

1. Record Nr.	UNINA9910137073903321
Autore	Dhaenens Clarisse
Titolo	Metaheuristics for big data . volume 5 // Clarisse Dhaenens, Laetitia Jourdan
Pubbl/distr/stampa	London, [England] ; ; Hoboken, New Jersey : , : ISTE : , : Wiley, , 2016 ©2016
ISBN	1-119-34760-2 1-119-34756-4 1-119-34758-0
Descrizione fisica	1 online resource (216 p.)
Collana	Computer Engineering Series : Metaheuristics Set
Disciplina	620.0042015118
Soggetti	Engineering design - Mathematical models Cluster analysis Combinatorial optimization
Lingua di pubblicazione	Inglese
Formato	Materiale a stampa
Livello bibliografico	Monografia
Note generali	Description based upon print version of record.
Nota di bibliografia	Includes bibliographical references and index.
Nota di contenuto	Cover; Title Page ; Copyright ; Contents; Acknowledgments; Introduction; 1. Optimization and Big Data; 1.1. Context of Big Data; 1.1.1. Examples of situations; 1.1.2. Definitions; 1.1.3. Big Data challenges; 1.1.4. Metaheuristics and Big Data; 1.2. Knowledge discovery in Big Data; 1.2.1. Data mining versus knowledge discovery; 1.2.2. Main data mining tasks; 1.2.3. Data mining tasks as optimization problems; 1.3. Performance analysis of data mining algorithms ; 1.3.1. Context; 1.3.2. Evaluation among one or several dataset(s); 1.3.3. Repositories and datasets; 1.4. Conclusion 2. Metaheuristics - A Short Introduction 2.1. Introduction; 2.1.1. Combinatorial optimization problems; 2.1.2. Solving a combinatorial optimization problem; 2.1.3. Main types of optimization methods; 2.2. Common concepts of metaheuristics; 2.2.1. Representation/encoding; 2.2.2. Constraint satisfaction; 2.2.3. Optimization criterion/objective function; 2.2.4. Performance analysis; 2.3. Single solution-based/local search methods; 2.3.1. Neighborhood of a solution; 2.3.2. Hill climbing algorithm; 2.3.3. Tabu Search; 2.3.4. Simulated annealing and threshold acceptance approach

2.3.5. Combining local search approaches
2.4. Population-based metaheuristics; 2.4.1. Evolutionary computation; 2.4.2. Swarm intelligence; 2.5. Multi-objective metaheuristics; 2.5.1. Basic notions in multi-objective optimization; 2.5.2. Multi-objective optimization using metaheuristics; 2.5.3. Performance assessment in multi-objective optimization; 2.6. Conclusion; 3. Metaheuristics and Parallel Optimization; 3.1. Parallelism; 3.1.1. Bit-level; 3.1.2. Instruction-level parallelism; 3.1.3. Task and data parallelism; 3.2. Parallel metaheuristics ; 3.2.1. General concepts
3.2.2. Parallel single solution-based metaheuristics
3.2.3. Parallel population-based metaheuristics; 3.3. Infrastructure and technologies for parallel metaheuristics ; 3.3.1. Distributed model; 3.3.2. Hardware model; 3.4. Quality measures ; 3.4.1. Speedup; 3.4.2. Efficiency; 3.4.3. Serial fraction; 3.5. Conclusion; 4. Metaheuristics and Clustering; 4.1. Task description; 4.1.1. Partitioning methods; 4.1.2. Hierarchical methods; 4.1.3. Grid-based methods; 4.1.4. Density-based methods; 4.2. Big Data and clustering; 4.3. Optimization model; 4.3.1. A combinatorial problem; 4.3.2. Quality measures
4.3.3. Representation
4.4. Overview of methods; 4.5. Validation; 4.5.1. Internal validation; 4.5.2. External validation; 4.6. Conclusion; 5. Metaheuristics and Association Rules; 5.1. Task description and classical approaches ; 5.1.1. Initial problem; 5.1.2. A priori algorithm; 5.2. Optimization model; 5.2.1. A combinatorial problem; 5.2.2. Quality measures; 5.2.3. A mono or a multi-objective problem?; 5.3. Overview of metaheuristics for the association rules mining problem; 5.3.1. Generalities; 5.3.2. Metaheuristics for categorical association rules
5.3.3. Evolutionary algorithms for quantitative association rules
