

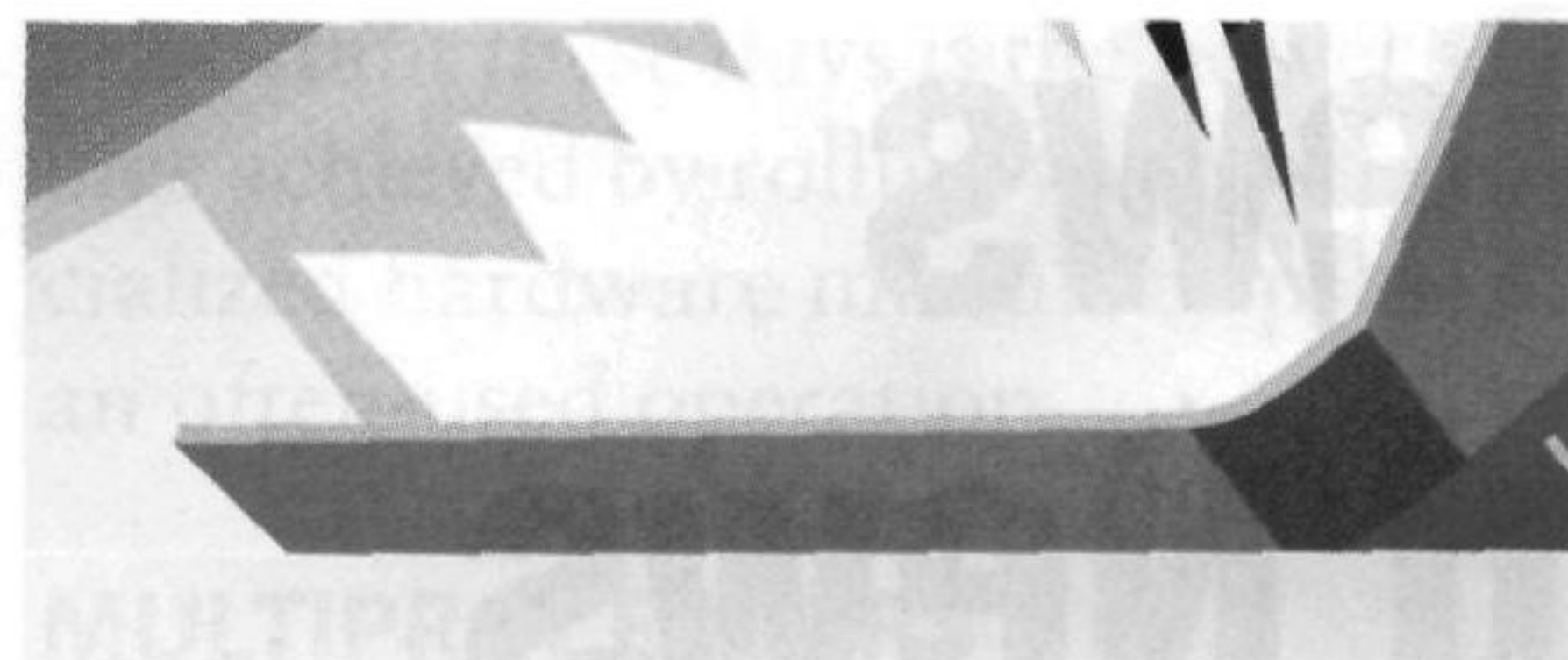
The *Craft of System Security*, Sean Smith and John Marchesini. Security practitioners, developers, managers, administrators, and users who read this book can glean an understanding of today's security challenges—and anticipate tomorrow's. This book reveals why each tool in the modern security practitioner's toolkit exists and demonstrates exactly how to use it to solve real problems.

After quickly reviewing the history of computer security, the authors discuss the modern landscape, showing how security challenges and responses have evolved and offering a coherent framework for understanding today's systems and vulnerabilities. Next, they systematically introduce the basic building blocks for securing contemporary systems, apply them to today's applications, and consider important emerging trends such as hardware-based security. Other topics covered include using operating system security tools and structures, identifying software security defects, from buffer overflows to development process flaws, and understanding cryptographic primitives and their use in secure systems.

Addison-Wesley Professional; www.awprofessional.com; 0-321-43483-8; 592 pp.

Intelligent Computing Everywhere, Alfons Schuster, ed. This book reflects the current perception in various fields that modern computing applications are becoming increasingly challenged in terms of complexity and intelligence. It investigates the relevance and relationship that artificial intelligence maintains with "modern strands of computing" such as pervasive computing and ambient intelligence, bioinformatics, neuroinformatics, computing and the mind, nonclassical computing and novel computing models, as well as DNA computing and quantum computing.

The book examines each subject from two main viewpoints: The first provides a state-of-the-art introduction to a field such as DNA computing, and the second investigates the subject from an artificial intelligence perspective.



Springer; www.springer.com; 978-1-84628-942-2; 254 pp.

Quantum Computer Science: An Introduction, N. David Mermin. The author provides a concise introduction to quantum computation, developing the basic elements of this new branch of computational theory without assuming any background in physics.

Beginning with an introduction to the quantum theory from a computer-science perspective, the book illustrates the quantum-computational approach with several elementary examples of quantum speedup, then moves on to the major applications: Shor's factoring algorithm, Grover's search algorithm, and quantum error correction.

Cambridge University Press; www.cambridge.org; 978-0-521-87658-2; 236 pp.

The Minimum Description Length Principle, Peter D. Grünwald. The minimum description length principle is a powerful method of inductive inference, the basis of statistical modeling, pattern recognition, and machine learning. MDL methods are particularly well-suited for dealing with model selection, prediction, and estimation problems in situations where the models under consideration can be arbitrarily complex and overfitting the data is a serious concern.

This extensive, step-by-step introduction to the MDL principle provides a comprehensive reference accessible to graduate students and researchers in statistics, pattern classification, machine learning, and data mining; to philosophers interested in the foundations of statistics; and to researchers in other applied sciences that involve model selection, including biology, econometrics, and experimental psychology.

Part I provides a basic introduction to MDL and an overview of the concepts in statistics and information theory needed to understand MDL. Part II addresses universal coding, the information-theoretic notion on which MDL is built. Part III gives a formal treatment of MDL as a theory of inductive inference based on universal coding. Part IV provides a comprehensive overview of the statistical theory of exponential families with an emphasis on their information-theoretic properties. The text includes several summaries, paragraphs offering the reader a fast track through the material, and boxes highlighting the most important concepts.

MIT Press; mitpress.mit.edu; 0-262-07281-5; 504 pp.

Handbook of Dynamic System Modeling, Paul A. Fishwick, ed. The topic of dynamic models tends to be splintered across various disciplines, making it difficult to uniformly study the subject. Moreover, the models have a variety of representations, from traditional mathematical notations to diagrammatic and immersive depictions. Collecting all these expressions of dynamic models, this book explores a panoply of different modeling methods available for dynamic systems.

The book first introduces the general concepts, representations, and philosophy of dynamic models, followed by a section on modeling methodologies that explains how to portray designed models on a computer. After addressing scale, heterogeneity, and composition issues, the book covers model types often characterized by specific visual- or text-based grammars. It concludes with case studies that employ two well-known commercial packages to construct, simulate, and analyze dynamic models.

CRC Press; www.crcpress.com; 1-58488-565-3; 760 pp.

Send book announcements to
newbooks@computer.org.