

QTML 2019 Tentative Program Table

	Sunday	Monday	Tuesday	Wednesday	Thursday
9:00 - 9:30			Session T1 I: M. Degroote S.40: Kristensen S.44: Mendoza S.23: Sim	Session W1 K: J. McClean I: M. Mohseni	Session Th1 I: D. Ahn I: R. Raymond L.47: Petruccione
9:30 - 10:00					
10:00 - 10:30					
10:30 - 11:00		10:00 - 11:00 Registration	Break		
11:00 - 11:30		Session M1 11:00 Opening 11:10 K: S. Jordan	Session T2 I: A. Zlokapa S.21: Noori S.36: Kewming	Session W2 I: J. Carolan S.12: Puri S.45: Park	Session Th2 I: P. Rebstrost S.9: Beny S.19: Greenberg
11:30 - 12:10					
12:10 - 14:00	13:00 - 14:00 Registration	Lunch Break			
14:00 - 14:30	Tutorial 1 M. Quang	Session M2 I: L. Wossnig L.15: Coyle S.18: Bondarenko	Session T3 L.14: Blank S.4: Sergioli S.25: Mengoni S.31: LaRose	Excursion: Songnisan Nat. Park	Session Th3 L.22: Quek S.28: Xu S.38: Sinayskiy S.48: Ismail
14:30 - 15:00					
15:00 - 15:30		Break	Session M3 L.24: Gerace S.7: Puri S.10: Schuld S.20: Vedaie		(15:30 - 17:10) Session T4 Break & Poster
15:30 - 16:00					
16:00 - 16:30	Break				
16:30 - 17:00	Tutorial 2 M. Schuld				
17:00 - 17:30					
17:30 - 18:00					
18:00 - 18:30					
18:30 -	Reception	Chair event	Banquet		

K = Keynote (50 min)

I = Invited (30 min)

L = Long (30 min)

S = Short (20 min)

*The number after L or S is the EasyChair submission number.

QTMML 2019 Tentative Program Detail

Day 1:

Sunday, Oct. 20				
Time	Program	Speaker	Title	Session Chair
14:00 - 16:00	Tutorial 1	Minh Ha Quang (RIKEN)	Kernel methods in machine learning: overview and recent advances	June-Koo Kevin Rhee
16:00 - 16:30	Coffee Break			
16:30 - 18:30	Tutorial 2	Maria Schuld (Xanadu & UKZN)	Introduction to Quantum Machine Learning	June-Koo Kevin Rhee
18:30 -	Reception			

Day 2:

Monday, Oct. 21				
Time	Program (paper ID)	Speaker/Author	Title	Session Chair
10:00 - 11:00	Registration			
11:00 - 11:10	Opening			June-Koo Kevin Rhee
11:10 - 12:00	Keynote	Stephen Jordan (Microsoft)	Quantum and quantum-inspired methods for artificial intelligence	
12:10 - 14:00	Lunch			
14:00 - 14:30	Invited	Leonard Wossnig (University College London & Rahko)	Generative training of quantum Boltzmann machines with hidden units	Alessandra Di Pierro
14:30 - 15:00	Long (15)	Coyle et al. (The University of Edinburgh)	The Born supremacy: Quantum advantage and training of an Ising Born machine	
15:00 - 15:20	Short (18)	Bondarenko (Leibniz Universität Hannover)	Supervised and unsupervised training of deep quantum neural networks with applications	
15:20 - 16:00	Coffee Break			
16:00 - 16:30	Long (24)	Gerace et al. (University of Pavia)	An artificial neural network implemented on noisy intermediate-scale quantum hardware	
16:30 - 16:50	Short (7)	Puri et al. (Adobe Media and Data Science Research Lab)	Deep quantum support vector machine	
16:50 - 17:10	Short (10)	Schuld et al. (Xanadu & UKZN)	How to use Gaussian Boson sampler to learn from graph-structured data	

