Table 1: Performance Results for Levy_10D Problem

Optimizer	Mean Final Value	Std Dev	Best Value	Worst Value	Mean Func Evals	Success Rate (%)	Mean Time (s)
Adam-Robust	9.82e-2	2.53e-2	6.13e-2	1.55e-1	2502.0	0.0	0.065
Adam-AMSGrad	1.51e-1	2.79e-2	1.12e-1	2.09e-1	2502.0	0.0	0.065
Adam	6.46e-3	2.05e-3	2.32e-3	1.09e-2	2502.0	0.0	0.058
GD-WeightDecay	9.97e-7	2.35e-9	9.93e-7	1.00e-6	1451.7	100.0	0.052
GD	2.28e-4	3.05e-5	1.85e-4	2.81e-4	1668.0	0.0	0.049
Adam-WeightDecay	2.80e-6	1.09e-6	1.41e-6	5.43e-6	1897.2	0.0	0.047
L-BFGS-Aggressive	1.27e0	8.13e-1	4.01e-7	1.95e0	2637.9	25.0	0.034
L-BFGS-Limited	2.41e-5	9.83e-5	5.25e-7	4.52e-4	1051.8	80.0	0.021
Trust Region-Conservative	1.21e-2	2.16e-3	9.38e-3	1.68e-2	1976.9	0.0	0.016
L-BFGS-Conservative	6.63e-7	2.81e-7	7.05e-8	9.84e-7	365.9	100.0	0.010
QQN-GoldenSection	2.74e-7	3.41e-7	1.87e-10	9.92e-7	399.3	100.0	0.007
L-BFGS	3.96e-3	1.37e-2	3.36e-7	6.19e-2	223.2	80.0	0.005
L-BFGS-MoreThuente	7.24e-7	2.59e-7	8.40e-8	9.97e-7	165.1	100.0	0.004
QQN-CubicQuadraticInterpolation	2.83e-7	2.18e-7	2.06e-9	7.21e-7	98.6	100.0	0.003
QQN-Bisection-1	2.49e-7	2.81e-7	1.67e-8	9.80e-7	109.7	100.0	0.003
QQN-Bisection-2	2.70e-7	3.13e-7	1.96e-10	9.48e-7	111.1	100.0	0.003
Trust Region-Precise	3.14e-2	1.13e-2	1.56e-2	5.18e-2	325.6	0.0	0.003
QQN-StrongWolfe	1.46e-7	2.27e-7	7.28e-10	8.42e-7	70.1	100.0	0.002
GD-Nesterov	1.74e-1	1.99e-2	1.40e-1	2.05e-1	28.4	0.0	0.001
GD-Momentum	2.58e-1	3.43e-2	1.93e-1	3.23e-1	28.1	0.0	0.001
Adam-Fast	3.12e-1	1.23e-2	2.89e-1	3.41e-1	36.9	0.0	0.001
GD-AdaptiveMomentum	6.50e-1	3.56e-2	5.54e-1	7.01e-1	21.9	0.0	0.001
Trust Region-Adaptive	7.36e-2	4.00e-2	1.96e-2	1.41e-1	84.5	0.0	0.001
Trust Region-Standard	2.04e0	7.08e0	8.10e-2	3.28e1	29.6	0.0	0.000
Trust Region-Aggressive	6.17e-1	4.58e-1	2.22e-1	1.93e0	11.8	0.0	0.000