

Package ‘sc1optimization’

January 3, 2021

Title Gradient Descent and Stochastic Gradient Descent Package

Version 1.0

Description Gradient descent and Stochastic descent package, made for statistical-computing-1

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Suggests testthat (>= 3.0.0)

Config/testthat/edition 3

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grad_descent	<i>Finds the location of a local minimum of a function using gradient descent.</i>
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Description

Finds the location of a local minimum of a function using gradient descent.

Usage

```
grad_descent(f, x, grad_f, n = 999, tol = 1e-07, step_method = "BLS")
```

Arguments

f	A real valued differentiable function.
x	A initial estimate for the local minimum.
grad_f	A function that calculates gradient f at a given point (optional).
n	The maximum number of iterations (default 1000)
tol	Stop searching when the square of the magnitude of the gradient is less than tol (default 1e-7)
step_method	The function to be used to calculate the step size on each iteration (default BLS)

Value

A local minimum of the function f.

stoc_grad_descent	<i>Finds the location of a local minimum of a function using stochastic gradient descent.</i>
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Description

Finds the location of a local minimum of a function using stochastic gradient descent.

Usage

```
stoc_grad_descent(f, data, w, step_size = 1e-04)
```

Arguments

f	A real valued differentiable function
data	The data set to be used with f
w	Initial guess for a local minimum of f

Value

An estimate for a local minimum of sum f.

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