

Table 1: Performance Results for Griewank_2D Problem

Optimizer	Mean Final Value	Std Dev	Best Value	Worst Value	Mean Func Evals	Success Rate (%)	Mean Time (s)
Adam-AMSGrad	5.24e0	4.70e-2	5.16e0	5.30e0	2502.0	0.0	0.057
Adam-Robust	5.36e0	6.83e-2	5.26e0	5.48e0	2502.0	0.0	0.056
L-BFGS-Aggressive	4.91e0	7.72e-3	4.91e0	4.95e0	2427.6	0.0	0.055
Adam	5.24e0	4.43e-2	5.16e0	5.30e0	2502.0	0.0	0.050
Adam-WeightDecay	4.92e0	2.42e-6	4.92e0	4.92e0	2231.2	0.0	0.047
GD	4.91e0	3.24e-8	4.91e0	4.91e0	1668.0	0.0	0.041
L-BFGS-Limited	4.91e0	4.49e-8	4.91e0	4.91e0	927.3	0.0	0.021
QQN-StrongWolfe	4.74e0	3.50e-1	3.76e0	4.91e0	347.6	0.0	0.015
GD-WeightDecay	4.91e0	1.03e-7	4.91e0	4.91e0	406.6	0.0	0.012
L-BFGS-Conservative	4.91e0	3.09e-9	4.91e0	4.91e0	504.6	0.0	0.012
L-BFGS	4.91e0	3.75e-8	4.91e0	4.91e0	295.6	0.0	0.006
QQN-GoldenSection	4.91e0	1.03e-13	4.91e0	4.91e0	258.3	0.0	0.004
GD-Nesterov	4.91e0	1.90e-4	4.91e0	4.91e0	125.0	0.0	0.004
GD-Momentum	4.91e0	4.49e-4	4.91e0	4.91e0	100.2	0.0	0.003
Trust Region-Conservative	4.92e0	2.48e-3	4.91e0	4.92e0	336.5	0.0	0.002
QQN-CubicQuadraticInterpolation	4.80e0	4.73e-1	2.74e0	4.91e0	77.3	0.0	0.002
QQN-Bisection-2	4.66e0	2.21e-1	4.25e0	4.91e0	94.6	0.0	0.002
QQN-Bisection-1	4.91e0	1.27e-13	4.91e0	4.91e0	76.3	0.0	0.002
Adam-Fast	4.93e0	6.09e-3	4.92e0	4.94e0	67.0	0.0	0.001
L-BFGS-MoreThuente	4.91e0	1.88e-7	4.91e0	4.91e0	73.0	0.0	0.001
GD-AdaptiveMomentum	4.99e0	5.58e-3	4.97e0	5.00e0	32.0	0.0	0.001
Trust Region-Precise	4.95e0	1.38e-2	4.93e0	4.97e0	58.7	0.0	0.000
Trust Region-Adaptive	5.11e0	1.18e-1	5.00e0	5.54e0	16.4	0.0	0.000
Trust Region-Aggressive	6.00e0	6.58e-2	5.90e0	6.12e0	5.0	0.0	0.000
Trust Region-Standard	5.99e0	7.24e-2	5.90e0	6.16e0	5.0	0.0	0.000