

Blog Entry © Monday, September 21, 2026, by James Pate Williams, Jr. Using an Evolutionary Hill Climber for Function Optimization

Reference: [Test functions for optimization - Wikipedia](#)

Rastrigin Function

```
population = 100
generation = 10000000
seed = 1
x = 0.000915555
y = 0.00427259
f = 0.00378774
t = 4.142 seconds
```

```
population = 200
generation = 10000000
seed = 1
x = 0.00122074
y = 0.00152593
f = 0.000757586
t = 6.34 seconds
```

Ackley Function

```
population = 100
generation = 10000000
seed = 1
x = 0.000915555
y = 0.00427259
f = 0.0128674
t = 5.206 seconds
```

```
population = 200
generation = 10000000
seed = 1
x = 0.00122074
y = 0.00152593
f = 0.00562882
t = 7.171 seconds
```

Sphere Function

```
population = 100
generation = 10000000
seed = 1
x = 0.000915555
```

y = 0.00427259
f = 1.90933e-05
t = 3.714 seconds

population = 200
generation = 10000000
seed = 1
x = 0.00122074
y = 0.00152593
f = 3.81866e-06
t = 7.137 seconds

Rosenbrock Function

population = 100
generation = 10000000
seed = 1
x = 1.00162
y = 1.00284
f = 1.85648e-05
t = 4.263 seconds

population = 200
generation = 10000000
seed = 1
x = 1.0007
y = 1.00131
f = 1.33999e-06
t = 6.438 seconds

Beale Function

population = 100
generation = 10000000
seed = 1
x = 2.99905
y = 0.500198
f = 4.46606e-06
t = 4.528 seconds

population = 200
generation = 10000000
seed = 1
x = 2.99692
y = 0.498978
f = 3.04297e-06
t = 6.638 seconds

```
population = 300
generation = 10000000
seed = 1
x = 2.99783
y = 0.499588
f = 1.11718e-06
t = 8.926 seconds
```

Rastrigin Function

```
population = 1000
generation = 100000000
seed = 1
x = 0.00061037
y = 0.00061037
f = 0.000147822
t = 237.229 seconds
```

Ackley Function

```
population = 1000
generation = 100000000
seed = 1
x = 0.00061037
y = 0.00061037
f = 0.00246132
t = 239.869 seconds
```

Sphere Function

```
population = 1000
generation = 100000000
seed = 1
x = 0.00061037
y = 0.00061037
f = 7.45104e-07
t = 233.753 seconds
```

Rosenbrock Function

```
population = 1000
generation = 100000000
seed = 1
x = 0.999481
y = 0.998871
f = 1.11235e-06
```

t = 239.059 seconds

Beale Function

population = 1000
generation = 100000000
seed = 1
x = 3.0015
y = 0.500198
f = 1.04251e-06
t = 243.052 seconds

Rastrigin Function

population = 2000
generation = 100000000
seed = 1
x = 0.000915555
y = 0.000305185
f = 0.000184778
t = 459.636 seconds

population = 3000
generation = 100000000
seed = 1
x = 0.000305185
y = 0.00061037
f = 9.23891e-05
t = 674.069 seconds

population = 4000
generation = 200000000
seed = 1
x = 0
y = 0.00061037
f = 7.39112e-05
t = 1809.77 seconds

population = 5000
generation = 200000000
seed = 1
x = 0.000305185
y = 0
f = 1.84778e-05
t = 2244.64 seconds

Ackley Function

Option (1 - 6): 2
population = 5000
generation = 200000000
seed = 1
x = 0.000305185
y = 0
f = 0.000865674
t = 2250.56 seconds

Sphere Function

Option (1 - 6): 3
population = 5000
generation = 200000000
seed = 1
x = 0.000305185
y = 0
f = 9.31379e-08
t = 2231.68 seconds

Rosenbrock Function

population = 5000
generation = 200000000
seed = 1
x = 1.0004
y = 1.0007
f = 9.98529e-07
t = 2271.36 seconds

Beale Function

population = 5000
generation = 200000000
seed = 1
x = 3.00027
y = 0.500198
f = 4.03678e-07
t = 2271.77 seconds