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NEW!

Introduction to Modern Cryptography

Jonathan Katz • University of Maryland, College Park, USA
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The authors introduce the core principles of modern cryptography, including the modern, *computational* approach to security that overcomes the limitations of perfect secrecy. An extensive treatment of private-key encryption and message authentication follows. The authors also illustrate design principles for block ciphers, such as the Data Encryption Standard (DES) and the Advanced Encryption Standard (AES), and present provably secure constructions of block ciphers from lower-level primitives. The second half of the book focuses on public-key cryptography, beginning with a self-contained introduction to the number theory needed to understand the RSA, Diffie–Hellman, El Gamal, and other cryptosystems. After exploring public-key encryption and digital signatures, the book concludes with a discussion of the random oracle model and its applications.

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> ***"Over the past 30 years, cryptography has been transformed from a mysterious art into a mathematically rigorous science. The textbook by Jonathan Katz and Yehuda Lindell finally makes this modern approach to cryptography accessible to a broad audience. Readers of this text will learn how to think precisely about the security of protocols against arbitrary attacks, a skill that will remain relevant and useful regardless of how technology and cryptography standards change. The book uses just enough formalism to maintain precision and rigor without obscuring the development of ideas. It manages to convey both the theory's conceptual beauty and its relevance to practice. I plan to use it every time I teach an undergraduate course in cryptography."***
>
> —Salil Vadhan, Harvard University, Cambridge, Massachusetts, USA

FEATURES

- Includes formal definitions, precise assumptions, and rigorous proofs
- Discusses many widely used cryptographic algorithms and standards
- Covers topics, such as pseudorandom generators/functions, Paillier encryption, and the random oracle model, often not found in other texts
- Contains suggestions for further reading as well as numerous exercises at the end of each chapter
- Assumes minimal prerequisites—all necessary mathematical background is included in the text

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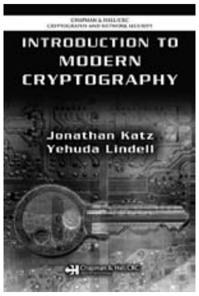

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