BosonQPsi

BQPhy®

The World's First Quantum-Powered Simulation Platform

Accelerating Complex Simulations with Quantum Computing | Backend Platform with Seamless Integration

BosonQ Psi (BQP)
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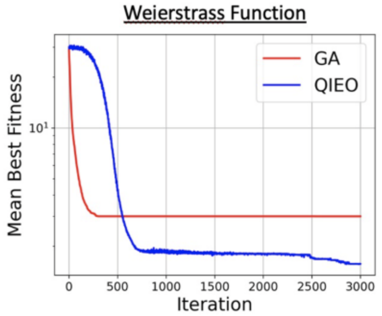
Engineering Optimization Solver | TRL 8

Displays BQP's Quantum-Inspired Evolutionary Optimization (QIEO) algorithm with a GPU-accelerated Generic Algorithm (GA). Benchmarked highly non-linear, multi-optimal, and irregular functions representing real-world engineering problems.

- ✓ Benefit 1: Accurate identification of global minima = **More optimal design**
- ✓ Benefit 2: Fewer design iterations = **Reduce overall simulation time**
- ✓ Benefit 3: Requires less compute resources = **Reduced cost of HPC**

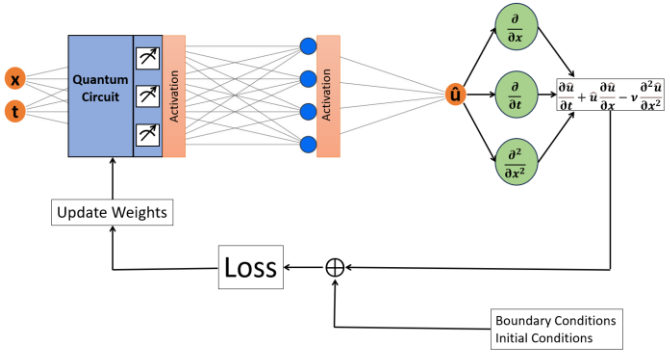


BQP's Quantum-Inspired Evolutionary Optimization (QIEO) algorithm offers transformative capabilities for digital mission engineering and war gaming solutions. Leveraging quantum-inspired techniques to explore vast design spaces, QIEO delivers faster convergence in fewer iterations, enabling more precise optimization of mission planning variables such as asset allocation, route optimization, and logistics coordination. Unlike classical algorithms that struggle with large problem sizes and variable complexities, QIEO consistently identifies better solutions, avoiding the suboptimal results that lead to higher production costs and inefficiencies. Its scalability and reduced computational demands make high-fidelity simulations more cost-effective, enhancing the realism and operational value of live training and war gaming environments.

Data-Based Solver | TRL 5

Quantum Assisted-PINN (QA-PINN) Algorithm for solving partial differential equations. Integrating quantum hidden layers on classical PINN architecture to **reduce training parameters and improve:**

- ➢ Generalizability: Ability of model to accurately predict outcomes on unseen cases beyond the training data
- ➢ Improve training time and cost



Surface defect detection use case utilizing the BQPhy® Data-Based Quantum-Enhanced Machine Learning (QML) solver for image processing and computer vision applications. The QML solver optimizes AI/ML training by significantly reducing parameters, time, and cost.

Achieved higher accuracy results with 99% fewer trainable parameters and 6x fewer iterations.