

Table 1: Optimization Results Summary

Function Name	Best Strategy	Iterations	Function Evaluations	Final Gradient Norm	Reason for Stopping
Rosenbrock Function	Strategy 1	1000	5896	4.19×10^{-5}	Maximum iterations reached
Rastrigin Function	Strategy 2	3	48	2.77×10^{-8}	Step tolerance reached
Raydan2 Function	Strategy 1, 2	9	52	4.20×10^{-10}	Gradient tolerance reached
Beale Function	Strategy 1	28	147	2.19×10^{-9}	Gradient tolerance reached
Matyas Function	Strategy 1, 3	2	5	1.26×10^{-17}	Gradient tolerance reached
Powell Singular Function	Strategy 2	22	127	4.76×10^{-9}	Gradient tolerance reached
Sphere Function	Strategy 1, 3	2	5	0.0	Gradient tolerance reached
Booth Function	Strategy 1, 2, 3	2	5	3.97×10^{-15}	Gradient tolerance reached
Styblinski Tang Function	Strategy 3	12	87	7.11×10^{-14}	Gradient tolerance reached
McCormick Function	Strategy 1, 2, 3	4	13	6.58×10^{-13}	Gradient tolerance reached
Easom Function	Strategy 1, 2, 3	3	12	6.57×10^{-13}	Gradient tolerance reached
Wood Function	Did not converge	1	15	4.0	Step tolerance reached
Helical Valley Function	Did not converge	1	15	66.53	Step tolerance reached