# Package: ROI.plugin.nloptr (via r-universe)

August 11, 2024

**Version** 1.0-0

**Title** 'nloptr' Plug-in for the 'R' Optimization Infrastructure

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**Description** Enhances the R Optimization Infrastructure ('ROI') package with the 'NLopt' solver for solving nonlinear optimization problems.

**Imports** methods, stats, utils, ROI (>= 0.3-2), nloptr (>= 1.2.1)

**License** GPL-3

**URL** http://roi.r-forge.r-project.org/, https://r-forge.r-project.org/projects/roi/

**Repository** https://r-forge.r-universe.dev

**RemoteUrl** https://github.com/r-forge/roi

**RemoteRef** HEAD

**RemoteSha** f089cbe8d2717ead4862edf2c866ead61659e1f6

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`Example-1` *NLP 1*

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### Description

The following example solves the Rosenbrock function (https://en.wikipedia.org/wiki/Rosenbrock_function).

$$minimize\ f(x) = 100(x_2 - x_1^2)^2 + (1 - x_1)^2$$

## Examples

```
library(ROI)

f <- function(x) {
    return( 100 * (x[2] - x[1]^2)^2 + (1 - x[1])^2 )
}

f.gradient <- function(x) {
    return( c( -400 * x[1] * (x[2] - x[1] * x[1]) - 2 * (1 - x[1]),
               200 * (x[2] - x[1] * x[1])) )
}

x <- OP( objective = F_objective(f, n = 2L, G = f.gradient),
         bounds = V_bound(ld = -3, ud= 3, nobj = 2L) )

nlp <- ROI_solve(x, solver = "nloptr.lbfgs", start = c(-1.2, 1))
nlp
## Optimal solution found.
## The objective value is: 1.189412e-15
solution(nlp)
## [1] 1 1
```

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