

# Package ‘cec2013’

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**Type** Package

**Title** Benchmark functions for the Special Session and Competition on Real-Parameter Single Objective Optimization at CEC-2013

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**Description** This package provides R wrappers for the C implementation of 28 benchmark functions defined for the Special Session and Competition on Real-Parameter Single Objective Optimization at CEC-2013. The focus of this package is to provide an open-source and multi-platform implementation of the CEC2013 benchmark functions, in order to make easier for researchers to test the performance of new optimization algorithms in a reproducible way. The original C code (Windows only) was provided by Jane Jing Liang, while GNU/Linux comments were made by Janez Brest. This package was gently authorised for publication on CRAN by Ponnuthurai Nagarathnam Suganthan. The official documentation is available at [http://www.ntu.edu.sg/home/EPNSugan/index\\_files/CEC2013/CEC2013.htm](http://www.ntu.edu.sg/home/EPNSugan/index_files/CEC2013/CEC2013.htm). Bugs reports/comments/questions are very welcomed (in English, Spanish or Italian).

**License** GPL (>= 3)

**Depends** R (>= 2.13.0)

**Imports**

**Suggests**

**URL** <http://www.rforge.net/cec2013>,  
<http://cran.r-project.org/web/packages/cec2013>

**LazyLoad** yes

**ByteCompile** TRUE

**NeedsCompilation** yes

**Repository** CRAN

**Date/Publication** 2015-01-22 00:52:47

## R topics documented:

cec2013 . . . . . 2

**Index** . . . . . 3

cec2013 *Benchmark Functions for CEC 2013*

### Description

Common interface to the 28 CEC-2013 benchmark functions

### Usage

```
cec2013(i, x)
```

### Arguments

i	numeric (integer) between 1 and 28, defining the number of the benchmark function to be evaluated on the x parameter set
x	Either a vector with 2, 5, 10, 20, 30, 40, 50, 60, 70, 80, 90, 100 elements or a matrix with the same number of columns and one row for each vector to be evaluated

### Value

numeric, with the value of the i-th CEC-2013 benchmark function evaluated in the vector x or for each row of x when the latter is a matrix

### Author(s)

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### References

J. J. Liang, B-Y. Qu, P. N. Suganthan, Alfredo G. Hernandez-Diaz, *Problem Definitions and Evaluation Criteria for the CEC 2013 Special Session and Competition on Real-Parameter Optimization*. Technical Report 201212, Computational Intelligence Laboratory, Zhengzhou University, Zhengzhou China and Technical Report, Nanyang Technological University, Singapore, January 2013. <http://tracer.uc3m.es/tws/ps/neighborhood.html>. Last visited [21-Jan-2015]

### Examples

```
# CEC-2013 Benchmark function 1: Shifted Sphere, 10-dimensional space
# x=[0,..0]^D:
func.num <- 1
D <- 10
cec2013(func.num, rep(0, D))
```

# Index

cec2013, [2](#)