

Table 1: Performance Results for Barrier_10D_mu0.1 Problem

Optimizer	Mean Final Value	Std Dev	Best Value	Worst Value	Mean Func Evals	Success Rate (%)	Mean Time (s)
L-BFGS-Aggressive	2.00e0	4.97e-14	2.00e0	2.00e0	62.2	0.0	0.001
L-BFGS	2.00e0	5.81e-12	2.00e0	2.00e0	102.2	0.0	0.002
QQN-GoldenSection	2.00e0	2.17e-14	2.00e0	2.00e0	148.2	0.0	0.002
QQN-Bisection-2	2.00e0	5.70e-16	2.00e0	2.00e0	126.0	0.0	0.003
QQN-Bisection-1	2.00e0	6.18e-15	2.00e0	2.00e0	84.3	0.0	0.002
QQN-CubicQuadraticInterpolation	2.00e0	1.07e-9	2.00e0	2.00e0	83.8	0.0	0.002
L-BFGS-Limited	2.00e0	5.46e-9	2.00e0	2.00e0	195.4	0.0	0.004
QQN-StrongWolfe	2.00e0	9.48e-15	2.00e0	2.00e0	112.0	0.0	0.004
L-BFGS-Conservative	2.00e0	1.04e-8	2.00e0	2.00e0	555.1	0.0	0.014
GD	2.00e0	4.28e-11	2.00e0	2.00e0	305.0	0.0	0.008
Adam	2.00e0	4.64e-7	2.00e0	2.00e0	2502.0	0.0	0.054
Adam-WeightDecay	2.00e0	5.45e-9	2.00e0	2.00e0	1144.5	0.0	0.026
GD-WeightDecay	2.00e0	1.69e-5	2.00e0	2.00e0	49.4	0.0	0.002
Adam-Robust	2.00e0	2.51e-3	2.00e0	2.01e0	2502.0	0.0	0.061
Trust Region-Conservative	2.06e0	5.79e-2	2.00e0	2.18e0	2239.1	0.0	0.017
Trust Region-Precise	2.05e0	8.86e-2	2.00e0	2.37e0	326.6	0.0	0.002
Adam-AMSGrad	2.04e0	1.32e-2	2.02e0	2.07e0	2502.0	0.0	0.060
Trust Region-Adaptive	2.28e0	8.56e-2	2.05e0	2.37e0	54.1	0.0	0.000
Trust Region-Standard	2.23e0	7.54e-2	2.11e0	2.30e0	9.4	0.0	0.000
Trust Region-Aggressive	3.00e0	3.10e-1	2.33e0	3.34e0	8.0	0.0	0.000
GD-Nesterov	2.50e0	4.65e-2	2.43e0	2.64e0	21.1	0.0	0.001
Adam-Fast	2.58e0	8.67e-2	2.45e0	2.71e0	31.5	0.0	0.001
GD-Momentum	3.39e0	2.40e-1	2.91e0	3.84e0	21.2	0.0	0.001