Table 1: Performance Results for Zakharov_10D Problem

Optimizer	Mean Final Value	Std Dev	Best Value	Worst Value	Mean Func Evals	Success Rate (%)	Mean Time (s)
Adam-Robust	3.12e0	6.81e0	2.92e-2	2.78e1	2502.0	0.0	0.062
L-BFGS	2.07e4	8.30e3	6.23e3	3.58e4	3286.7	0.0	0.060
L-BFGS-MoreThuente	1.67e-6	9.70e-7	4.87e-7	4.27e-6	2886.3	0.0	0.059
L-BFGS-Aggressive	9.79e-1	8.37e-1	1.37e-2	3.03e0	3811.6	0.0	0.052
Adam-AMSGrad	1.09e-1	3.02e-2	3.67e-2	1.63e-1	2016.2	0.0	0.050
Adam	4.52e-2	4.19e-2	1.69e-3	1.18e-1	2253.9	0.0	0.050
L-BFGS-Limited	9.29e-2	2.40e-1	5.26e-9	9.86e-1	2588.7	55.0	0.034
Trust Region-Conservative	5.85e5	6.69e4	4.55e5	7.39e5	3002.0	0.0	0.022
Trust Region-Precise	5.73e5	9.27e4	4.07e5	7.69e5	3002.0	0.0	0.022
Trust Region-Aggressive	5.60e5	8.22e4	4.02e5	7.12e5	3002.0	0.0	0.022
Trust Region-Adaptive	5.56e5	9.19e4	4.08e5	7.62e5	3002.0	0.0	0.022
Trust Region-Standard	5.72e5	1.14e5	3.74e5	8.01e5	3002.0	0.0	0.022
GD	3.37e-1	2.28e-1	9.65e-9	9.78e-1	686.0	10.0	0.020
Adam-WeightDecay	1.79e-1	3.62e-2	1.29e-1	2.61e-1	683.1	0.0	0.016
QQN-CubicQuadraticInterpolation	1.75e-9	9.69e-10	4.53e-10	4.49e-9	312.8	100.0	0.013
QQN-StrongWolfe	9.67e-4	4.21e-3	2.12e-14	1.93e-2	281.4	95.0	0.009
QQN-Bisection-2	1.58e-9	9.47e-10	1.13e-10	3.31e-9	159.2	100.0	0.004
QQN-GoldenSection	1.50e-9	2.57e-9	3.14e-19	8.28e-9	233.1	100.0	0.004
QQN-Bisection-1	1.96e-9	2.69e-9	4.68e-16	8.14e-9	161.5	100.0	0.003
GD-WeightDecay	1.51e1	1.85e1	8.77e-9	5.75e1	67.5	30.0	0.002
L-BFGS-Conservative	7.82e23	1.19e24	1.68e5	4.59e24	68.5	0.0	0.002
Adam-Fast	1.13e3	5.38e2	3.62e2	2.13e3	34.7	0.0	0.001
GD-AdaptiveMomentum	6.98e3	2.36e3	4.52e3	1.36e4	20.9	0.0	0.001
GD-Nesterov	8.62e2	6.04e2	4.52e1	1.76e3	20.2	0.0	0.001
GD-Momentum	6.41e3	3.22e3	1.95e3	1.10e4	21.1	0.0	0.001