Department of Computer Science, The University of Hong Kong

Quantum Information Seminar

Quantum algorithms for machine learning and optimization

Tongyang Li, PhD candidate
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University of Maryland

Date:
December 19, 2019
Thursday
2:00-3:00pm

Venue:
Room 308
Chow Yei Ching Building
The University of Hong Kong

Abstract:

The theories of machine learning and optimization answer foundational questions in computer science and lead to new algorithms for practical applications. While these topics have been extensively studied in the context of classical computing, their quantum counterparts are far from well-understood. In this talk, I will introduce my research that bridges the gap between the fields of quantum computing and theoretical machine learning. To be more specific, I will briefly introduce some of my recent developments on quantum advantages for machine learning and optimization, including classification (ICML 2019), convex optimization (QIP 2019), generative adversarial networks (NeurIPS 2019), semidefinite programming (QIP 2019), etc. I will also introduce limitations of quantum computers by giving quantum-inspired classical machine learning algorithms.

About the Speaker:

Tongyang Li is a Ph.D. candidate at the Department of Computer Science, University of Maryland. He received B.E. from Institute for Interdisciplinary Information Sciences, Tsinghua University and B.S. from Department of Mathematical Sciences, Tsinghua University, both in 2015; he also received a Master degree from Department of Computer Science, University of Maryland in 2018. He is a recipien of the IBM Ph.D. Fellowship, the NSF QISE-NET Triplet Award, and the Lanczos Fellowship. His research focuses on designing quantum algorithms for machine learning and optimization.

All are welcome!
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