ARKOPAL DUTT

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Education

Massachusetts Institute of Technology (MIT), Cambridge, MA, USA — **Ongoing**

Ph.D. in Mechanical Engineering, Advisor: Professor Isaac Chuang — GPA: 4.9/5.0

Thesis: Accelerating Calibration and Control of Quantum Systems using Machine Learning

Massachusetts Institute of Technology (MIT), Cambridge, MA, USA — **Feb. 2018**

S.M. in Mechanical Engineering, Advisor: Professor Pierre Lermusiaux — GPA: 4.9/5.0

Thesis: High Order Stochastic Transport and Lagrangian Data Assimilation

Indian Institute of Technology Bombay (IITB), Mumbai, MH, India — **May 2015**

B.Tech. in Aerospace Engineering (Honors) with Minor in Mathematics — GPA: 9.4/10

Research Experience

Research Assistant, Center for Ultracold Atoms, MIT	Jan. 2019 – Now
Research Intern, IBM T.J Watson Research Center, Mentors: Antonio Mezzacapo and Sarah Sheldon	Jun. – Aug., 2021
Research Intern, IBM T.J Watson Research Center, Mentors: Lev Bishop and Sarah Sheldon	Jun. – Aug., 2020
Research Intern, Los Alamos National Laboratory, Mentors: Andrey Lokhov and Marc Vuffray	Jun. – Aug., 2018
Research Assistant, MSEAS Lab, MIT	Sep. 2015 – Jun. 2018
Research Intern, Space Science and Engineering Center, University of Wisconsin, Madison, USA	May – Jul., 2014

Selected Publications

1. **Dutt, A.**, Pednault, E., Wu, C. W., Sheldon, S., Smolin, J., Bishop, L., & Chuang, I. L. (2021). Active Learning of Quantum System Hamiltonians yields Query Advantage. *arXiv preprint arXiv:2112.14553*.

2. **Dutt, A.**, Lokhov, A. Y., Vuffray, M., & Misra, S. (2021). Exponential Reduction in Sample Complexity with Learning of Ising Model Dynamics. In *Proceedings of the 38th International Conference on Machine Learning* (pp.2914–2925). PMLR.

3. **Dutt, A.**, Subramani, D. N., Kulkarni, C. S., & Lermusiaux, P. F. (2018). Clustering of massive ensemble of vehicle trajectories in strong, dynamic and uncertain ocean flows. In *OCEANS 2018 MTS/IEEE Charleston* (pp. 1-7). IEEE.

4. Lermusiaux, P. F., Subramani, D. N., Lin, J., Kulkarni, C. S., Gupta, A., **Dutt, A.**, ... & Jana, S. (2017). A future for intelligent autonomous ocean observing systems. *Journal of Marine Research*, 75(6), 765-813.

Selected Oral and Poster Presentations

1. "Exponential Reduction in Sample Complexity with Learning of Ising Model Dynamics". Long oral presentation at ICML 2021, July 22, 2021.

2. "Efficient Learning of Ising Models from Glauber Dynamics". Contributed poster at Youth in High Dimensions, ITCP, June, 2021.

3. "Experimental Evaluation of Active Learning of a Two Qubit Cross-Resonance Hamiltonian". Contributed talk at APS March Meeting, March, 2021.

4. "Active Learning of Hamiltonians". Contributed talk at APS March Meeting, March, 2020.

5. "Active Learning for Hamiltonian Tomography". Contributed talk at Physics Informed Machine Learning Workshop, January 15, 2020.

Honors and Awards

Physics Informed Machine Learning 2020 Travel Workshop	2019
Applied Machine Learning Fellowship, Los Alamos National Laboratory	2018
SIAM Student Chapter Certificate in recognition of outstanding service and contributions	2018
American Geophysical Union (AGU) Fall Meeting Student Travel Award	2017
Undergraduate Research Award for undergraduate thesis at IITB	2015
Institute Academic Prizes for academic excellence at IITB	2013, 2014
S.N. Bose Scholarship (IUSSTF) for summer internship at University of Wisconsin, Madison	2014
Prestigious Indian Government Fellowship - Kishore Vaigyanik Protsahan Yojana (KVPY)	2010

Leadership and Professional Development

Institute for Artificial Intelligence and Fundamental Interactions, Speaker Selection Committee	**2021 –**
Society of Industrial and Applied Mathematics (SIAM), MIT Chapter, President	**2018 – 2021**
Sidney-Pacific Graduate Residence, Vice-President of Resources and Treasurer	**2017 – 2018**

Teaching Experience

Co-instructor, Practical Computer Science for Computational Scientists, MIT	IAP 2019
Teaching Assistant, 2.003 Dynamics, MIT	Fall 2018
Teaching Assistant, 2.29 Numerical Fluid Mechanics, MIT	Spring 2017
Teaching Assistant, AE625 Particle Methods for Fluid Flow Simulation, IITB	Spring 2015
Teaching Assistant, AE333 Aerodynamics, IITB	Fall 2014

Technical Skills

Programming: Python, Julia, MATLAB

Relevant Courses (MIT): Quantum Information Science, Topics in Superconducting Qubits, Algorithms for Inference, Machine Learning, Inference and Information, Numerical Methods for Stochastic Modeling and Inference