

Abstract Submitted  
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**Quantum Estimation, meet Computational Statistics; Computational Statistics, meet Quantum Estimation** CHRIS FERRIE, Center for Quantum Information and Control and Department of Physics and Astronomy, University of New Mexico, CHRIS GRANADE, Institute for Quantum Computing and Department of Physics and Astronomy, University of Waterloo, JOSHUA COMBES, Center for Quantum Information and Control and Department of Physics and Astronomy, University of New Mexico — Quantum estimation, that is, post processing data to obtain classical descriptions of quantum states and processes, is an intractable problem—scaling exponentially with the number of interacting systems. Thankfully there is an entire field, Computational Statistics, devoted to designing algorithms to estimate probabilities for seemingly intractable problems. So, why not look to the most advanced machine learning algorithms for quantum estimation tasks? We did. I'll describe how we adapted and combined machine learning methodologies to obtain an online learning algorithm designed to estimate quantum states and processes.

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