Table 1: Performance Results for SparseQuadratic_10D_pattern[1, 3] Problem

Optimizer	Mean Final Value	Std Dev	Best Value	Worst Value	Mean Func Evals	Success Rate (%)	Mean Time (s)
L-BFGS-MoreThuente	2.20e-7	2.42e-7	2.06e-8	8.82e-7	28.2	100.0	0.000
L-BFGS-Aggressive	2.16e-7	1.67e-8	1.72e-7	2.44e-7	38.0	100.0	0.001
QQN-StrongWolfe	2.19e-7	1.50e-7	8.82e-8	8.12e-7	43.1	100.0	0.001
QQN-Bisection-2	3.81e-7	3.20e-7	2.03e-8	9.46e-7	46.4	100.0	0.001
QQN-Bisection-1	5.68e-7	3.82e-7	2.29e-8	9.90e-7	55.8	100.0	0.001
L-BFGS-Limited	4.74e-7	2.74e-7	5.73e-8	9.57e-7	58.5	100.0	0.001
QQN-CubicQuadraticInterpolation	2.38e-8	1.47e-8	2.26e-9	4.52e-8	60.4	100.0	0.002
GD-WeightDecay	9.31e-7	3.38e-8	8.75e-7	9.98e-7	103.2	100.0	0.004
QQN-GoldenSection	3.11e-7	3.27e-7	7.74e-9	9.91e-7	156.2	100.0	0.002
L-BFGS-Conservative	2.03e-7	2.96e-7	2.80e-9	9.97e-7	339.5	100.0	0.009
GD	9.80e-7	1.20e-8	9.60e-7	1.00e-6	360.1	100.0	0.010
Adam-WeightDecay	9.83e-7	7.84e-9	9.70e-7	9.98e-7	1532.3	100.0	0.036
L-BFGS	1.93e-3	8.35e-3	1.06e-8	3.83e-2	75.7	90.0	0.001
Adam	2.03e-3	8.81e-4	3.96e-4	3.78e-3	2502.0	0.0	0.056
Trust Region-Precise	1.80e-1	3.28e-1	2.31e-3	1.54e0	589.1	0.0	0.005
Adam-Robust	1.03e-1	3.53e-2	4.23e-2	1.71e-1	2502.0	0.0	0.062
Trust Region-Adaptive	1.28e3	4.25e2	5.42e-2	1.43e3	162.1	0.0	0.001
Adam-AMSGrad	2.33e-1	4.06e-2	1.70e-1	3.20e-1	2502.0	0.0	0.061
Trust Region-Standard	1.02e2	3.48e1	2.21e-1	1.29e2	57.5	0.0	0.000
GD-Nesterov	6.03e-1	2.70e-2	5.68e-1	7.02e-1	23.1	0.0	0.001
Trust Region-Conservative	1.83e0	5.92e-1	6.04e-1	3.15e0	3002.0	0.0	0.023
Adam-Fast	7.28e-1	2.79e-2	6.71e-1	7.71e-1	37.3	0.0	0.001
GD-Momentum	9.15e-1	5.54e-2	8.60e-1	1.06e0	23.1	0.0	0.001
Trust Region-Aggressive	2.01e4	4.68e3	8.89e-1	2.17e4	31.6	0.0	0.000
GD-AdaptiveMomentum	1.57e0	4.23e-2	1.41e0	1.64e0	21.9	0.0	0.001