

# Virtual Library of Simulation Experiments:

## Test Functions and Datasets

|                                  |
|----------------------------------|
| HOME                             |
| OPTIMIZATION                     |
| EMULATION/<br>PREDICTION         |
| UNCERTAINTY<br>QUANTIFICATION    |
| MULTI FIDELITY<br>SIMULATION     |
| CALIBRATION/ TUNING              |
| SCREENING                        |
| INTEGRATION                      |
| FUNCTIONAL DATA                  |
| ABOUT                            |
| OTHER TEST<br>FUNCTIONS AND CODE |

### Optimization Test Problems

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The functions listed below are some of the common functions and datasets used for testing optimization algorithms. They are grouped according to similarities in their significant physical properties and shapes. Each page contains information about the corresponding function or dataset, as well as MATLAB and R implementations.

#### Many Local Minima

1. [Ackley Function](#)
2. [Bukin Function N. 6](#)
3. [Cross-in-Tray Function](#)
4. [Drop-Wave Function](#)
5. [Eggholder Function](#)
6. [Gramacy & Lee \(2012\) Function](#)
7. [Griewank Function](#)
8. [Holder Table Function](#)
9. [Langermann Function](#)
10. [Levy Function](#)
11. [Levy Function N. 13](#)
12. [Rastrigin Function](#)
13. [Schaffer Function N. 2](#)
14. [Schaffer Function N. 4](#)
15. [Schwefel Function](#)
16. [Shubert Function](#)

#### Bowl-Shaped

17. [Bohachevsky Functions](#)
18. [Perm Function 0, d,  \$\beta\$](#)
19. [Rotated Hyper-Ellipsoid Function](#)
20. [Sphere Function](#)
21. [Sum of Different Powers Function](#)
22. [Sum Squares Function](#)
23. [Trid Function](#)

#### Plate-Shaped

24. [Booth Function](#)
25. [Matyas Function](#)
26. [McCormick Function](#)
27. [Power Sum Function](#)
28. [Zakharov Function](#)

#### Valley-Shaped

29. [Three-Hump Camel Function](#)
30. [Six-Hump Camel Function](#)
31. [Dixon-Price Function](#)
32. [Rosenbrock Function](#)

#### Steep Ridges/Drops

33. [De Jong Function N. 5](#)
34. [Easom Function](#)
35. [Michalewicz Function](#)

#### Other

36. [Beale Function](#)
37. [Branin Function](#)
38. [Colville Function](#)

- 39. [Forrester et al. \(2008\) Function](#)
- 40. [Goldstein-Price Function](#)
- 41. [Hartmann 3-D Function](#)
- 42. [Hartmann 4-D Function](#)
- 43. [Hartmann 6-D Function](#)
- 44. [Perm Function  \$d, \beta\$](#)
- 45. [Powell Function](#)
- 46. [Shekel Function](#)
- 47. [Styblinski-Tang Function](#)

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