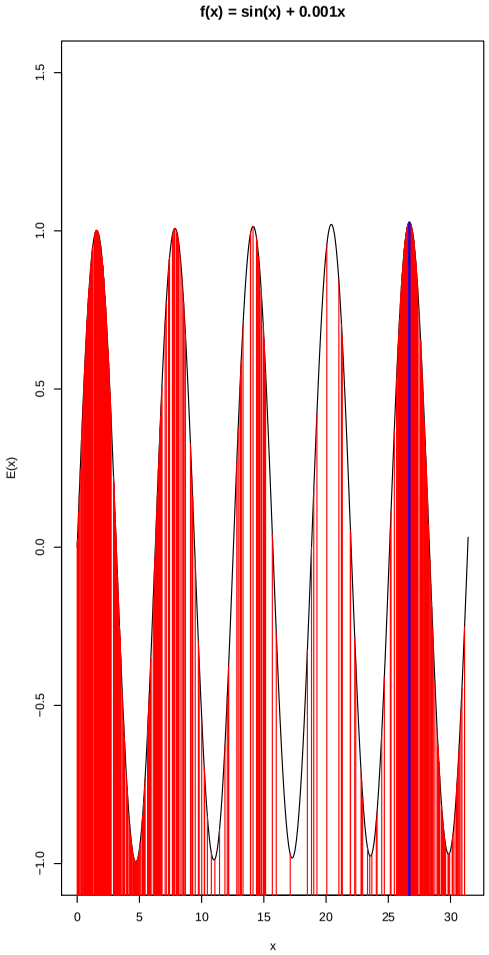
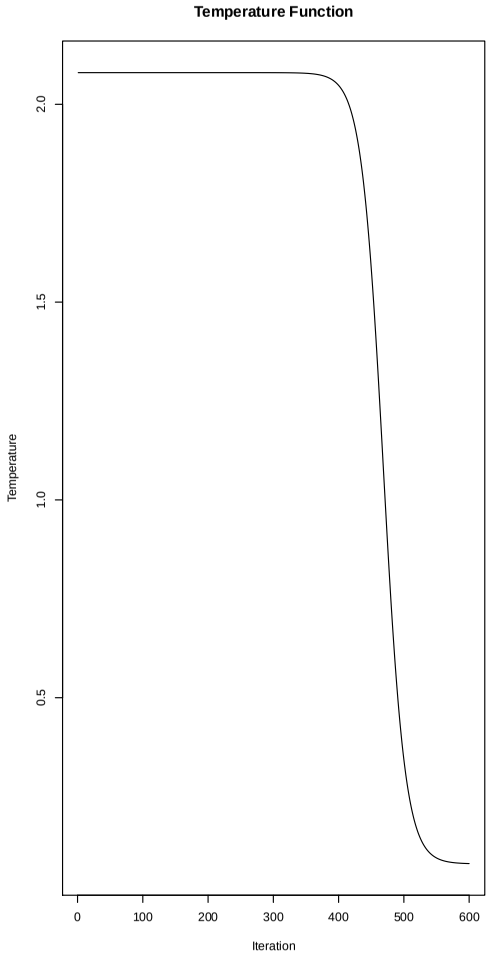
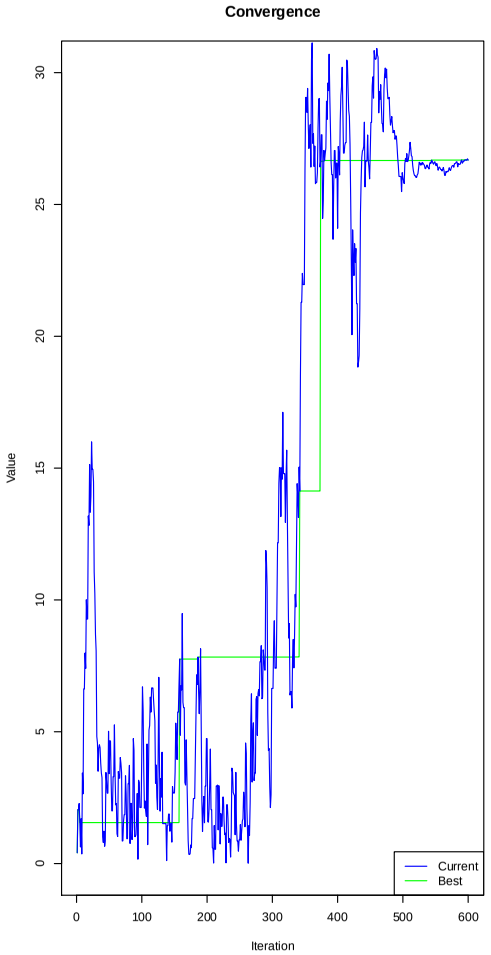
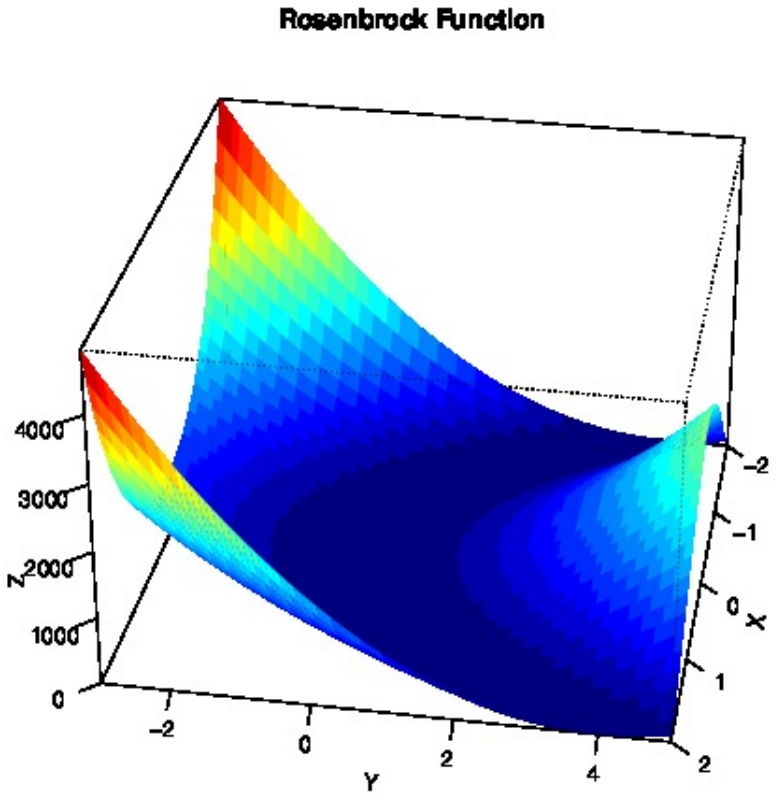


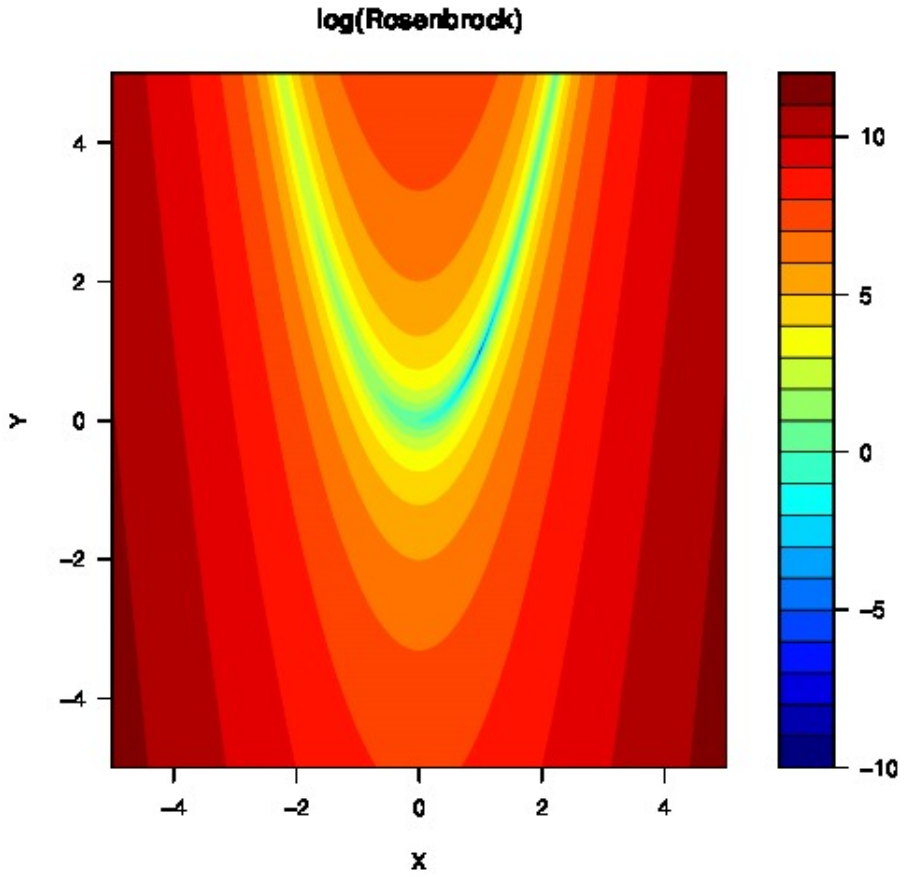


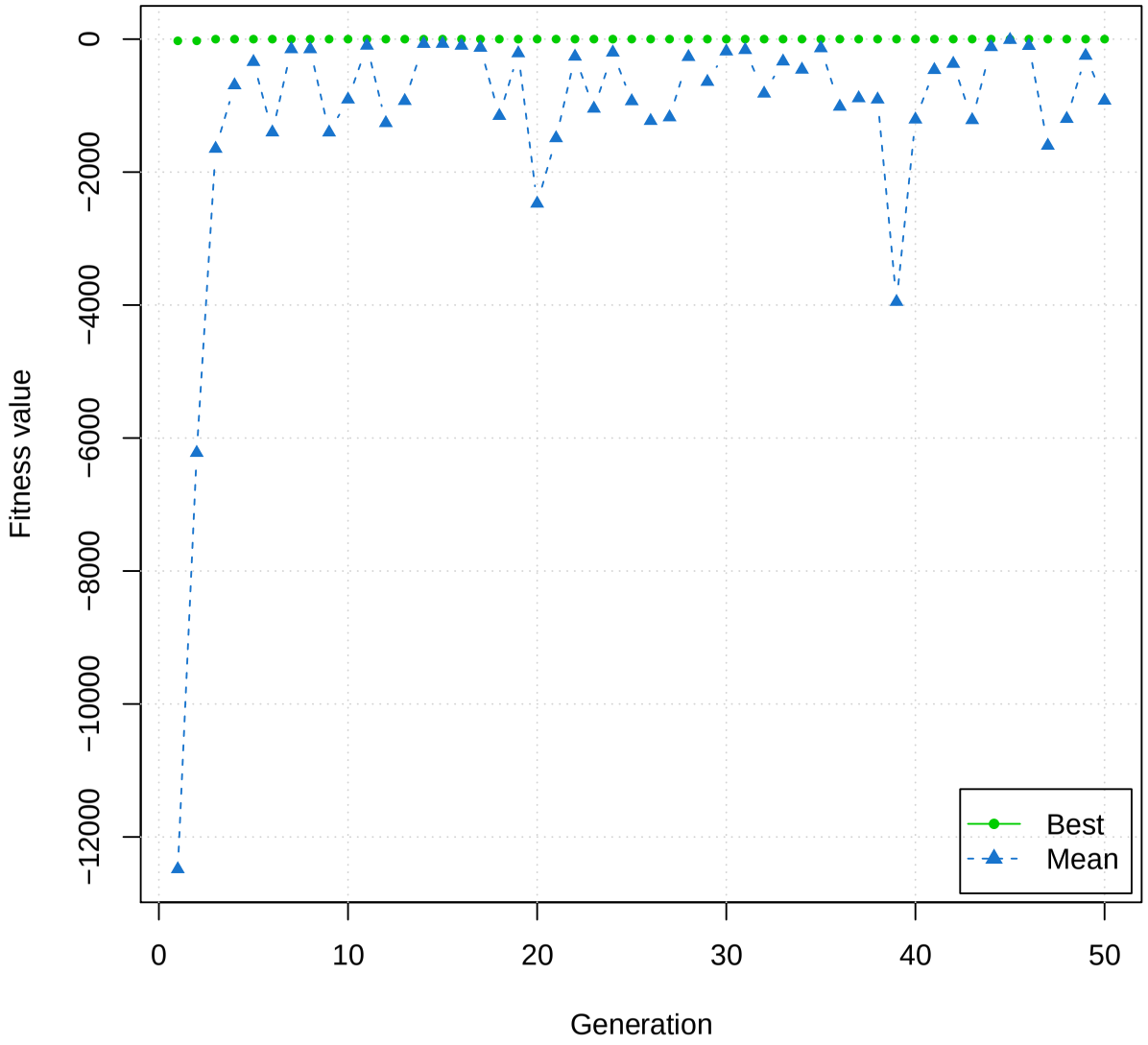


My Outputs:

Guess	= 0.000000
Par	= 26.693205
Value	= 1.026640
Iterations	= 600
Acceptance Rate	= 0.861667


Rosenbrock Function
4000
3000
Z 2000
1000
0
−2
0
2
4
Y
−2
−1
0
1
2
X

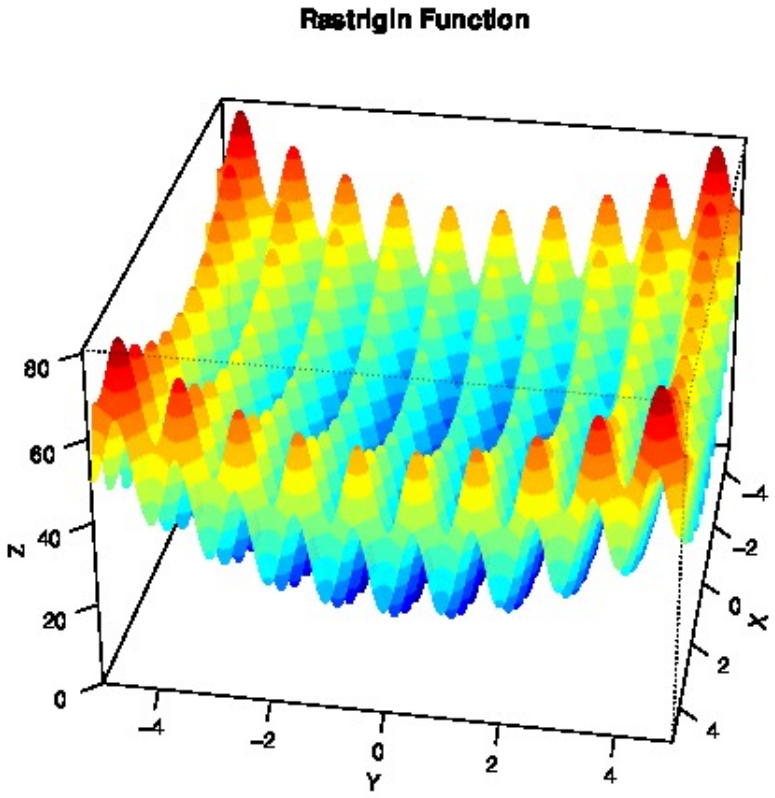

log(Rosenbrock)
4
2
0
−2
−4
Y
−4
−2
0
2
4
X
10
5
0
−5
−10

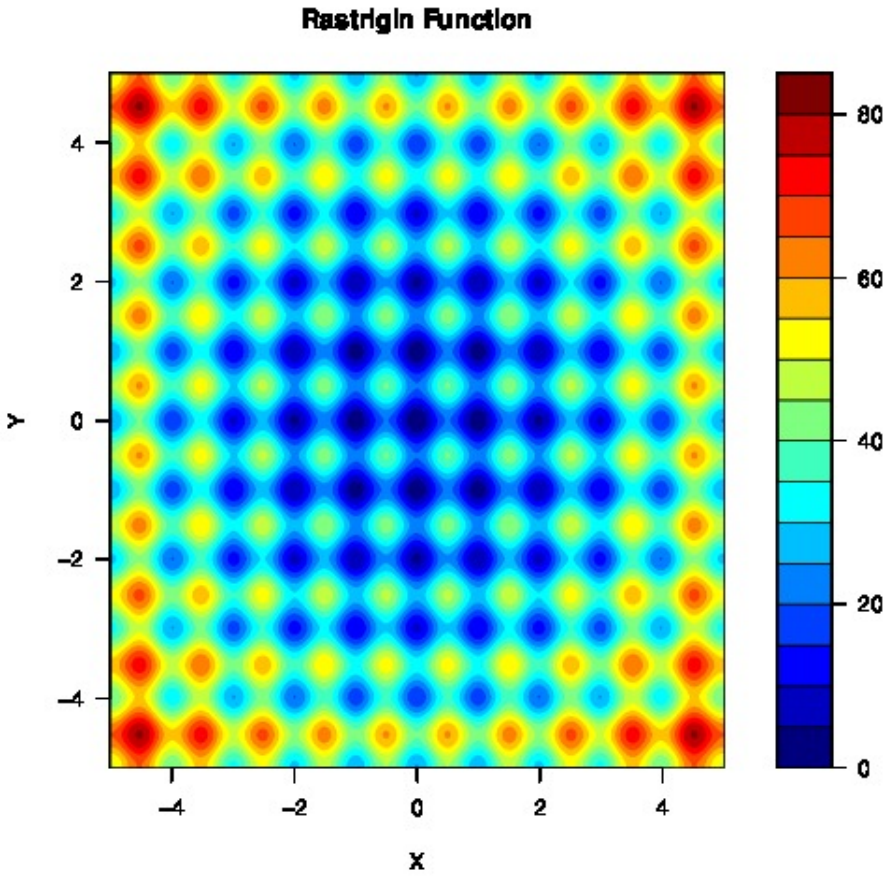


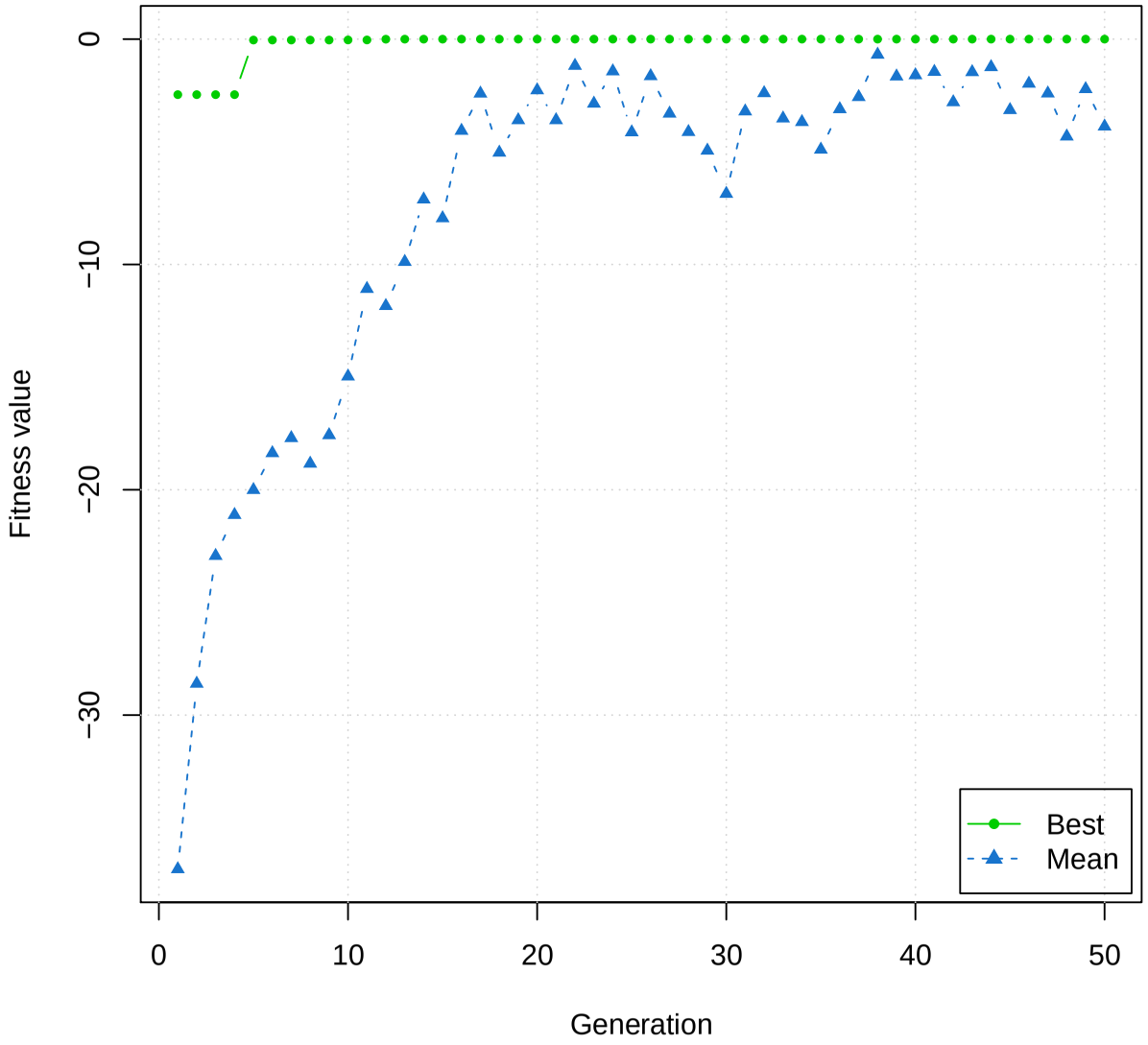

```
+-----------------------------------+
