# Optimization: Insights and Applications (Princeton Series in Applied Mathematics)

*Jan Brinkhuis, Vladimir Tikhomirov*
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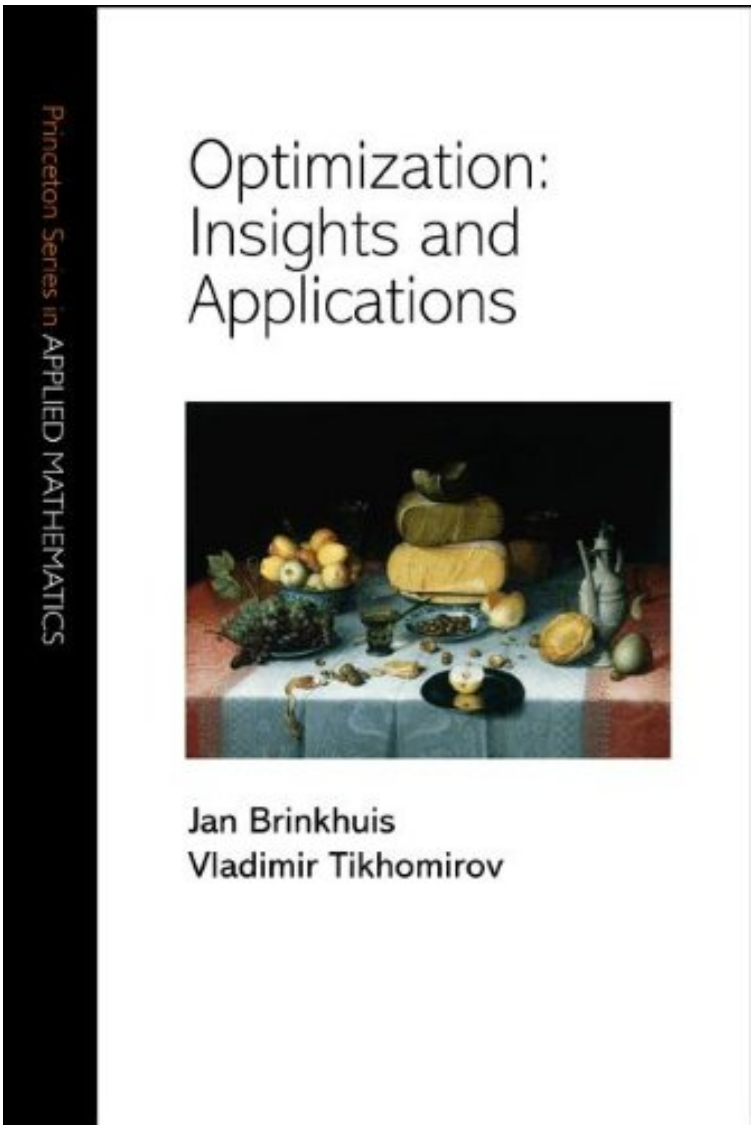




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This self-contained textbook is an informal introduction to optimization through the use of numerous illustrations and applications. The focus is on analytically solving optimization problems with a finite number of continuous variables. In addition, the authors provide introductions to classical and modern numerical methods of optimization and to dynamic optimization. The book's overarching point is that most problems may be solved by the direct application of the theorems of Fermat, Lagrange, and Weierstrass. The authors show how the intuition for each of the theoretical results can be supported by simple geometric figures. They include numerous applications through the use of varied classical and practical problems. Even experts may find some of these applications truly surprising. A basic mathematical knowledge is sufficient to understand the topics covered in this book. More advanced readers, even experts, will be surprised to see how all main results can be grounded on the Fermat-Lagrange theorem. The book can be used for courses on continuous optimization, from introductory to advanced, for any field for which optimization is relevant.

The authors provide a very nice and interesting textbook on the theory and the application of mathematical optimization. . . . The book is written as well as for beginners and for experts. . . . Both types of readers can profit from the given shortcuts and royal roads which jump over some theoretical explanations and lead directly to the applications.From the Back Cover"Well written and well organized. The book's examples are highly varied, interesting and well thought out."--Steinar Hauan, Carnegie Mellon University"An extremely interesting introduction to the field of mathematical optimization. I know of no other book in the field that offers so many illustrations of the applicability of deep theoretical issues in optimization. It will command a broad audience, from beginners to experts."--Kees Roos, Delft University of TechnologyAbout the AuthorJan Brinkhuis is Associate Professor of Finance and Mathematical Methods and Techniques at the Econometric Institute of Erasmus University, Rotterdam. Vladimir Tikhomirov holds the Chair of Optimal Control in the Department of Mechanics and Mathematics at the Lomonosov Moscow State University.