate Research Award at the SUTD FIRST Industry Workshop.
Sep'14 - Feb'19	President's Graduate Fellowship, Singapore awarded to PhD candidates who show exceptional promise or accomplishment in research.
Aug'09- May'14	Inspire Fellowship awarded by Department of Science and Technology to meritorious students for pursuing Natural and Basic Science undergraduate degree in India.

Preprints/Peer-reviewed articles/Book Chapters

○ Listed in reverse chronological order.

○ 'IF' = Impact factor of the journal.

[1] Drmota P, Nadlinger DP, Main D, Nichol BC, Ainley EM, Leichtle D, <u>Mantri A</u>, Kashefi E, Srinivas R, Araneda G, Ballance CJ. Verifiable blind quantum computing with trapped ions and single photons. *arXiv preprint* arXiv:2305.02936. 2023.

[2] Yusuf Alnawakhtha, <u>Atul Mantri</u>, Carl A. Miller, and Daochen Wang. *Lattice-Based Quantum Advantage from Rotated Measurements.* arXiv preprint arXiv:2210.10143, 2022.

[3] [Book] Peter Rohde, Zixin Huang, Heliang Huang, Zuen Su, Scott Harrison, Tim Byrnes, Jonathan Dowling, Si-Hui Tan, <u>Atul Mantri</u>, Simon Devitt, Rohit Ramakrishnan, Nana Liu, Chandra Radhakrishnan, William Munro *The Quantum Internet: The Second Quantum Revolution* (edited by Peter Rohde) Published by the Cambridge University Press, Dec 2021

[4] Michele Ciampi, Alexandru Cojocaru, Elham Kashefi, <u>Atul Mantri</u>. Secure Quantum Two-Party Computation: Impossibility and Constructions *arXiv preprint* arXiv:2010.07925, 2020.

[5] Christian Badertscher, Alexandru Cojocaru, Léo Colisson, Elham Kashefi, Dominik Leichtle, <u>Atul Mantri</u>, Petros Wallden. Security Limitations of Classical-Client Delegated Quantum Computing *Advances in Cryptology – ASIACRYPT*, 2020.

[6] Jack K. Fitzsimons, <u>Atul Mantri</u>, Robert Pisarczyk, Tom Rainforth, Zhikuan Zhao. A note on blind contact tracing at scale with applications to the COVID-19 pandemic *ARES '20: Proceedings of the 15th International Conference on Availability, Reliability and Security*, 2020.

[7] The Quantum Protocol Zoo Manuscript, 2019, `https://atulmantri.com/projects/Qprotocolzoo.pdf`

[8] Yuki Takeuchi, <u>Atul Mantri</u>, Tomoyuki Morimae, Akhiro Mizutani, and Joseph F Fitzsimons. Resource-efficient verification of quantum computing using Serfling's bound *npj Quantum Information*, 5(1):27, 2019 **(IF = 9.206)**.

[9] Corsin Pfister, M Adriaan Rol, <u>Atul Mantri</u>, Marco Tomamichel, and Stephanie Wehner. Capacity estimation and verification of quantum channels with arbitrarily correlated errors. *Nature Communications*, 9(1):27, 2018 **(IF = 12.353)**.

[10] <u>Atul Mantri</u>, Tommaso F Demarie, Nicolas C Menicucci, and Joseph F Fitzsimons. Flow ambiguity: A path towards classically driven blind quantum computation. *Physical Review X*, 7(3):031004, 2017 **(IF = 14.385)**.

[11] <u>Atul Mantri</u>, Tommaso F Demarie, and Joseph F Fitzsimons. Universality of quantum computation with cluster states and (x,y)-plane measurements. *Scientific Reports*, 7:42861, 2017 **(IF = 4.122)**.

[12] C Pfister, J Kaniewski, M Tomamichel, <u>A Mantri</u>, R Schmucker, N McMahon, G Milburn, and S Wehner. A universal test for gravitational decoherence. *Nature Communications*, 7, 2016 **(IF = 12.353)**.