|          Genetic Algorithm        |
+-----------------------------------+

GA settings:
Type                  =  real-valued
Population size       =  50
Number of generations =  50
Elitism               =
Crossover probability =  0.8
Mutation probability  =  0.1
Search domain
    x1 x2
Min -5 -5
Max  5  5

GA results:
Iterations             = 50
Fitness function value = -0.001595106
Solution               =
           x1       x2
[1,] 1.015345 1.027239
```


Rastrigin Function
80
60
40
20
0
Z
−4
−2
0
2
4
Y
−4
−2
0
2
4
X

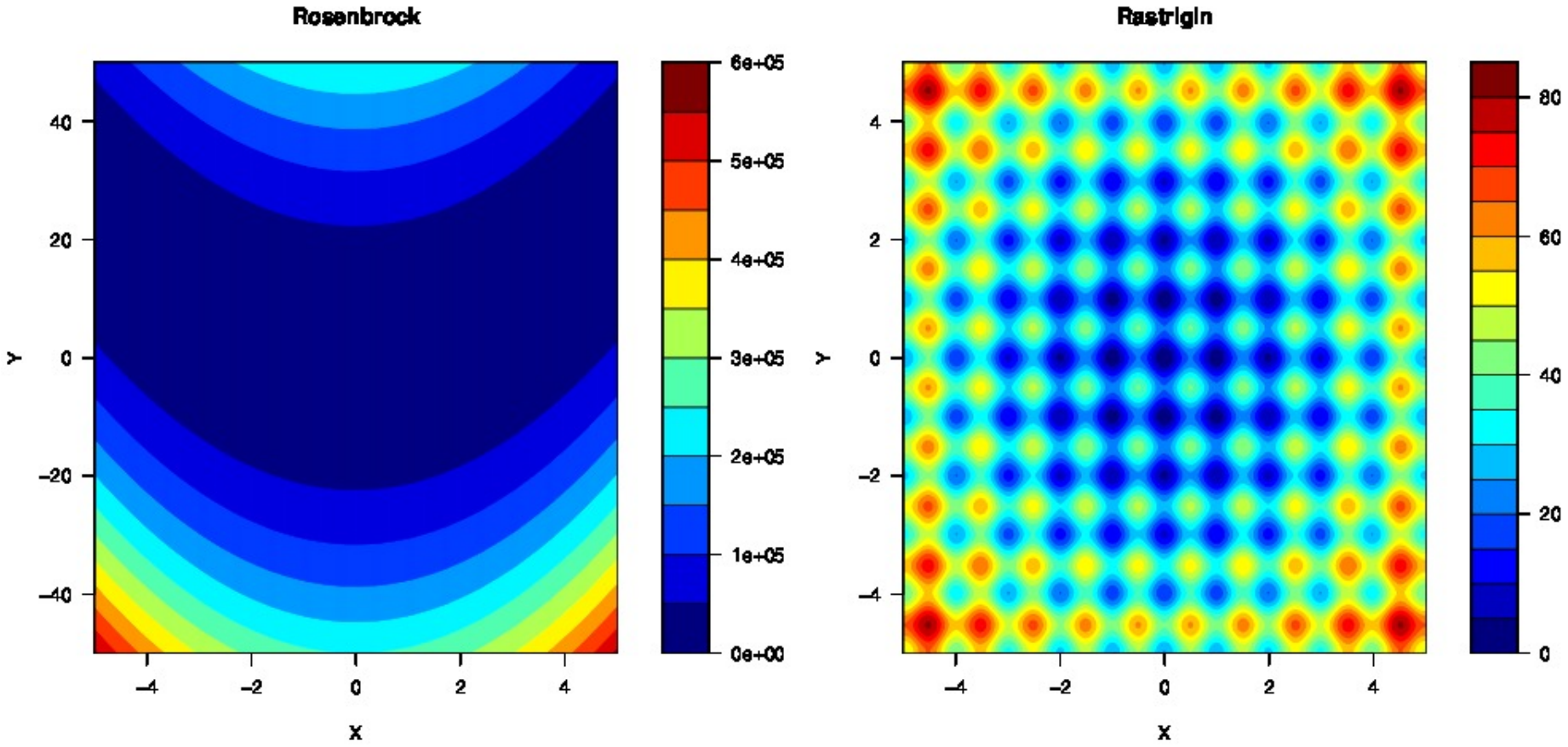

Rastrigin Function
4
2
0
−2
−4
Y
−4
−2
0
2
4
X
80
60
40
20
0




```
+-----------------------------------+
