

Table 1: Performance Results for LinearRegression\_100samples\_5features\_reg0.01 Problem

Optimizer	Mean Final Value	Std Dev	Best Value	Worst Value	Mean Func Evals	Success Rate (%)	Mean Time (s)
<b>L-BFGS-Aggressive</b>	7.15e-2	3.23e-14	7.15e-2	7.15e-2	153.1	0.0	0.036
QQN-Bisection-2	7.15e-2	3.89e-14	7.15e-2	7.15e-2	103.0	0.0	0.038
QQN-GoldenSection	7.15e-2	1.34e-9	7.15e-2	7.15e-2	325.7	0.0	0.063
QQN-Bisection-1	7.15e-2	9.50e-15	7.15e-2	7.15e-2	123.0	0.0	0.047
QQN-CubicQuadraticInterpolation	7.15e-2	1.77e-9	7.15e-2	7.15e-2	118.9	0.0	0.041
L-BFGS-Limited	7.15e-2	2.22e-10	7.15e-2	7.15e-2	540.6	0.0	0.147
QQN-StrongWolfe	7.15e-2	8.70e-14	7.15e-2	7.15e-2	109.2	0.0	0.040
L-BFGS	1.38e-1	2.48e-1	7.15e-2	1.21e0	234.7	0.0	0.060
L-BFGS-MoreThuente	7.16e-2	5.33e-5	7.15e-2	7.18e-2	796.0	0.0	0.229
L-BFGS-Conservative	7.15e-2	3.25e-10	7.15e-2	7.15e-2	1306.5	0.0	0.407
GD	7.15e-2	5.94e-11	7.15e-2	7.15e-2	512.3	0.0	0.267
GD-WeightDecay	7.15e-2	2.05e-10	7.15e-2	7.15e-2	165.2	0.0	0.087
Adam-WeightDecay	7.18e-2	1.52e-4	7.16e-2	7.21e-2	2502.0	0.0	0.828
Adam-Fast	1.90e-1	6.82e-2	7.25e-2	2.46e-1	102.4	0.0	0.035
Trust Region-Precise	1.38e-1	8.18e-2	7.38e-2	4.03e-1	851.2	0.0	0.220
Trust Region-Adaptive	1.55e3	6.64e2	1.22e-1	1.96e3	234.8	0.0	0.062
Trust Region-Standard	1.10e2	5.00e1	2.92e-1	1.65e2	76.2	0.0	0.020
GD-Nesterov	9.19e-1	2.74e-2	8.36e-1	9.57e-1	23.9	0.0	0.012
Trust Region-Aggressive	3.62e4	1.65e4	9.10e-1	5.27e4	34.0	0.0	0.009
GD-Momentum	1.36e0	6.13e-2	1.22e0	1.50e0	24.1	0.0	0.012
GD-AdaptiveMomentum	2.00e0	4.19e-2	1.90e0	2.04e0	23.0	0.0	0.012
Adam	2.88e0	4.16e-1	2.36e0	3.78e0	2502.0	0.0	0.829
Adam-AMSGrad	3.06e0	3.82e-1	2.47e0	3.69e0	2502.0	0.0	0.833
Adam-Robust	4.89e0	5.55e-1	4.01e0	6.12e0	2502.0	0.0	0.830
Trust Region-Conservative	7.87e0	9.98e-1	6.26e0	9.77e0	3002.0	0.0	0.769