

Table 1: Performance Results for Rosenbrock_10D Problem

Optimizer	Mean Final Value	Std Dev	Best Value	Worst Value	Mean Func Evals	Success Rate (%)	Mean Time (s)
GD-Nesterov	9.31e0	1.92e-1	8.97e0	9.62e0	28.6	100.0	0.001
GD-WeightDecay	9.58e0	5.37e-2	9.45e0	9.67e0	35.7	100.0	0.001
L-BFGS-Limited	9.59e0	4.89e-2	9.51e0	9.68e0	62.3	100.0	0.001
QQN-Bisection-2	9.37e0	3.57e-1	8.02e0	9.67e0	83.2	100.0	0.002
QQN-StrongWolfe	8.69e0	5.85e-1	7.76e0	9.57e0	90.3	100.0	0.002
QQN-CubicQuadraticInterpolation	9.60e0	5.83e-2	9.48e0	9.70e0	109.6	100.0	0.004
QQN-Bisection-1	8.47e0	8.02e-1	7.17e0	9.68e0	120.3	100.0	0.004
L-BFGS-Conservative	9.68e0	1.80e-2	9.63e0	9.70e0	205.3	100.0	0.005
QQN-GoldenSection	9.45e0	1.57e-1	9.03e0	9.66e0	277.2	100.0	0.005
Adam-WeightDecay	9.67e0	2.09e-2	9.61e0	9.70e0	789.4	100.0	0.019
Adam-AMSGrad	9.69e0	8.57e-3	9.66e0	9.70e0	2353.0	100.0	0.059
L-BFGS-MoreThuente	9.20e0	1.98e0	7.83e0	1.75e1	212.8	95.0	0.004
Adam	9.71e0	6.65e-2	9.68e0	9.93e0	2293.1	90.0	0.050
GD	9.75e0	2.14e-1	9.59e0	1.02e1	41.5	75.0	0.001
GD-Momentum	3.53e1	2.87e1	9.32e0	7.27e1	35.0	55.0	0.001
Adam-Fast	1.94e1	1.08e1	9.18e0	3.68e1	61.6	45.0	0.001
Trust Region-Aggressive	1.00e1	3.85e-1	9.59e0	1.09e1	1615.8	30.0	0.011
Adam-Robust	3.49e1	9.88e0	1.61e1	5.15e1	2502.0	0.0	0.061
L-BFGS	1.19e2	1.68e2	2.51e1	7.37e2	338.9	0.0	0.004
L-BFGS-Aggressive	1.64e2	3.20e2	5.82e1	1.56e3	3850.3	0.0	0.051
GD-AdaptiveMomentum	1.02e2	9.83e0	8.45e1	1.16e2	23.1	0.0	0.001
Trust Region-Standard	1.06e3	2.06e2	6.70e2	1.41e3	3002.0	0.0	0.022
Trust Region-Adaptive	2.02e3	2.22e2	1.64e3	2.59e3	3002.0	0.0	0.021
Trust Region-Precise	2.10e3	1.92e2	1.66e3	2.46e3	3002.0	0.0	0.021
Trust Region-Conservative	2.16e3	2.33e2	1.76e3	2.55e3	3002.0	0.0	0.022