Monday, Oct. 21				
Time	Program (paper ID)	Speaker/Author	Title	Session Chair
17:10 - 17:30	Short (20)	Vedaie/Oberoi et al. (1QBit, Inc.)	The power of one qubit in machine learning	
18:30	Chair Event			Daniel Park

Day 3:

Tuesday, Oct. 22				
Time	Program (paper ID)	Speaker/Author	Title	Session Chair
9:00 - 9:30	Invited	Matthias Degroote (University of Toronto)	Inside the latent space of a quantum variational autoencoder	Maria Schuld
9:30 - 9:50	Short (40)	Kristensen et al. (Aarhus University)	Artificial quantum spiking neurons	
9:50 - 10:10	Short (44)	Mendoza et al. (Harvard University)	Quantum autoencoder for symmetries in Hamiltonians	
10:10 - 10:30	Short (23)	Sim et al. (Harvard University)	Quantifying expressibility and entangling capability of parametrized quantum circuits for variational algorithms	
10:30 - 11:00	Coffee Break			
11:00 - 11:30	Invited	Alexander Zlokapa (Caltech)	Novel machine learning algorithms for quantum annealing with applications in high energy physics	
11:30 - 11:50	Short (21)	Noori et al. (1QBit Inc.)	Adiabatic quantum random kitchen sink	
11:50 - 12:10	Short (36)	Kewming et al. (The University of Queensland)	A detuned parametrically pumped Kerr coherent Ising machine	
12:10 - 14:00	Lunch			
14:00 - 14:30	Long (14)	Blank et al. (Data Cybernetics)	Quantum classifier with tailored quantum kernel	Joonwoo Bae
14:30 - 14:50	Short (4)	Sergioli (University of Cagliari)	A new quantum-like approach to binary classification	
14:50 - 15:10	Short (25)	Mengoni et al. (University of Verona)	Graph classification with a quantum computer	

Tuesday, Oct. 22				
Time	Program (paper ID)	Speaker/Author	Title	Session Chair
15:10 - 15:30	Short (31)	LaRose et al. (Michigan State University)	Robust data encodings for quantum classifiers	
15:30 - 17:10	Break & Poster Session			
17:10 - 17:40	Invited	Nana Liu (Shanghai Jiao Tong University)	Adversarial quantum learning	
17:40 - 18:00	Short (13)	Fanizza et al. (Scuola Normale Superiore)	Beyond the swap test: optimal estimation of quantum state overlap	
18:30	Banquet			

Day 4:

Wednesday, Oct. 23				
Time	Program (paper ID)	Speaker/Author	Title	Session Chair
9:00 - 9:50	Keynote	Jarrod McClean (Google)	Challenges and possible resolutions in variational algorithms on near-term quantum devices	Francesco Petruccione
10:00 - 10:30	Invited	Masoud Mohseni (Google)		
10:30 - 11:00	Coffee Break			
11:00 - 11:30	Invited	Jacques Carolan (MIT)	Large-scale Integrated Quantum Photonics: Quantum for ML and ML for Quantum	
11:30 - 11:50	Short (12)	Puri et al. (Adobe Media and Data Science Research Lab)	Optical GAN: Generative adversarial networks for continuous variable quantum computation	
11:50 - 12:10	Short (45)	Park et al. (KAIST)	Quantum-classical reinforcement learning for decoding noisy classical parity information	
12:10 - 14:00	Lunch			
14:00 -	Excursion			

Day 5:

