

Table 1: Performance Results for IllConditionedRosenbrock\10Dn\_alpha100Problem

Optimizer	Mean Final Value	Std Dev	Best Value	Worst Value	Mean Func Evals	Success Rate (%)	Mean Time (s)
GD-Nesterov	1.20	$2.60 \times 10^{-2}$	1.16	1.25	335.0	0.0	0.011
GD-WeightDecay	1.42	1.51	$1.85 \times 10^{-1}$	5.19	257.5	0.0	0.009
QQN-Backtracking	3.96	2.19	$1.21 \times 10^{-5}$	6.85	695.1	0.0	0.022
QQN-StrongWolfe	4.99	2.61	$1.97 \times 10^{-2}$	8.81	564.5	0.0	0.018
QQN-Bisection-1	6.10	2.48	1.63	9.60	478.5	0.0	0.013
QQN-Bisection-2	7.71	$4.75 \times 10^{-1}$	6.32	8.67	635.9	0.0	0.016
QQN-GoldenSection	8.11	1.33	2.82	9.58	912.8	0.0	0.017
QQN-CubicQuadraticInterpolation	8.38	$5.43 \times 10^{-1}$	6.75	9.57	398.9	0.0	0.015
L-BFGS-Conservative	9.04	3.02	5.54	$2.11 \times 10^1$	689.0	0.0	0.011
GD	$1.00 \times 10^1$	$2.18 \times 10^{-1}$	9.66	$1.05 \times 10^1$	46.8	0.0	0.001
Adam-Fast	$1.71 \times 10^1$	$1.57 \times 10^1$	$1.90 \times 10^{-1}$	$4.09 \times 10^1$	158.7	0.0	0.003
GD-Momentum	$2.18 \times 10^1$	$2.86 \times 10^1$	$5.07 \times 10^{-1}$	$6.85 \times 10^1$	194.5	0.0	0.006
Adam-WeightDecay	$1.50 \times 10^2$	$3.78 \times 10^1$	$8.05 \times 10^1$	$2.43 \times 10^2$	502.0	0.0	0.011
L-BFGS	$1.58 \times 10^2$	$2.92 \times 10^2$	$2.21 \times 10^1$	$1.31 \times 10^3$	166.8	0.0	0.002
QQN-MoreThuente	$3.20 \times 10^2$	$8.01 \times 10^1$	$2.29 \times 10^2$	$5.06 \times 10^2$	484.0	0.0	0.011
Adam-AMSGrad	$1.03 \times 10^3$	$1.64 \times 10^2$	$6.94 \times 10^2$	$1.41 \times 10^3$	502.0	0.0	0.012
Adam	$1.03 \times 10^3$	$1.14 \times 10^2$	$8.04 \times 10^2$	$1.28 \times 10^3$	502.0	0.0	0.011
L-BFGS-Aggressive	$1.12 \times 10^3$	$1.04 \times 10^3$	$5.35 \times 10^1$	$2.55 \times 10^3$	773.4	0.0	0.009
Trust Region-Standard	$2.00 \times 10^3$	$2.15 \times 10^2$	$1.47 \times 10^3$	$2.30 \times 10^3$	602.0	0.0	0.004
Trust Region-Conservative	$2.13 \times 10^3$	$1.91 \times 10^2$	$1.75 \times 10^3$	$2.49 \times 10^3$	602.0	0.0	0.004
Trust Region-Adaptive	$2.21 \times 10^3$	$2.99 \times 10^2$	$1.68 \times 10^3$	$2.69 \times 10^3$	602.0	0.0	0.004