

Table 1: Performance Results for Schwefel_2D Problem

Optimizer	Mean Final Value	Std Dev	Best Value	Worst Value	Mean Func Evals	Success Rate (%)	Mean Time (s)
QQN-StrongWolfe	-7.26e2	2.56e3	-1.07e4	5.92e2	379.3	50.0	0.016
QQN-Bisection-1	7.11e2	3.40e-13	7.11e2	7.11e2	47.6	0.0	0.001
QQN-Bisection-2	7.11e2	0.00e0	7.11e2	7.11e2	50.9	0.0	0.001
QQN-CubicQuadraticInterpolation	7.11e2	0.00e0	7.11e2	7.11e2	57.9	0.0	0.001
QQN-GoldenSection	7.11e2	1.80e-4	7.11e2	7.11e2	145.1	0.0	0.002
L-BFGS-MoreThuente	7.11e2	1.08e-4	7.11e2	7.11e2	147.6	0.0	0.003
L-BFGS	7.11e2	5.60e-4	7.11e2	7.11e2	292.1	0.0	0.007
L-BFGS-Conservative	7.11e2	3.94e-8	7.11e2	7.11e2	2095.3	0.0	0.055
L-BFGS-Limited	7.11e2	7.58e-7	7.11e2	7.11e2	513.3	0.0	0.013
GD-WeightDecay	7.11e2	1.75e-8	7.11e2	7.11e2	1115.0	0.0	0.033
GD-Momentum	7.11e2	1.13e-7	7.11e2	7.11e2	277.4	0.0	0.008
GD-Nesterov	7.11e2	1.78e-7	7.11e2	7.11e2	292.6	0.0	0.009
Adam-Fast	7.11e2	9.21e-8	7.11e2	7.11e2	1972.4	0.0	0.037
GD	7.11e2	9.48e-4	7.11e2	7.11e2	1668.0	0.0	0.040
L-BFGS-Aggressive	7.11e2	2.18e-2	7.11e2	7.11e2	101.0	0.0	0.001
Trust Region-Adaptive	7.11e2	6.05e-2	7.11e2	7.11e2	2834.8	0.0	0.018
GD-AdaptiveMomentum	7.12e2	3.92e-2	7.12e2	7.12e2	89.0	0.0	0.003
Trust Region-Standard	7.12e2	2.41e-1	7.12e2	7.12e2	711.8	0.0	0.004
Trust Region-Aggressive	7.17e2	6.24e-1	7.16e2	7.18e2	179.0	0.0	0.001
Trust Region-Precise	8.84e2	7.64e-1	8.83e2	8.86e2	3002.0	0.0	0.019
Adam-WeightDecay	9.10e2	8.43e-1	9.09e2	9.12e2	2502.0	0.0	0.053
Adam	9.35e2	7.54e-1	9.33e2	9.36e2	2502.0	0.0	0.050
Adam-AMSGrad	9.35e2	7.05e-1	9.34e2	9.36e2	2502.0	0.0	0.056
Trust Region-Conservative	9.37e2	8.10e-1	9.35e2	9.39e2	3002.0	0.0	0.019
Adam-Robust	9.37e2	6.80e-1	9.36e2	9.39e2	2502.0	0.0	0.056