

# Book Review

J. Guddat, F. Guerra Vasquez, and H. Th. Jongen, *Parametric Optimization: Singularities, Pathfollowing and Jumps*, John Wiley & Sons (1990), 191 pages.

This book is concerned with optimization problems in which some or all the data depend on one parameter. Such problems are called one-parametric optimization problems. Algorithms for solving such problems are based on pathfollowing methods, which are also known as continuation or homotopy methods.

The first two chapters of the book provide an introduction and the theoretical background. Chapters 3 and 4 contain material on pathfollowing methods. Chapter 5 provides material on pathfollowing with jumps in the set of local minimizers and in the set of generalized critical points (the generalized critical points are generalizations of stationary points). The algorithms described in this book are used to find a local minimum, or a stationary point, or a generalized critical point. In the last chapter of the book (Chapter 6), the authors consider applications of solution algorithms for one-parameteric optimization problems in the areas of globally convergent algorithms for nonlinear (including nonconvex) optimization problems, in global optimization, and in multi-objective optimization. The material on global optimization is based on work published previously by Guddat and Jongen. The book ends with a list of 246 references and an index.

The book is well written and essentially is based on research by the authors. Anyone interested in the mathematical aspects of parametric optimization should consider obtaining this book, since many topics of importance in the area of one-parametric optimization problems are covered.

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