



# Applied Optimization with MATLAB Programming

By P. Venkataraman

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**Applied Optimization with MATLAB Programming** By P. Venkataraman

Technology/Engineering/Mechanical

Provides all the tools needed to begin solving optimization problems using MATLAB®

The Second Edition of Applied Optimization with MATLAB® Programming enables readers to harness all the features of MATLAB® to solve optimization problems using a variety of linear and nonlinear design optimization techniques. By breaking down complex mathematical concepts into simple ideas and offering plenty of easy-to-follow examples, this text is an ideal introduction to the field. Examples come from all engineering disciplines as well as science, economics, operations research, and mathematics, helping readers understand how to apply optimization techniques to solve actual problems.

This Second Edition has been thoroughly revised, incorporating current optimization techniques as well as the improved MATLAB® tools. Two important new features of the text are:

- Introduction to the scan and zoom method, providing a simple, effective technique that works for unconstrained, constrained, and global optimization problems
- New chapter, Hybrid Mathematics: An Application, using examples to illustrate how optimization can develop analytical or explicit solutions to differential systems and data-fitting problems

Each chapter ends with a set of problems that give readers an opportunity to put their new skills into practice. Almost all of the numerical techniques covered in the text are supported by MATLAB® code, which readers can download on the text's companion Web site [www.wiley.com/go/venkat2e](http://www.wiley.com/go/venkat2e) and use to begin solving problems on their own.

This text is recommended for upper-level undergraduate and graduate students in all areas of engineering as well as other disciplines that use optimization techniques to solve design problems.

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## **Editorial Review**

From the Back Cover

A new approach to learning classical optimization methods—numerical techniques modeled and illustrated via MATLAB

This unique and timely volume combines a formal presentation of classical methods of design optimization with detailed instruction in the application of these methods using MATLAB. It introduces readers to the symbolic, numerical, and graphic features of MATLAB and integrates this powerful combination in the translation of many algorithms into applied optimization techniques with animation.

Applied Optimization with MATLAB® Programming develops all necessary mathematical concepts, illustrates abstract mathematical ideas of optimization using MATLAB's rich graphics features, and introduces new programming skills incrementally as optimization concepts are presented. This valuable learning tool:

- Focuses on real-world optimization techniques
- Covers all areas of optimization, including linear, nonlinear, discrete, and global
- Includes creative examples from many disciplines
- Presents a number of practical, open-ended design problems
- Features an accompanying Web site with MATLAB code for all the numerical techniques and examples in the book

This one-of-a-kind resource enables senior-undergraduate and graduate students in engineering and other design disciplines to develop practical programming skills as they master the concepts of optimization. It is also an excellent self-teaching guide for design engineers in all fields of endeavor.

About the Author

P. Venkataraman, PhD, is an associate professor in the Mechanical Engineering Department, Rochester Institute of Technology, Rochester, New York.

## **Users Review**

**From reader reviews:**

**Angela Gagne:**

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