

Package: xegaSelectGene (via r-universe)

August 27, 2024

Title Selection of Genes and Gene Representation Independent Functions

Version 1.0.0.3

Description This collection of gene representation-independent mechanisms for evolutionary and genetic algorithms contains four groups of functions: First, functions for selecting a gene in a population of genes according to its fitness value and for adaptive scaling of the fitness values as well as for performance optimization and measurement offer several variants for implementing the survival of the fittest. Second, evaluation functions for deterministic functions avoid recomputation. Evaluation of stochastic functions incrementally improve the estimation of the mean and variance of fitness values at almost no additional cost. Evaluation functions for gene repair handle error-correcting decoders. Third, timing and counting functions for profiling the algorithm pipeline are provided to assess bottlenecks in the algorithms. Fourth, a small collection of problem environments for function optimization, combinatorial optimization, and grammar-based genetic programming and grammatical evolution is provided for tutorial examples. The methods in the package are described by the following references: Baker, James E. (1987, ISBN:978-08058-0158-8), De Jong, Kenneth A. (1975) <<https://deepblue.lib.umich.edu/handle/2027.42/4507>>, Geyer-Schulz, Andreas (1997, ISBN:978-3-7908-0830-X), Grefenstette, John J. (1987, ISBN:978-08058-0158-8), Grefenstette, John J. and Baker, James E. (1989, ISBN:1-55860-066-3), Holland, John (1975, ISBN:0-472-08460-7), Lau, H. T. (1986) <[doi:10.1007/978-3-642-61649-5](https://doi.org/10.1007/978-3-642-61649-5)>, Price, Kenneth V., Storn, Rainer M. and Lampinen, Jouni A. (2005) <[doi:10.1007/3-540-31306-0](https://doi.org/10.1007/3-540-31306-0)>, Reynolds, J. C. (1993) <[doi:10.1007/BF01019459](https://doi.org/10.1007/BF01019459)>, Schaffer, J. David (1989, ISBN:1-55860-066-3), Wenstop, Fred (1980) <[doi:10.1016/0165-0114\(80\)90031-7](https://doi.org/10.1016/0165-0114(80)90031-7)>, Whitley, Darrell (1989, ISBN:1-55860-066-3), Wickham, Hadley (2019, ISBN:978-815384571).

License MIT + file LICENSE

2

URL <<https://github.com/ageyerschulz/xegaSelectGene>>

Encoding UTF-8

LazyData false

RoxygenNote 7.2.3

Suggests testthat (>= 3.0.0)

Collate 'evalGene.R' 'scaling.R' 'selectGene.R'
'selectGeneBenchmark.R' 'timer.R' 'DeJongF4.R' 'Parabola2D.R'
'newXOR.R' 'newTSP.R' 'xegaSelectGene-package.R'

Repository <https://ageyerschulz.r-universe.dev>

RemoteUrl <https://github.com/ageyerschulz/xegaselectgene>

RemoteRef HEAD

RemoteSha c3adcb175e9bd100379a135f48098eae323bafd2