Machine Learning and Quantum Physics

Quantum Engineered Systems for Big Data Analytics

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Quantum Systems for Machine Learning Algorithms

Generalized Coherent States, Reproducing Kernels, and Quantum Support Vector Machines:
Quantum Information & Computation 17 (15&16), 1292, (2017):

Quantum Unsupervised and Supervised Learning on Superconducting Processors:
To appear in Quantum Information & Computation (2020)

Applications of Photonic systems for Big Data Problems

Quantum Systems for Monte Carlo Methods and Applications to Fractional Stochastic Processes:

A Generalized Unrestricted Boltzmann Machine with Applications to Deep Neural Networks and Quantum Annealing (in preparation)

Quantum Methods for Optimization

Risk-Averse Quantum Portfolio Optimization (in preparation)

- Financial Engineering
- Quantum Science and Engineering
- Portfolio Optimization
- Algorithmic Trading
- Credit Rating Models
- Agent Based Simulation
- Monte Carlo Simulations
- High Frequency Trading
- Quantum Machine Learning Techniques
- Massive Random Number Generation
- High Speed Quantum Communication
- Quantum Cybersecurity

Expected value of simulated IBM

\[ \mathbb{E}[W(t)] \]

Quantum Tunneling

\[ H(t) \]