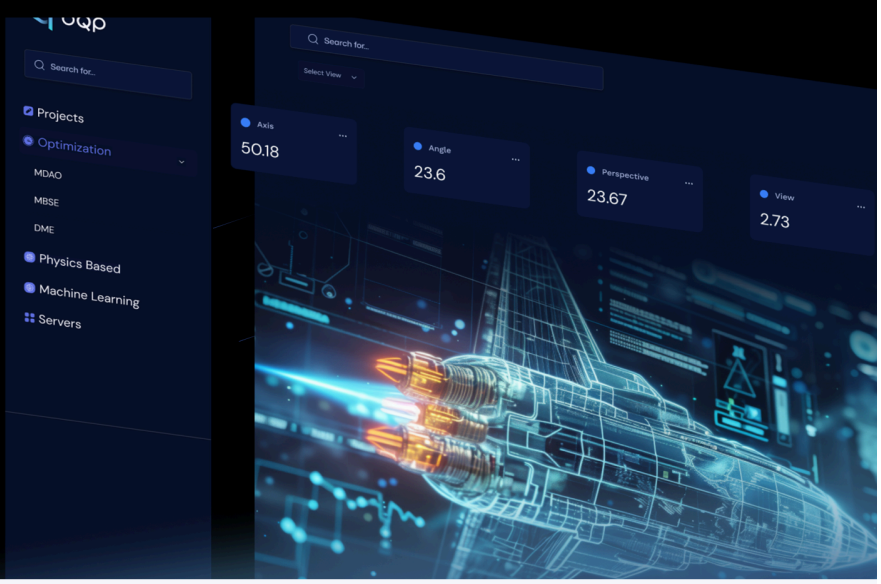
BQPhy®'s Optimization Solver

Powered by QIEO for Complex System Level Design Optimization

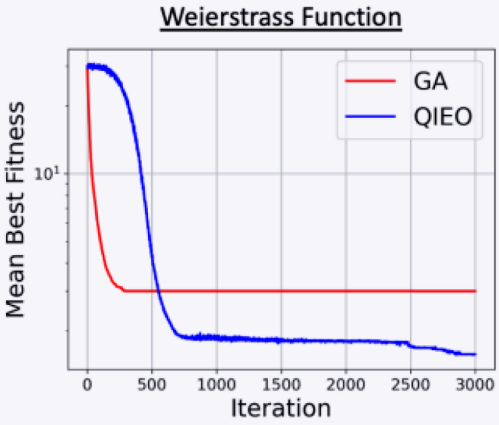


Benchmarking BQPhy's QIEO on GPUs

BQPhy® leverages QIEO (Quantum-Inspired Evolutionary Optimization) algorithms as part of its Optimization solver to efficiently solve complex computationally intensive optimization.

Compared to existing solutions, QIEO

- Explores vast solution spaces
- Requires lesser iterations,
- Each Iteration takes lesser time on GPUs
- Finds Global Minima
- High Parallelizability on GPU



Aerospace: Use Case Results

MATERIAL DESIGN OPTIMIZATION

- Delivered 12X faster, superior material configurations
- 4% Reduction in free energy leading to increased stability for performance
- Reduction in material consumption leading to lower operation costs

FLIGHT PATH OPTIMIZATION

- Optimizing trajectories of numerous aircrafts deconflicting limits size and number of cases
- BQPhy achieved more optimal results in **1/10th** of the time
- Saved **4%** fuel ($70,000) and reduced total flight time by **1%** (6.5 hours)

Space: Use Case Results

TRAJECTORY OPTIMIZATION

- Delivered **15X** faster, solutions for minimizing fuel consumption for space launch vehicle during ascent, hover and descent
- Consistently delivers solution at scale as compared to Genetic Algorithms

PLACEMENT OPTIMIZATION

- Optimizing the placement of 40 satellites across 10 targets
- BQPhy QIEO delivered **4X** better results compared to Genetic Algorithms
- Parallelized and balanced search improves solution efficiency

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