Table 1: Performance Results for SparseRosenbrock_4D Problem

Optimizer	Mean Final	Std Dev	Best	Worst	enbrock_4D Prob Mean Func	Success	Mean Time
Optimizer	Value	Sta Dev	Value	Value	Evals	Rate (%)	(s)
QQN-	5.85e-2	6.41e-2	6.10e-9	2.15e-1	1743.3	45.0	0.071
CubicQuadraticInterpolation							
QQN-	3.39e-1	6.28e-1	2.24e-8	3.00e0	2429.1	25.0	0.076
StrongWolfe							
L-BFGS-	1.75e0	2.72e0	2.55e-7	8.30e0	2601.9	20.0	0.045
MoreThuente							
QQN-Bisection-	4.56e-1	4.62e-1	9.12e-8	1.60e0	2290.2	15.0	0.056
1							
QQN-Bisection-	1.42e0	1.80e0	5.00e-7	3.95e0	193.1	5.0	0.005
2							
QQN-	3.33e-1	1.76e-1	6.04e-7	6.84e-1	4306.3	5.0	0.085
GoldenSection	1 0 - 0	7 40 0	2 = 2	2 7 1 2	0.410 =	0.0	0.000
L-BFGS-	1.27e2	5.46e2	3.78e-5	2.51e3	3413.7	0.0	0.039
Conservative	1 00 0	2 74 0	1110	1011	0.40.0	0.0	0.005
Adam-Fast	1.92e0	3.76e0	1.14e-3	1.01e1	243.3	0.0	0.005
Adam-	6.07e0	3.97e0	1.75e-2	9.30e0	843.5	0.0	0.018
WeightDecay	1.01.0	4.00.0	0.41 0	1 07 1	F.C. 0	0.0	0.000
GD-	1.31e0	4.23e0	2.41e-2	1.97e1	56.2	0.0	0.002
AdaptiveMoment		6 57-0	4 20 - 0	9 10-1	01.0	0.0	0.001
GD-Momentum	1.10e1	6.57e0	4.39e-2	3.10e1	21.8	0.0	0.001
GD-	3.04e0	4.49e0	4.73e-2	1.17e1	105.6	0.0	0.003
WeightDecay L-BFGS-	2 22 0	4.00.0	7 20 2 2	1 74-1	2016 0	0.0	0.041
L-BFGS- Limited	2.33e0	4.08e0	7.38e-2	1.74e1	3916.8	0.0	0.041
GD-Nesterov	3.38e0	3.99e0	1.58e-1	1.22e1	61.4	0.0	0.002
	3.38e0 4.72e1	3.99e0 $4.50e1$	3.37e-1	1.22e1 1.58e2	2998.1	0.0	0.002
Trust Region- Conservative	4.72e1	4.5001	5.57e-1	1.5662	2990.1	0.0	0.016
GD	1.88e0	2.48e0	9.10e-1	9.50e0	510.1	0.0	0.013
Adam	2.06e0	4.83e-1	9.10e-1 1.19e0	3.18e0	2502.0	0.0	0.013 0.049
Adam-	3.39e0	4.65e-1 1.45e0	1.19e0 $1.65e0$	8.86e0	2394.2	0.0	0.049 0.052
AMSGrad	3.3960	1.4560	1.0560	0.0000	2094.2	0.0	0.052
Adam-Robust	7.53e0	1.96e0	3.60e0	8.99e0	672.2	0.0	0.015
L-BFGS	9.62e1	1.30e0 $1.12e2$	7.18e0	4.84e2	143.9	0.0	0.013 0.002
Trust Region-	8.25e0	2.76e-1	7.18e0 7.68e0	8.68e0	168.3	0.0	0.002
Standard	0.2000	2.706-1	1.0000	0.0000	100.5	0.0	0.001
Trust Region-	2.16e1	2.75e1	7.75e0	1.10e2	1739.2	0.0	0.011
Precise Precise	2.1001	2.7001	1.1000	1.1002	1100.2	0.0	0.011
Trust Region-	8.31e0	2.62e-1	7.78e0	8.82e0	954.8	0.0	0.006
Adaptive	0.0100	2.020 I		0.0200	551.0	0.0	3.000
Trust Region-	8.72e0	4.61e-1	7.92e0	9.65e0	57.2	0.0	0.000
Aggressive	0.1200	1.010 1	1.0200	0.0000	01.2	0.0	3.000
L-BFGS-	6.34e1	4.42e1	8.59e0	1.72e2	3852.0	0.0	0.029
Aggressive	0.0101	1.1201	0.0000	1., 202	3032.0	0.0	0.020