Table 1: Performance Results for Zakharov_10D Problem

Optimizer	Mean Final	Std Dev	Best	Worst	ov_10D Problem Mean Func	Success	Mean Time
	Value		Value	Value	Evals	Rate (%)	(s)
QQN-	1.58e-9	9.47e-10	1.13e-10	3.31e-9	159.2	100.0	0.004
Bisection-2							
QQN-Bisection-	1.96e-9	2.69e-9	4.68e-16	8.14e-9	161.5	100.0	0.003
1							
QQN-	1.50e-9	2.57e-9	3.14e-19	8.28e-9	233.1	100.0	0.004
GoldenSection							
QQN-	1.75e-9	9.69e-10	4.53e-10	4.49e-9	312.8	100.0	0.013
CubicQuadraticInterpolation			0.40.44	4 00 0	201.1	o = o	
QQN-	9.67e-4	4.21e-3	2.12e-14	1.93e-2	281.4	95.0	0.009
StrongWolfe		2.40	~ 00 0	0.00			0.004
L-BFGS-	9.29e-2	2.40e-1	5.26e-9	9.86e-1	2588.7	55.0	0.034
Limited	a v a a	4.07.4			a= -	20.0	0.000
GD-	1.51e1	1.85e1	8.77e-9	5.75e1	67.5	30.0	0.002
WeightDecay						40.0	0.000
GD	3.37e-1	2.28e-1	9.65e-9	9.78e-1	686.0	10.0	0.020
L-BFGS-	1.67e-6	9.70e-7	4.87e-7	4.27e-6	2886.3	0.0	0.059
MoreThuente	4 50 0	4.40	1 00 0	4 40 4	2272.0	0.0	0.050
Adam	4.52e-2	4.19e-2	1.69e-3	1.18e-1	2253.9	0.0	0.050
L-BFGS-	9.79e-1	8.37e-1	1.37e-2	3.03e0	3811.6	0.0	0.052
Aggressive	0.10.0	0.01.0	2.02	0 =0 4	2702.0	0.0	0.000
Adam-Robust	3.12e0	6.81e0	2.92e-2	2.78e1	2502.0	0.0	0.062
Adam-	1.09e-1	3.02e-2	3.67e-2	1.63e-1	2016.2	0.0	0.050
AMSGrad	1 50 1	0.00	1.00 1	0.01 1	000.1	0.0	0.014
Adam-	1.79e-1	3.62e-2	1.29e-1	2.61e-1	683.1	0.0	0.016
WeightDecay	0.00.0	0.04.0	4 50 1	1 70 0	20.2	0.0	0.001
GD-Nesterov	8.62e2	6.04e2	4.52e1	1.76e3	20.2	0.0	0.001
Adam-Fast	1.13e3	5.38e2	3.62e2	2.13e3	34.7	0.0	0.001
GD-Momentum	6.41e3	3.22e3	1.95e3	1.10e4	21.1	0.0	0.001
GD-	6.98e3	2.36e3	4.52e3	1.36e4	20.9	0.0	0.001
AdaptiveMoment		8.30e3	6.00-0	2 70-4	2006 7	0.0	0.000
L-BFGS	2.07e4		6.23e3	3.58e4	3286.7	0.0	0.060
L-BFGS-	7.82e23	1.19e24	1.68e5	4.59e24	68.5	0.0	0.002
Conservative	f 70-f	1 14-5	274-5	0.01-5	3002.0	0.0	0.000
Trust Region- Standard	5.72e5	1.14e5	3.74e5	8.01e5	3002.0	0.0	0.022
	E 60°E	0.00.4	4.00 a F	7.12e5	3002.0	0.0	0.000
Trust Region- Aggressive	5.60e5	8.22e4	4.02e5	7.1Zeə	300Z.U	0.0	0.022
	F 72.5	0.97.4	4.07.5	7 60 0 5	2002.0	0.0	0.000
Trust Region- Precise	5.73e5	9.27e4	4.07e5	7.69e5	3002.0	0.0	0.022
	5 56°E	0.1054	1.0005	7 69 0 5	3003 O	0.0	0.022
Trust Region-	5.56e5	9.19e4	4.08e5	7.62e5	3002.0	0.0	0.022
Adaptive Trust Pagion	E 0E.E	6 60-4	1 5E a E	7 20 25	2002.0	0.0	0.091
Trust Region- Conservative	5.85e5	6.69e4	4.55e5	7.39e5	3002.0	0.0	0.021