Thursday, Oct. 24				
Time	Program (paper ID)	Speaker/Author	Title	Session Chair
9:00 - 9:30	Invited	Doyeol Ahn (University of Seoul)	Quantum circuit optimization using quantum Karnaugh map	Daniel Park
9:30 - 10:00	Invited	Rudy Raymond (IBM Research)	Distributed Average Computation with Near-term Quantum Devices for Collaborative Learning	
10:00 - 10:30	Long (47)	Petruccione et al. (UKZN)	Parallel unravelling for simulating open quantum systems	
10:30 - 11:00	Coffee Break			
11:00 - 11:30	Invited	Patrick Rebentrost (CQT, NUS)	Near-term quantum algorithms for linear systems of equations	
11:30 - 11:50	Short (9)	Beny (Independent)	Learning small rank representations of channels	
11:50 - 12:10	Short (19)	Greenberg/Phan (IBM)	Quantum kernel clustering	
12:10 - 14:00	Lunch			
14:00 - 14:30	Long (22)	Quek et al. (Stanford University)	Adaptive quantum state tomography with neural networks	Jinhyung Lee
14:30 - 14:50	Short (28)	Xu (University of Science and Technology of China)	Experimental simultaneous learning of multiple non-classical correlation	
14:50 - 15:10	Short (38)	Sinayskiy et al. (UKZN)	Prediction of the steady state properties of the dissipative driven systems using machine learning techniques	
15:10 - 15:30	Short (48)	Ismail et al. (UKZN)	Exploiting supervised machine learning techniques to monitor quantum links	
15:30 - 16:00	Coffee Break			
16:00 - 16:30	Invited	Abolfazl Bayat (University of Electronic Science and Technology of China)	Machine-learning-assisted negativity measurement in analog quantum simulators	
16:30 - 16:50	Short (16)	Flynn et al. (University of Bristol)	Quantum Model Learning: characterizing quantum systems through machine learning	
16:50 - 17:10	Short (17)	Flynn/Santagati et al. (University of Bristol)	Learning magnetic fields with nanoscale quantum sensors and quantum Hamiltonian learning	

QTMML 2019 Program: Poster Session

Tuesday, Oct. 22		
Paper ID	Presenter/Author	Title
2	Pavlovskiy et al. (Novosibirsk State University)	Superposition as Data Augmentation using LSTM and HMM in small training sets
6	Loft et al. (Aarhus University)	A four qubit quantum gate and its application to quantum variational eigensolving
8	Abbas et al. (UKZN)	Learning a quantum feature map
27	Choi et al. (Chung-Ang University)	A Quantum Approach to Max-Weight Independent Set Problem
29	Bienias (University of Maryland)	Control and characterization of Long-Range Interacting Spin Systems via machine learning
30	Suzuki et al. (Keio University)	Ensemble learning method with kernel-based quantum classifier
32	Bhatia et al. (Chitkara University Institute of Engineering & Technology)	Tensor Train Quantum Classifier
33	Henderson et al. (Rigetti Computing)	Generation of industry-relevant synthetic data using simulated quantum annealing-trained Boltzmann machines
34	Bhatia et al. (Center of quantum computing, Peng Cheng Laboratory, Shenzhen)	HQPSO: A Hybrid Quantum-behaved Particle Swarm Optimization Algorithm with Cauchy Distribution and Natural Selection Method for Engineering Design Problems
37	Kechrimparis et al. (KAIST)	Channel Coding of a Quantum Measurement
39	Musa et al. (Gulf University for Science and Technology)	Multiphoton spectroscopy of a three level atom strongly interacting with a one or two modes of a cavities
41	Jerbi et al. (Institute for Theoretical Physics, University of Innsbruck)	A framework for deep energy-based reinforcement learning with quantum speed-up
42	Dendukuri et al. (University of Arkansas)	Defining Quantum Neural Networks via Quantum Time Evolution

Tuesday, Oct. 22

Paper ID	Presenter/Author	Title
43	Dendukuri et al. (University of Arkansas)	Image Processing in Quantum Computers
46	Lamarre (University of Montreal)	Learning Quantum Circuit with Classical Gradient Descent
49	Anand et al. (University of Toronto)	Experimental Realization of Quantum Generative Adversarial Networks
50	Tacchino et al. (University of Pavia)	A model for artificial neurons based on quantum hypergraph states