Table 1: Performance Results for Levi_2D Problem

Optimizer	Mean Final Value	Std Dev	Best Value	Worst Value	Mean Func Evals	Success Rate (%)	Mean Time (s)
QQN-GoldenSection	9.83e-1	8.11e-1	1.87e-2	1.98e0	262.0	45.0	0.004
QQN-CubicQuadraticInterpolation	1.04e0	8.94e-1	1.50e-1	2.75e0	189.6	40.0	0.007
QQN-StrongWolfe	1.44e0	9.74e-1	1.40e-1	3.07e0	450.4	25.0	0.013
L-BFGS-Limited	9.89e-1	6.68e-1	1.13e-1	2.50e0	828.4	25.0	0.010
QQN-Bisection-2	1.08e0	8.03e-1	4.47e-2	1.98e0	77.5	20.0	0.001
L-BFGS-MoreThuente	1.48e0	6.68e-1	1.36e-1	1.98e0	86.2	15.0	0.001
L-BFGS	4.40e0	4.35e0	1.84e-1	1.60e1	107.2	15.0	0.001
QQN-Bisection-1	1.30e0	7.24e-1	1.54e-1	2.44e0	200.7	15.0	0.004
GD-Momentum	2.02e0	5.27e-1	7.01e-1	2.71e0	19.0	0.0	0.001
GD-Nesterov	1.93e0	3.46e-1	7.77e-1	2.32e0	15.2	0.0	0.000
L-BFGS-Aggressive	2.87e0	8.03e-1	1.00e0	4.17e0	3851.3	0.0	0.022
Trust Region-Aggressive	1.33e2	5.68e2	1.02e0	2.61e3	6.3	0.0	0.000
Trust Region-Conservative	1.95e0	3.47e-1	1.07e0	2.75e0	490.0	0.0	0.003
Adam-Robust	1.88e0	2.51e-1	1.08e0	2.01e0	42.6	0.0	0.001
GD-WeightDecay	2.00e0	4.00e-1	1.19e0	2.77e0	28.1	0.0	0.001
GD-AdaptiveMomentum	2.06e0	3.04e-1	1.28e0	3.01e0	18.7	0.0	0.001
L-BFGS-Conservative	1.94e0	1.32e-1	1.43e0	1.98e0	209.4	0.0	0.004
GD	2.04e0	4.26e-1	1.43e0	3.11e0	21.9	0.0	0.001
Adam-AMSGrad	1.91e0	1.49e-1	1.43e0	1.98e0	282.9	0.0	0.006
Trust Region-Precise	2.04e0	3.89e-1	1.43e0	3.38e0	76.8	0.0	0.001
Adam	1.93e0	1.42e-1	1.43e0	1.98e0	242.4	0.0	0.005
Trust Region-Standard	2.18e0	4.89e-1	1.43e0	3.40e0	10.7	0.0	0.000
Adam-WeightDecay	1.95e0	2.71e-1	1.44e0	2.76e0	99.6	0.0	0.002
Trust Region-Adaptive	2.09e0	5.10e-1	1.46e0	4.04e0	29.6	0.0	0.000
Adam-Fast	2.09e0	2.68e-1	1.47e0	2.78e0	47.2	0.0	0.001