

Table 1: Performance Results for Ackley\\$\_2Dn\_a20n\_b0.2n\_c6.28e0Problem

Optimizer	Mean Final Value	Std Dev	Best Value	Worst Value	Mean Func Evals	Success Rate (%)	Mean Time (s)
<b>L-BFGS</b>	4.40	1.76	2.58	$1.11 \times 10^1$	245.0	30.0	0.003
QQN-GoldenSection	2.51	1.44	$6.78 \times 10^{-11}$	3.57	204.2	23.3	0.003
QQN-Backtracking	2.66	1.38	$1.47 \times 10^{-11}$	3.57	135.9	20.0	0.003
QQN-Bisection-2	3.03	1.01	$4.13 \times 10^{-4}$	3.57	51.2	15.0	0.001
QQN-StrongWolfe	2.58	1.52	$6.93 \times 10^{-8}$	3.57	116.8	10.0	0.003
QQN-CubicQuadraticInterpolation	2.61	1.53	$1.77 \times 10^{-9}$	3.57	177.1	7.5	0.006
QQN-Bisection-1	2.87	1.35	$1.09 \times 10^{-9}$	3.57	167.4	7.5	0.004
QQN-MoreThuente	2.59	1.51	$1.38 \times 10^{-10}$	3.57	201.2	5.0	0.006
GD	3.57	$2.16 \times 10^{-11}$	3.57	3.57	19.9	0.0	0.000
L-BFGS-Conservative	3.57	$2.09 \times 10^{-4}$	3.57	3.58	156.7	0.0	0.003
Adam	3.57	$6.74 \times 10^{-5}$	3.57	3.57	293.3	0.0	0.006
GD-Nesterov	3.58	$2.04 \times 10^{-3}$	3.57	3.58	29.9	0.0	0.001
Adam-AMSGrad	3.58	$2.92 \times 10^{-3}$	3.57	3.58	451.7	0.0	0.011
Adam-WeightDecay	3.58	$7.72 \times 10^{-4}$	3.58	3.58	113.0	0.0	0.002
Trust Region-Conservative	3.58	$1.48 \times 10^{-2}$	3.57	3.63	158.1	0.0	0.001
GD-WeightDecay	3.59	$2.83 \times 10^{-2}$	3.57	3.68	49.5	0.0	0.001
Adam-Fast	3.61	$4.89 \times 10^{-2}$	3.57	3.76	47.2	0.0	0.001
GD-Momentum	3.68	$4.38 \times 10^{-2}$	3.60	3.74	13.6	0.0	0.000
L-BFGS-Aggressive	3.70	$9.44 \times 10^{-1}$	1.02	4.80	771.9	0.0	0.006
Trust Region-Adaptive	3.79	$7.22 \times 10^{-1}$	3.58	6.92	13.1	0.0	0.000
Trust Region-Standard	4.23	1.60	2.72	9.27	8.9	0.0	0.000