

AN EXPERIMENTAL COMPARISON OF BIASED AND UNBIASED RANDOM- KEY GENETIC ALGORITHMS*

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Abstract

Random key genetic algorithms are heuristic methods for solving combinatorial optimization problems. They represent solutions as vectors of randomly generated real numbers, the so-called random keys. A deterministic algorithm, called a decoder, takes as input a vector of random keys and associates with it a feasible solution of the

combinatorial optimization problem for which an objective value or fitness can be computed. We compare three types of random-key genetic algorithms: the unbiased algorithm of Bean (1994); the biased algorithm of Gonçalves and Resende (2010); and a greedy version of Bean's algorithm on 12 instances from four types of covering problems: general-cost set covering, Steiner triple covering, general-cost set k -covering, and unit-cost covering by pairs. Experiments are run to construct runtime distributions for 36 heuristic/instance pairs. For all pairs of heuristics, we

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Keywords: genetic algorithm, biased random-key genetic algorithm, random keys, combinatorial optimization, heuristics, metaheuristics, experimental algorithms

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Χ Ψ Ω ∇ α β γ δ ε ζ η θ ι κ λ μ ν ξ ο π ρ σ τ
 υ φ χ ψ ω δ ε θ κ φ ρ π Α Β Γ Δ Ε Ζ Η Θ
 Ι Κ Λ Μ Ν Ξ Ο Π Ρ Θ Σ Τ Υ Φ Χ Ψ Ω ∇ α β
 γ δ ε ζ η θ ι κ λ μ ν ξ ο π ρ σ τ υ φ χ ψ ω δ
 ε θ κ φ ρ π Α Β Γ Δ Ε Ζ Η Θ Ι Κ Λ Μ Ν Ξ Ο
 Π Ρ Θ Σ Τ Υ Φ Χ Ψ Ω ∇ α β γ δ ε ζ η θ ι κ λ
 μ ν ξ ο π ρ σ τ υ φ χ ψ ω δ ε θ κ φ ρ π F F
 0 1 2 3 4 5 6 7 8 9 0 1 2 3 4 5 6 7 8 9 0 1 2 3 4
 5 6 7 8 9 0 1 2 3 4 5 6 7 8 9 0 1 2 3 4 5 6 7 8 9

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Russo

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APÊNDICE

Espécies de morcegos registradas em sub-bosque em 15 localidades amostradas na Amazônia e utilizadas nas análises de similaridade e auto-correlação espacial de morcegos da Amazônia: IWO = Iwokrama Forest, Guiana; PAR = Paracou, Guiana Francesa; ARA = Baixo Arataye, Guiana Francesa; FLAM = Floresta Nacional do Amapá, Amapá, Brasil; PNMT = Parque Nacional das Montanhas do Tumucumaque, Amapá, Brasil; BAR = Barcelos e Santa Isabel do Rio Negro; PNJ = Parque Nacional do Jaú, Amazonas, Brasil; MAN = Manaus, Amazonas, Brasil; XIN = Baixo Xingu, Pará, Brasil; PNA = Parque Nacional da Amazônia, Amazonas/Pará, Brasil; PNSD = Parque Nacional da Serra do Divisor, Acre, Brasil; BAL = Balta, Ucayali, Peru; MNU = Parque Nacional de Manu, Madre de Dios, Peru; CUZ = Reserva Cuzco Amazônico, Madre de Dios, Peru e MTP = Médio Teles Pires, Mato Grosso, Brasil.

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