Texas Tech Quantum Computing and IMSE Joint Seminar

May 3, 2021, 12:00 - 12:50 p.m. CST

https://zoom.us/j/92939545211

A snapshot of quantum algorithms for optimization

Abstract

There is much hype surrounding quantum computing and its potential applications for optimization. However, the technical details are often lost in translation. In this talk I will give an overview of quantum algorithms that may - one day - be useful for continuous and discrete optimization, highlighting possible sources of advantage as well as limitations. In particular, I will discuss variational hybrid algorithms for optimization, simulated annealing for counting problems, and, if time permits, algorithms for linear systems, for SDPs and LPs

Biography

Giacomo Nannicini is a Research Staff Member in the Theory of Quantum Computing and Information group at the IBM T. J. Watson Research Center. Before joining IBM, he was an assistant professor in the Engineering Systems and Design pillar at the Singapore University of Technology and Design. His main research interest is optimization broadly defined and its applications. Giacomo received several awards, including the 2016 COIN-OR Cup, the 2015 Robert Faure prize, the 2012 Glover-Klingman prize. His algorithms and software are used by one of the largest real-time traffic and mobility information groups in Europe and in IBM Watson Studio.

References for the talk

https://epubs.siam.org/doi/abs/10.1137/18M1170650

https://arxiv.org/abs/2009.11270

https://arxiv.org/abs/1910.10649

Dr. Giacomo Nannicini