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   Nota di contenuto Introduction -- Unconstrained Optimization -- Constrained
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   Sommario/riassunto This textbook is an introduction to nonlinear optimization, which treats
                     mathematical concepts stringently on the one hand, but also motivates
                     them in great detail and illustrates them with 42 figures. Therefore, the
                     book is not only aimed at mathematicians, but also at natural
                     scientists, engineers, and economists who want to understand and
                     apply mathematically sound methods in their field. With just over two
                     hundred pages, the book offers sufficient flexibility to serve as a
                     foundation for various types of lectures on nonlinear optimization.
                     Many geometric approaches for understanding both optimality
                     conditions and numerical methods introduce a new perspective,
                     enriching the existing literature on optimization. This is particularly
                     evident in the detailed treatment of issues arising from different
                     functional descriptions of the same geometry of feasible sets, and the
                     thus motivated introduction of constraint qualifications for deriving
                     derivative-based optimality conditions. The author Prof. Dr. Oliver Stein
                     is a full professor at the Karlsruhe Institute of Technology, where he
                     heads the Continuous Optimization group at the Institute for

Operations Research. His research focuses on the design and implementation of optimization methods and their theoretical foundations. His teaching focuses on global optimization, nonlinear optimization, mixed-integer optimization, convex analysis, parametric optimization, and multiobjective optimization. This book is the English translation of the second edition of "Grundzüge der Nichtlinearen Optimierung" (Springer, 2021) written in German. The translation was done with the help of artificial intelligence. A subsequent revision was performed by the author to further refine the work and to ensure that the translation is appropriate concerning content and scientific correctness. It may, however, read stylistically different from a conventional translation.