|          Genetic Algorithm        |
+-----------------------------------+

GA settings:
Type                  =  real-valued
Population size       =  50
Number of generations =  50
Elitism               =
Crossover probability =  0.8
Mutation probability  =  0.1
Search domain
    x1 x2
Min -5 -5
Max  5  5

GA results:
Iterations             = 50
Fitness function value = -9.598778e-05
Solution               =
                x1             x2
[1,] -0.000386534 -0.0005782911
```


Rosenbrock
40
20
0
−20
−40
Y
−4
−2
0
2
4
X
6e+05
5e+05
4e+05
3e+05
2e+05
1e+05
0e+00
Rastrigin
4
2
0
−2
−4
Y
−4
−2
0
2
4
X
80
60
40
20
0

```
BFGS Rosenbrock Outputs:

Initial Guess: [-4.000, 60.000]
$par
[1] 0.9999556 0.9999111

$value
[1] 1.970508e-09

$counts
function gradient
     303       86

$convergence
[1] 0

$message
NULL

$hessian
          [,1]      [,2]
[1,]  801.9298 -399.9822
[2,] -399.9822  200.0000
```

```
BFGS Rosenbrock Outputs:

Initial Guess: [0.000, 0.000]
$par
[1] 0.9998000 0.9996001

$value
[1] 3.998081e-08

$counts
function gradient
      63       26

$convergence
[1] 0

$message
NULL

$hessian
          [,1]    [,2]
[1,]  801.6809 -399.92
[2,] -399.9200  200.00
```

```
BFGS Rosenbrock Outputs:

Initial Guess: [-5.000, -50.000]
$par
[1] 0.9999050 0.9998105

$value
[1] 9.034556e-09

