

Table 1: Performance Results for Schwefel\10DProblem

Optimizer	Mean Final Value	Std Dev	Best Value	Worst Value	Mean Func Evals	Success Rate (%)	Mean Time (s)
<b>QQN-Backtracking</b>	$-1.09 \times 10^7$	$4.75 \times 10^7$	$-2.18 \times 10^8$	$2.96 \times 10^3$	484.1	10.0	0.019
QQN-StrongWolfe	$-4.35 \times 10^5$	$1.21 \times 10^6$	$-4.34 \times 10^6$	$2.96 \times 10^3$	462.4	5.0	0.017
QQN-CubicQuadraticInterpolation	$2.77 \times 10^3$	$1.26 \times 10^3$	$1.18 \times 10^3$	$4.42 \times 10^3$	136.1	0.0	0.004
QQN-MoreThuente	$3.55 \times 10^3$	$9.09 \times 10^{-13}$	$3.55 \times 10^3$	$3.55 \times 10^3$	66.8	0.0	0.001
QQN-Bisection-1	$3.55 \times 10^3$	$9.09 \times 10^{-13}$	$3.55 \times 10^3$	$3.55 \times 10^3$	53.5	0.0	0.001
QQN-Bisection-2	$3.55 \times 10^3$	$9.09 \times 10^{-13}$	$3.55 \times 10^3$	$3.55 \times 10^3$	52.0	0.0	0.001
QQN-GoldenSection	$3.55 \times 10^3$	$1.38 \times 10^{-12}$	$3.55 \times 10^3$	$3.55 \times 10^3$	149.2	0.0	0.002
L-BFGS	$3.55 \times 10^3$	$5.52 \times 10^{-6}$	$3.55 \times 10^3$	$3.55 \times 10^3$	295.6	0.0	0.007
GD-Momentum	$3.55 \times 10^3$	$4.89 \times 10^{-6}$	$3.55 \times 10^3$	$3.55 \times 10^3$	335.0	0.0	0.010
GD-Nesterov	$3.55 \times 10^3$	$1.05 \times 10^{-5}$	$3.55 \times 10^3$	$3.55 \times 10^3$	335.0	0.0	0.011
L-BFGS-Aggressive	$3.55 \times 10^3$	$2.17 \times 10^{-1}$	$3.55 \times 10^3$	$3.55 \times 10^3$	209.5	0.0	0.004
GD-WeightDecay	$3.66 \times 10^3$	$5.40 \times 10^{-1}$	$3.66 \times 10^3$	$3.66 \times 10^3$	335.0	0.0	0.011
Adam-Fast	$3.68 \times 10^3$	$8.14 \times 10^{-1}$	$3.68 \times 10^3$	$3.68 \times 10^3$	502.0	0.0	0.011
GD	$4.22 \times 10^3$	1.73	$4.22 \times 10^3$	$4.23 \times 10^3$	335.0	0.0	0.009
L-BFGS-Conservative	$4.24 \times 10^3$	4.05	$4.23 \times 10^3$	$4.25 \times 10^3$	558.0	0.0	0.015
Trust Region-Standard	$4.54 \times 10^3$	$8.06 \times 10^{-1}$	$4.53 \times 10^3$	$4.54 \times 10^3$	602.0	0.0	0.004
Trust Region-Adaptive	$4.68 \times 10^3$	1.79	$4.68 \times 10^3$	$4.69 \times 10^3$	602.0	0.0	0.004
Adam-WeightDecay	$4.70 \times 10^3$	1.46	$4.70 \times 10^3$	$4.70 \times 10^3$	502.0	0.0	0.012
Adam	$4.72 \times 10^3$	1.79	$4.72 \times 10^3$	$4.72 \times 10^3$	502.0	0.0	0.011
Adam-AMSGrad	$4.72 \times 10^3$	2.26	$4.72 \times 10^3$	$4.73 \times 10^3$	502.0	0.0	0.012
Trust Region-Conservative	$4.73 \times 10^3$	1.69	$4.73 \times 10^3$	$4.74 \times 10^3$	602.0	0.0	0.004