Package 'b6e6rl'

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Type Package

Title Adaptive differential evolution, b6e6rl variant

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Description This package contains b6e6rl algorithm, adaptive differential evolution for global optimization.

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NeedsCompilation no

Repository CRAN

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R topics documented:

`b6e6rl` *Adaptive differential evolution, b6e6rl algorithm*

Description

This function serches for the global minimum using b6e6rl variant of adaptive differential evolution.

Usage

```
b6e6rl(fn_name, a, b, N, my_eps, max_evals, n0, delta)
```

Arguments

fn_name	Name of function which minimum is to find
a	Vector of lower bounds of the search space (length=dimension of the search space)
b	Vector of upper bounds of the search space (length=dimension of the search space)
N	Size of population
my_eps	Small positive value, the algortihm stops when fmax-fmin < my_eps
max_evals	Maximum count of function evaluations per one dimension of the problem
n0	Input parameter controling the competition of the strategies, usualy n0=2
delta	Input parameter (critical probability), usualy delta=1/60

Value

x_star	Aproximation of the global minimum point found by search (vector of length=d)
fn_star	Functional value at x_star
func_evals	Count of function evaluations
success	Count of succesfull generations of the trial point
nrst	Count of resets, when any probability value is less than delta
cni	Counts of succesful selection of each strategy (vector of length=12)

Author(s)

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References

Tvrdik, J. Adaptation in Differential Evolution: A Numerical Comparison. APPL SOFT COMPUT. 2009, Vol. 9, pp. 1149-1155.

Tvrdik, J. Self-adaptive Variants of Differential Evolution with Exponential Crossover. Analele Universitatii de Vest, Timisoara.Seria Matematica-Informatica.. 2009, Vol. 47, pp. 151- 168.

Examples

```
##Example of the b6e6rl call

fn_name <- ("f_dejong")
a <- c(-30,-30,-30)
b <- c(30,30,30)
N <- 60
max_evals <- 20000
my_eps <- 0.000001
n0 <- 2
delta <- 1/(5*12)

b6e6rl(fn_name, a, b, N, my_eps, max_evals, n0, delta)
```

`f_dejong` *Test function*

Description

First deJong problem (sphere). The global minimum:f(x)=0, x(i)=0, i=1:n; n is dimension of the search space

`f_rastrigin` *Test function*

Description

Rastring (multimodal separable). The global minimum: f(x)=0; x(i)=0, i=1:n; n is dimension of the search space

`f_rosenbrock` *Test function*

Description

Rosenbrock (nonseparable). The global minimum: f(x)=0; x(i)=1, i=1:n; n is dimension of the search space

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