

New Titles in Applied Math from **siam**[®]

www.siam.org/catalog



Hidden Markov Models and Dynamical Systems

Andrew M. Fraser

Hidden Markov models (HMMs) are discrete-state, discrete-time, stochastic dynamical systems. In addition to introducing the basic ideas of HMMs and algorithms for using them, this book explains the derivations of the algorithms with enough supporting theory to enable readers to develop their own variants.

2008 · xii + 132 · Softcover · ISBN 978-0-898716-65-8
List Price \$55.00 · SIAM Member Price \$38.50 · Code OT107



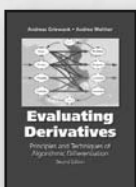
Scientific Computing with Case Studies

Dianne P. O'Leary

Learning through doing is the foundation of this book, which allows readers to explore case studies as well as expository material.

The book provides a practical guide to the numerical solution of linear and nonlinear equations, differential equations, optimization problems, and eigenvalue problems.

December 2008 · xvi + 383 pages · Softcover · ISBN 978-0-898716-66-5
Not yet priced · Code OT109



Evaluating Derivatives: Principles and Techniques of Algorithmic Differentiation, Second Edition

Andreas Griewank and Andrea Walther

This second edition has been updated and expanded to cover recent developments in applications and theory, including an elegant NP completeness argument by Uwe Naumann and a brief introduction to scarcity, a generalization of sparsity.

2008 · xxii + 438 pages · Softcover · ISBN 978-0-898716-59-7
List Price \$73.50 · SIAM Member Price \$51.45 · Code OT105



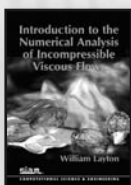
Linear and Nonlinear Optimization, Second Edition

Igor Griva, Stephen G. Nash, and Ariela Sofer

This book introduces the applications, theory, and algorithms of linear and nonlinear optimization, with an emphasis on the practical aspects of the material. Its

unique modular structure provides flexibility to accommodate the varying needs of instructors, students, and practitioners with different levels of sophistication in these topics.

December 2008 · xxii + 742 pages · Hardcover · ISBN 978-0-898716-61-0
List Price \$95.00 · SIAM Member Price \$66.50 · Code OT108



Introduction to the Numerical Analysis of Incompressible Viscous Flows

William Layton

This book treats the numerical analysis of finite element computational fluid dynamics. Assuming minimal background, it covers finite element methods; the derivation, behavior, analysis, and numerical analysis of Navier–Stokes equations; and turbulence and turbulence models used in simulations.

2008 · xx + 213 pages · Softcover · ISBN 978-0-898716-57-3
List Price \$67.00 · SIAM Member Price \$46.90 · Code CS06

Feedback Systems: Input-Output Properties

Charles A. Desoer and M. Vidyasagar

This book was the first and remains the only book to give a comprehensive treatment of the behavior of linear or nonlinear systems when they are connected in a closed-loop fashion, with the output of one system forming the input of the other. It includes the most basic concepts of matrices and norms, the important fundamental theorems in input-output stability, and the requisite background material in advanced topics.

December 2008 · xx + 264 pages · Softcover · ISBN 978-0-898716-70-2
List Price \$65.00 · SIAM Member Price \$45.50 · Code CL55

Stochastic Processes, Estimation, and Control

Jason L. Speyer and Walter H. Chung

The authors discuss probability theory, stochastic processes, estimation, and stochastic control strategies and show how probability can be used to model uncertainty in control and estimation problems.

2008 · xiv + 383 pages · Softcover · ISBN 978-0-898716-55-9
List Price \$99.00 · SIAM Member Price \$69.30 · Code DC17

A Unified Approach to Boundary Value Problems

Athanasios S. Fokas

This book presents a new approach to analyzing initial-boundary value problems for integrable partial differential equations in two dimensions, a method that the author first introduced in 1997 and which is based on ideas of the inverse scattering transform.

2008 · xvi + 336 · Softcover · ISBN 978-0-898716-51-1
List Price \$75.00 · SIAM Member Price \$52.50 · Code CB78

All prices are in US dollars.

ORDER ONLINE: www.siam.org/catalog

Or use your credit card (AMEX, MasterCard, and VISA): Call SIAM Customer Service at +1-215-382-9800 worldwide · Fax: +1-215-386-7999
E-mail: service@siam.org. Send check or money order in US dollars to: SIAM, Dept. BKMA08, 3600 Market Street, 6th Floor, Philadelphia, PA 19104-2688 USA. **Members and customers outside North America can also order SIAM books through Cambridge University Press at www.cambridge.org/siam.**