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Nota di contenuto	Preface -- 1. Basic Concepts of Second-Order Analysis -- 2. Second-Order Subdifferential Calculus -- 3. Computing Second-Order Subdifferentials -- 4. Computing Primal-Dual Second-Order Objects -- 5. Tilt Stability in Optimization -- 6. Full Stability in Optimization -- 7. Full Stability for Parametric Variational Systems -- 8. Critical Multipliers in Variational Systems -- 9. Newton-Type Methods for Tilt-Stable Minimizers -- 10. Sweeping Process Over Controlled Polyhedra -- 11. Sweeping Process with Controlled Perturbations -- 12. Sweeping Process Under Prox-Regularity -- 13. Applications to Controlled Crowd Motion Models -- References -- List of Statements -- List of Figures -- Glossary of Notation -- Subject Index.
Sommario/riassunto	This fundamental work is a sequel to monographs by the same author: Variational Analysis and Applications (2018) and the two Grundlehren

volumes Variational Analysis and Generalized Differentiation: I Basic Theory, II Applications (2006). This present book is the first entirely devoted to second-order variational analysis with numerical algorithms and applications to practical models. It covers a wide range of topics including theoretical, numerical, and implementations that will interest researchers in analysis, applied mathematics, mathematical economics, engineering, and optimization. Inclusion of a variety of exercises and commentaries in each chapter allows the book to be used effectively in a course on this subject. This area has been well recognized as an important and rapidly developing area of nonlinear analysis and optimization with numerous applications. Consisting of 9 interrelated chapters, the book is self-contained with the inclusion of some preliminaries in Chapter 1. Results presented are useful tools for characterizations of fundamental notions of variational stability of solutions for diverse classes of problems in optimization and optimal control, the study of variational convexity of extended-real-valued functions and their specifications and variational sufficiency in optimization. Explicit calculations and important applications of second-order subdifferentials associated with the achieved characterizations of variational stability and related concepts, to the design and justification of second-order numerical algorithms for solving various classes of optimization problems, nonsmooth equations, and subgradient systems, are included. Generalized Newtonian algorithms are presented that show local and global convergence with linear, superlinear, and quadratic convergence rates. Algorithms are implemented to address interesting practical problems from the fields of machine learning, statistics, imaging, and other areas.