



Mark H. Holmes

Introduction to Scientific Computing and Data Analysis

Series: Texts in Computational Science and Engineering

- **MATLAB codes used for all of the numerical methods are available from author's website**
- **Extensive coverage of optimization methods including regression, both principal and independent component analysis, and variational calculus**
- **Directed towards problem solving that incorporates the mathematical foundations of the subject**

This textbook provides an introduction to numerical computing and its applications in science and engineering. The topics covered include those usually found in an introductory course, as well as those that arise in data analysis. This includes optimization and regression based methods using a singular value decomposition. The emphasis is on problem solving, and there are numerous exercises throughout the text concerning applications in engineering and science. The essential role of the mathematical theory underlying the methods is also considered, both for understanding how the method works, as well as how the error in the computation depends on the method being used. The MATLAB codes used to produce most of the figures and data tables in the text are available on the author's website and SpringerLink.

1st ed. 2016, XIV, 497 p. 177 illus., 138 illus. in color.

Printed book

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