$counts
function gradient
     171       58

$convergence
[1] 0

$message
NULL

$hessian
          [,1]     [,2]
[1,]  801.8487 -399.962
[2,] -399.9620  200.000
```

```
SANN Rosenbrock Outputs:

Initial Guess: [-4.000, 60.000]
$par
[1] -7.572046 57.348046

$value
[1] 73.49477

$counts
function gradient
   10000       NA

$convergence
[1] 0

$message
NULL

$hessian
          [,1]     [,2]
[1,] 45865.843 3028.818
[2,]  3028.818  200.000
```

```
SANN Rosenbrock Outputs:

Initial Guess: [0.000, 0.000]
$par
[1] 0.9947926 0.9903466

$value
[1] 8.104591e-05

$counts
function gradient
   10000       NA

$convergence
[1] 0

$message
NULL

$hessian
          [,1]     [,2]
[1,]  793.3969 -397.917
[2,] -397.9170  200.000
```

```
SANN Rosenbrock Outputs:

Initial Guess: [-5.000, -50.000]
$par
[1] 0.9952577 0.9916683

$value
[1] 0.0001502636

$counts
function gradient
   10000       NA

$convergence
[1] 0

$message
NULL

$hessian
          [,1]      [,2]
[1,]  793.9790 -398.1031
[2,] -398.1031  200.0000
```

```
BFGS Rastigin Outputs:

Initial Guess: [-5.000, 5.000]
$par
[1] -5.094763e-10  5.094763e-10

$value
[1] 0

$counts
function gradient
      29        3

$convergence
[1] 0

$message
NULL

$hessian
        [,1]    [,2]
[1,] 396.779   0.000
[2,]   0.000 396.779
```

```
BFGS Rastigin Outputs:

