

1. Record Nr.	UNINA9910821311903321
Autore	Fletcher R
Titolo	Practical Methods of Optimization [[electronic resource]]
Pubbl/distr/stampa	Hoboken, : Wiley, 2013
ISBN	1-118-72318-X 1-118-72321-X
Edizione	[2nd ed.]
Descrizione fisica	1 online resource (452 p.)
Disciplina	515
Soggetti	Mathematical optimization Mathematics Operations research
Lingua di pubblicazione	Inglese
Formato	Materiale a stampa
Livello bibliografico	Monografia
Note generali	Description based upon print version of record.
Nota di contenuto	Cover; Title Page; Contents; Preface; Table of Notation; PART 1 UNCONSTRAINED OPTIMIZATION; Chapter 1 Introduction; 1.1 History and Applications; 1.2 Mathematical Background; Questions for Chapter 1; Chapter 2 Structure of Methods; 2.1 Conditions for Local Minima; 2.2 Ad hoc Methods; 2.3 Useful Algorithmic Properties; 2.4 Quadratic Models; 2.5 Descent Methods and Stability; 2.6 Algorithms for the Line Search Subproblem; Questions for Chapter 2; Chapter 3 Newton-like Methods; 3.1 Newton's Method; 3.2 Quasi-Newton Methods; 3.3 Invariance; 3.4 The Broyden Family; 3.5 Numerical Experiments 3.6 Other Formulae Questions for Chapter 3; Chapter 4 Conjugate Direction Methods; 4.1 Conjugate Gradient Methods; 4.2 Direction Set Methods; Questions for Chapter 4; Chapter 5 Restricted Step Methods; 5.1 A Prototype Algorithm; 5.2 Levenberg-Marquardt Methods; Questions for Chapter 5; Chapter 6 Sums of Squares and Nonlinear Equations; 6.1 Over-determined Systems; 6.2 Well-determined Systems; 6.3 No-derivative Methods; Questions for Chapter 6; PART 2 CONSTRAINED OPTIMIZATION; Chapter 7 Introduction; 7.1 Preview; 7.2 Elimination and Other Transformations; Questions for Chapter 7 Chapter 8 Linear Programming 8.1 Structure; 8.2 The Simplex Method; 8.3 Other LP Techniques; 8.4 Feasible Points for Linear Constraints; 8.5 Stable and Large-scale Linear Programming; 8.6 Degeneracy; 8.7

Polynomial Time Algorithms; Questions for Chapter 8; Chapter 9 The Theory of Constrained Optimization; 9.1 Lagrange Multipliers; 9.2 First Order Conditions; 9.3 Second Order Conditions; 9.4 Convexity; 9.5 Duality; Questions for Chapter 9; Chapter 10 Quadratic Programming; 10.1 Equality Constraints; 10.2 Lagrangian Methods; 10.3 Active Set Methods; 10.4 Advanced Features
10.5 Special QP Problems
10.6 Complementary Pivoting and Other Methods; Questions for Chapter 10; Chapter 11 General Linearly Constrained Optimization; 11.1 Equality Constraints; 11.2 Inequality Constraints; 11.3 Zigzagging; Questions for Chapter 11; Chapter 12 Nonlinear Programming; 12.1 Penalty and Barrier Functions; 12.2 Multiplier Penalty Functions; 12.3 The L1 Exact Penalty Function; 12.4 The Lagrange-Newton Method (SQP); 12.5 Nonlinear Elimination and Feasible Direction Methods ...; 12.6 Other Methods; Questions for Chapter 12; Chapter 13 Other Optimization Problems
13.1 Integer Programming
13.2 Geometric Programming; 13.3 Network Programming; Questions for Chapter 13; Chapter 14 Non-Smooth Optimization; 14.1 Introduction; 14.2 Optimality Conditions; 14.3 Exact Penalty Functions; 14.4 Algorithms; 14.5 A Globally Convergent Prototype Algorithm; 14.6 Constrained Non-Smooth Optimization; Questions for Chapter 14; References; Subject Index

Sommario/riassunto

Fully describes optimization methods that are currently most valuable in solving real-life problems. Since optimization has applications in almost every branch of science and technology, the text emphasizes their practical aspects in conjunction with the heuristics useful in making them perform more reliably and efficiently. To this end, it presents comparative numerical studies to give readers a feel for possible applications and to illustrate the problems in assessing evidence. Also provides theoretical background which provides insights into how methods are derived. This edition offers rev
