THE UNIVERSITY OF CHICAGO

Department of Statistics

STATISTICS COLLOQUIUM

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Statistics and Quantum Computing

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Eckhart 133, 5734 S. University Avenue
Refreshments following the seminar in Eckhart 110.

ABSTRACT

Quantum computation and quantum information are of great current interest in fields such as computer science, physics, engineering, chemistry and mathematical sciences. They will likely lead to a new wave of technological innovations in communication, computation and cryptography. As the theory of quantum physics is fundamentally stochastic, randomness and uncertainty are deeply rooted in quantum computation and quantum information. Thus statistics can play an important role in quantum computation, which in turn may offer great potential to revolutionize statistical computing and inferences. This talk will first give a brief introduction on quantum computation and quantum information and then present my recent work on (i) quantum tomography and its connection with matrix completion and compressed sensing, (ii) annealing based quantum computing and its relationship with Markov chain Monte Carlo simulations, (iii) statistical analysis of quantum annealing for large scale quantum computing data.

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