[13] <u>Atul Mantri</u>, Carlos A Pérez-Delgado, and Joseph F Fitzsimons. Optimal blind quantum computation. *Physical Review Letters*, 111(23):230502, 2013 **(IF = 8.839)**.

[14] Mayank Mishra, <u>Atul Mantri</u>, Priyank Mishra, P.K. Panigrahi Non-Standard Probabilistic Teleportation through Conventionally Non-Teleporting Channels. *arXiv preprint* arXiv:1108.0080, 2011.

Industry Collaboration

○ Industry (Quantum): NTT Communication Science Laboratories, Horizon Quantum, Entropica Labs, VeriQcloud.

○ Industry (Non-quantum): ObliviousAI, IOHK.

Academic Services

○ Moderator: The Quantum Protocol Zoo (`https://wiki.veriqloud.fr`)

○ PC member: Q-turn 2020 (International quantum information workshop)

○ Reviewer/ Sub-reveiwer: STOC (2021), FOCS (2019), QIP (2019), QCrypt (2017, 2019), TQC (2019, 2020), AQIS (2019), Nature Quantum Information (npjQI), Quantum, QIC, Scientific Reports, Quantum Science and Technology, QINP, Cryptography.

Teaching Experience

Sep - Dec 2016 and 2015 — Teaching Assistant, Probability and Statistics at SUTD, Singapore.

Research Experience

Jan - Feb, 2018 — **A/Prof. Tomoyuki Morimae**, *Yukawa Institute for Theoretical Physics, Kyoto University*, Kyoto, Japan (Visiting researcher)

Focus — Verification of quantum computation using Serfling's bound.

April - June, 2017 — **Prof. Elham Kashefi**, *University Pierre and Marie Curie (UPMC)*, Paris, France (Visiting researcher)

Focus — Study of blind and verifiable quantum computation for a completely classical client and a single quantum server

May - July, 2014 & 2013 — **Prof. Stephanie Wehner**, *Center for Quantum Technologies (CQT), National University of Singapore (NUS)*, Singapore (Summer research intern)

Focus — A theory independent test for gravitational decoherence. (May - July, 2014)

Estimation and verification of quantum channel capacities. (May - July, 2013)

May - July, 2012 — **A/Prof. Joseph Fitzsimons**, *Center for Quantum Technologies (CQT), National University of Singapore (NUS)*, Singapore (Summer research intern)

Focus — Optimality of blind quantum computation.

May - July, 2011	**A/Prof. Radhakrishna Srikanth**, *Poornaprajna Institute of Scientific Research (PPISR)*, Bangalore, India (Summer research intern)
Focus	Understanding non-classicality from a communication perspective.
	The project was awarded best paper in the physics category at the Research Scholars Meeting, 2012 held at Indian Institute of Space Science and Technology (IIST) Thiruvananthapuram, India
May - July & Dec, 2010	**Prof. Prasanta Panigrahi**, *Indian Institute of Science Education and Research (IISER)*, Kolkata, India (Research intern)
Focus	Simple quantum teleportation schemes based on (non-maximally) entangled states.

References

○ Prof. Gorjan Alagic

- Associate Research Scientist in the University of Maryland Institute for Advanced Computer Studies (UMIACS), College Park, United States.
- galagic [at] umd [dot] edu
- *Current Postdoc Supervisor*

○ Prof. Elham Kashefi

- Professor of Quantum Computing at the School of Informatics, University of Edinburgh, and Directeur de recherche au CNRS at LIP6 Sorbonne Universite, France.
- ekashefi [at] gmail [dot] com
- *Former Postdoc Supervisor*

○ Dr. Joseph Fitzsimons

- Founder and CEO of Horizon Quantum, Singapore.
- joe [at] horizonquantum [dot] com
- *Ph.D. Supervisor*

○ Prof. Tomoyuki Morimae

- Yukawa Institute for Theoretical Physics, Kyoto University, Japan.
- morimae [at] gmail [dot] com
- *Collaborator*

○ Prof. Prasanta Panigrahi

- Indian Institute of Science Education and Research Kolkata, India.
- pprasanta [at] iiserkol [dot] ac [dot] in
- *Mentor and Intern Supervisor*