Initial Guess: [1.000, -1.000]
$par
[1]  0.9949586 -0.9949586

$value
[1] 1.989918

$counts
function gradient
      19        3

$convergence
[1] 0

$message
NULL

$hessian
                [,1]         [,2]
[1,] 3.965809e+02 8.881784e-10
[2,] 8.881784e-10 3.965809e+02
```

```
BFGS Rastigin Outputs:

Initial Guess: [1.000, 0.000]
$par
[1] 0.9949586 0.0000000

$value
[1] 0.9949591

$counts
function gradient
      19        3

$convergence
[1] 0

$message
NULL

$hessian
         [,1]    [,2]
[1,] 396.5809   0.000
[2,]   0.0000 396.779
```

```
SANN Rastigin Outputs:

Initial Guess: [-5.000, 5.000]
$par
[1] 0.001099102 3.980160587

$value
[1] 15.91951

$counts
function gradient
   10000       NA

$convergence
[1] 0

$message
NULL

$hessian
         [,1]     [,2]
[1,] 396.7696   0.0000
[2,]   0.0000 393.7158
```

```
SANN Rastigin Outputs:

Initial Guess: [1.000, -1.000]
$par
[1] -0.9945749  0.9939758

$value
[1] 1.990139

$counts
function gradient
   10000       NA

$convergence
[1] 0

$message
NULL

$hessian
         [,1]     [,2]
[1,] 396.5497   0.0000
[2,]   0.0000 396.4962
```

```
SANN Rastigin Outputs:

Initial Guess: [1.000, 0.000]
$par
[1] 1 0

$value
[1] 1

$counts
function gradient
   10000       NA

$convergence
[1] 0

$message
NULL

$hessian
        [,1]    [,2]
[1,] 396.779   0.000
[2,]   0.000 396.779
```