

# Package ‘optimizeR’

September 2, 2022

**Title** Unified Framework for Numerical Optimizer

**Version** 0.1.1

**Description** Provides a unified framework for numerical optimizer,  
particularly for inputs and outputs.

**License** GPL (>= 3)

**Encoding** UTF-8

**RoxygenNote** 7.2.1

**Imports** lifecycle

**Suggests** knitr, rmarkdown, testthat (>= 3.0.0), pracma, R.utils

**Config/testthat/edition** 3

**URL** <https://github.com/loelschlaeger/optimizeR>

**BugReports** <https://github.com/loelschlaeger/optimizeR/issues>

**Depends** R (>= 4.0.0)

**NeedsCompilation** no

**Author** Lennart Oelschläger [aut, cre]  
(<https://orcid.org/0000-0001-5421-9313>),  
Marius Ötting [ctb] (<https://orcid.org/0000-0002-9373-0365>)

**Maintainer** Lennart Oelschläger <oelschlaeger.lennart@gmail.com>

**Repository** CRAN

**Date/Publication** 2022-09-02 15:10:02 UTC

## R topics documented:

set_optimizer . . . . .	2
<b>Index</b>	<b>4</b>

---

set\_optimizer                      *Specify numerical optimizer*

---

## Description

Use this function to specify the framework for a numerical optimizer.

## Usage

```
set_optimizer(
  opt,
  f,
  p,
  v,
  z,
  ...,
  out_ign = character(),
  test_par = list(validate = TRUE, f_test = f_ackley, npar = 2, add = list(), init_rest =
    list(lower = -1, upper = 1), init_digits = 2, opt_checks = 10, opt_checks_time = 1)
)
```

## Arguments

opt	An object of class function, a numerical optimizer. <ul style="list-style-type: none"> <li>• It must have an input f for a function, which is optimized over its first argument.</li> <li>• It must have an input p for the initial parameter values.</li> <li>• It must have a . . . argument for additional parameters to f.</li> <li>• The output must be a named list, including the optimal function value (named v) and parameter vector (named z).</li> </ul>
f	The name of the function input of opt.
p	The name of the starting parameter values input of opt.
v	The name of the optimal function value in the output list of opt.
z	The name of the optimal parameter vector in the output list of opt.
. . .	Additional arguments to be passed to the optimizer. Without specifications, the default values of the optimizer are used.
out_ign	A character vector of element names in the output of opt that are not saved. The elements v and z are added automatically to out_ign, because they are saved separately, see the output documentation of <a href="#">optimizeR</a> .
test_par	A list of test parameters for an optimizer object: <ul style="list-style-type: none"> <li>• validate, a boolean, set to TRUE (FALSE) to (not) validate the optimizer object. Per default, validate = TRUE.</li> <li>• f_test, a function to be optimized. Per default, f_test = fackley.</li> </ul>

- `npar`, the length of the first argument of `f_test`, i.e. the argument over which `f_test` is optimized.
- `add`, a list of additional arguments to `f_test`.
- `init_rest`, a list of two elements, `lower` and `upper`, with lower and upper limits, respectively, for test initial values for the optimization of `f_test` with `opt`. Can be single values (for joint limits) or numeric vectors of length `npar` (for individual limits). Per default, `lower = -1` and `upper = 1`.
- `init_digits`, the number of decimal places for the test initial values. Per default, `init_digits = 2`.
- `opt_checks`, the number of checks for `opt` with random initial values (that fulfill the `init_rest` restrictions). Per default, `opt_checks = 10`.
- `opt_check_time`, the maximum number of seconds for a single check for `opt`. A check is considered to be successful, if no error occurred within `opt_check_time` seconds.

### Format

The format of an optimizer object is documented in [new\\_optimizer](#).

### Value

An object of class `optimizer`.

### See Also

[set\\_optimizer\\_nlm\(\)](#) and [set\\_optimizer\\_optim\(\)](#), two wrappers for the `nlm` and `optim` optimizer.

### Examples

```
set_optimizer(  
  opt = pracma::nelder_mead,  
  f = "fn",  
  p = "x0",  
  v = "fmin",  
  z = "xmin",  
  tol = 1e-6  
)
```

# Index

## \* **specification**

set\_optimizer, 2

new\_optimizer, 3

nlm, 3

optim, 3

optimizeR, 2

set\_optimizer, 2

set\_optimizer\_nlm(), 3

set\_optimizer\_optim(), 3