Table 1: Performance Results for Matyas_2D Problem

Optimizer	Mean Final Value	Std Dev	Best Value	Worst Value	Mean Func Evals	Success Rate (%)	Mean Time (s)
Adam-Fast	2.30e-2	1.45e-3	1.98e-2	2.49e-2	12.9	100.0	0.000
L-BFGS	1.47e-2	9.70e-3	5.88e-4	2.50e-2	20.1	100.0	0.000
L-BFGS-MoreThuente	1.72e-2	8.74e-3	2.59e-5	2.46e-2	20.8	100.0	0.000
QQN-StrongWolfe	2.73e-29	3.90e-29	1.77e-32	1.69e-28	24.0	100.0	0.000
L-BFGS-Limited	1.73e-2	5.34e-3	7.16e-3	2.46e-2	24.6	100.0	0.000
QQN-CubicQuadraticInterpolation	1.07e-2	9.48e-3	2.70e-30	2.47e-2	34.0	100.0	0.001
QQN-Bisection-1	1.91e-2	5.76e-3	2.83e-3	2.50e-2	34.2	100.0	0.001
L-BFGS-Conservative	2.30e-2	1.27e-3	2.07e-2	2.49e-2	39.0	100.0	0.001
QQN-Bisection-2	1.49e-2	6.16e-3	8.19e-4	2.50e-2	40.9	100.0	0.001
GD-Momentum	2.49e-2	6.76e-5	2.48e-2	2.50e-2	67.2	100.0	0.002
GD-Nesterov	2.49e-2	5.97e-5	2.48e-2	2.50e-2	71.0	100.0	0.002
Adam-Robust	2.48e-2	1.11e-4	2.46e-2	2.50e-2	79.0	100.0	0.002
QQN-GoldenSection	1.55e-2	6.76e-3	1.12e-3	2.47e-2	138.9	100.0	0.002
Adam-WeightDecay	2.49e-2	5.00e-5	2.48e-2	2.50e-2	221.4	100.0	0.004
GD-WeightDecay	2.50e-2	1.46e-5	2.50e-2	2.50e-2	223.7	100.0	0.007
Adam	2.50e-2	1.45e-5	2.49e-2	2.50e-2	624.2	100.0	0.012
GD	2.50e-2	5.93e-6	2.50e-2	2.50e-2	629.6	100.0	0.015
Adam-AMSGrad	2.50e-2	1.14e-5	2.50e-2	2.50e-2	680.7	100.0	0.015
GD-AdaptiveMomentum	2.52e-2	2.56e-3	2.42e-2	3.63e-2	29.2	95.0	0.001
L-BFGS-Aggressive	2.44e-2	3.00e-3	2.16e-2	3.66e-2	217.4	95.0	0.002
Trust Region-Conservative	3.93e-2	6.90e-3	2.66e-2	5.75e-2	7.0	0.0	0.000
Trust Region-Adaptive	6.88e-2	1.85e-2	2.83e-2	8.71e-2	7.0	0.0	0.000
Trust Region-Aggressive	6.67e-1	6.95e-1	2.86e-2	1.50e0	6.3	0.0	0.000
Trust Region-Precise	4.71e-2	8.16e-3	3.00e-2	5.69e-2	5.0	0.0	0.000
Trust Region-Standard	2.41e-1	1.19e-1	3.14e-2	3.36e-1	7.2	0.0	0.000