Workshop on Quantum Machine Learning
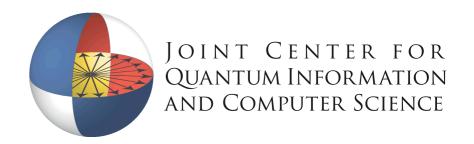
Sep 24-28, 2018

QuICS, University of Maryland

http://qml2018.quics.umd.edu/

UNIVERSITY OF MARYLAND

JOINT CENTER FOR QUANTUM INFORMATION AND COMPUTER SCIENCE

Motivation

Machine learning: a revolution in the way we deal with huge amount of data, achieving remarkable successes in many application areas.

Quantum computing: known capable of revealing patterns in high-dimensional systems in some cases.

It's natural to consider:

(i) in what cases quantum can provide speedups in machine learning

(ii) using classical machine learning to explore quantum information

Goal of this workshop: facilitate research on this topic by

(i) exploring the research frontier (15 invited talks)

(ii) identifying important open questions

Structure of the workshop

Topics:

(i) classical machine learning, e.g., optimization, tensor methods, generative adversarial networks (GANs).

(ii) quantum-enchanced artificial intelligence and neuro-networks

(iii) quantum algorithms for optimization

(iv) quantum computational learning theory

(v) experiments on Noisy-Intermediate-Size-Quantum devices

Speakers: we are happy to have speakers from academia, industry and national research labs, including both theorists (math, physics, computer science) and experimentalists.

We envision interaction among them critical of the development in this interdisciplinary field.

Features of the workshop

Discussions: allow ample free time for discussions and potential collaborations. Reserved rooms and QuICS spaces.

Open Question Session: collect ideas for the following questions:

(I) important recent advances in quantum machine learning;

(II) important near-term or long-term open problems to solve.

First session: Tue, 2:40pm - 3: 30pm.   **Need your input** !

Poster Session: Wed (09/26), 3pm to 5pm, at QuICS.

Logistics

Check the program/talk abstracts at the workshop website!

Coffee break and Refreshments: at QuICS 3100A

Discussion space: discussion rooms and spaces in QuICS

no food/beverage please

conference room closed after **3:30**pm

Pick up your badge and folder: at QuICS 3100A

WiFi? try eduroam or contact our coordinator (Andrea)

Lunch on your own (~2hrs): ask locals for suggestions

Group photo: after the morning session on Thursday (9/27)

Quantum information at UMD

- Joint Center for Quantum Information and Computer Science (QuICS)

- Joint Quantum Institute (JQI)