Package: givp (via r-universe)

November 13, 2026

Type Package

Title GRASP-ILS-VND with Path Relinking Optimizer

Version 1.0.1

Description Direction-agnostic metaheuristic optimizer for continuous and mixed-integer black-box optimization.

License MIT + file LICENSE

Encoding UTF-8

Roxygen list(markdown = TRUE)

RoxygenNote 7.3.2

Imports R6, rlang

Suggests testthat (>= 3.0.0), covr, lintr, parallel, DEoptim, pso, GA, cmaes

Config/testthat/edition 3

Repository https://arnime.r-universe.dev

Date/Publication 2026-09-01 12:27:13 UTC

RemoteUrl https://github.com/Arnime/givp

RemoteRef HEAD

RemoteSha b912b71098080d7050e2e7ea87b2572a0d09bc4b

RemoteSubdir r

Contents

benchmarks 2
givp 2
givp_config 3
GIVPOptimizer 4
seed_sweep 4

Index **6**

benchmarks *Benchmark objective functions*

Description

Standard benchmark functions used in optimization tests and examples.

Usage

```
sphere(x)

rosenbrock(x)

rastrigin(x)
```

Arguments

x	Numeric vector.

Value

Scalar objective value.

givp *Optimize with GIVP*

Description

Functional entry point for the R port, mirroring the Python API.

Usage

```
givp(
  func,
  bounds,
  num_vars = NULL,
  minimize = NULL,
  direction = NULL,
  config = NULL,
  initial_guess = NULL,
  initial_guesses = NULL,
  iteration_callback = NULL,
  seed = NULL,
  verbose = FALSE
)
```

Arguments

func	Objective function receiving a numeric vector and returning a scalar.
bounds	Variable bounds.
num_vars	Optional number of variables.
minimize	Optional boolean for optimization direction.
direction	Optional string ("minimize" or "maximize").
config	Optional GIVPConfig object.
initial_guess	Optional warm-start vector.
initial_guesses	Optional list of warm-start vectors.
iteration_callback	Optional callback per iteration.
seed	Optional RNG seed.
verbose	Enable verbose output.

Value

A givp_result object.

---

givp_config *Create or represent a GIVP configuration*

Description

givp_config() builds a validated configuration object used by the optimizer.

Usage

```
givp_config(...)

GIVPConfig
```

Arguments

...	Fields to override in GIVPConfig.

Details

Instantiate directly with GIVPConfig\$new(...) when needed.

Value

A GIVPConfig R6 object.

GIVPOptimizer *Object-oriented optimizer wrapper*

Description

R6 interface for configuring once and running optimization via `$optimize()`.

Usage

```
GIVPOptimizer
```

Details

Instantiate with `GIVPOptimizer\$new(...)` and then call `$optimize()`.

seed_sweep *Run and summarize multi-seed experiments*

Description

Utilities for reproducible seeded runs and summary statistics.

Usage

```
seed_sweep(
  func,
  bounds,
  n_runs = 30L,
  config = NULL,
  num_vars = NULL,
  direction = NULL,
  verbose = FALSE
)

sweep_summary(sweep_results)
```

Arguments

`func`	Objective function.
`bounds`	Variable bounds.
`n_runs`	Number of seeds/runs.
`config`	Optional `GIVPConfig`.
`num_vars`	Optional number of variables.
`direction`	Optional optimization direction.
`verbose`	Verbose mode.
`sweep_results`	Result list returned by `seed_sweep()`.

Value

`seed_sweep()` returns a named list of `givp_result`; `sweep_summary()` returns aggregate statistics.

Index

benchmarks, 2

givp, 2
givp_config, 3
GIVPConfig *(*givp_config*)*, 3
GIVPOptimizer, 4

rastrigin *(*benchmarks*)*, 2
rosenbrock *(*benchmarks*)*, 2

seed_sweep, 4
sphere *(*benchmarks*)*, 2
sweep_summary *(*seed_sweep*)*, 4