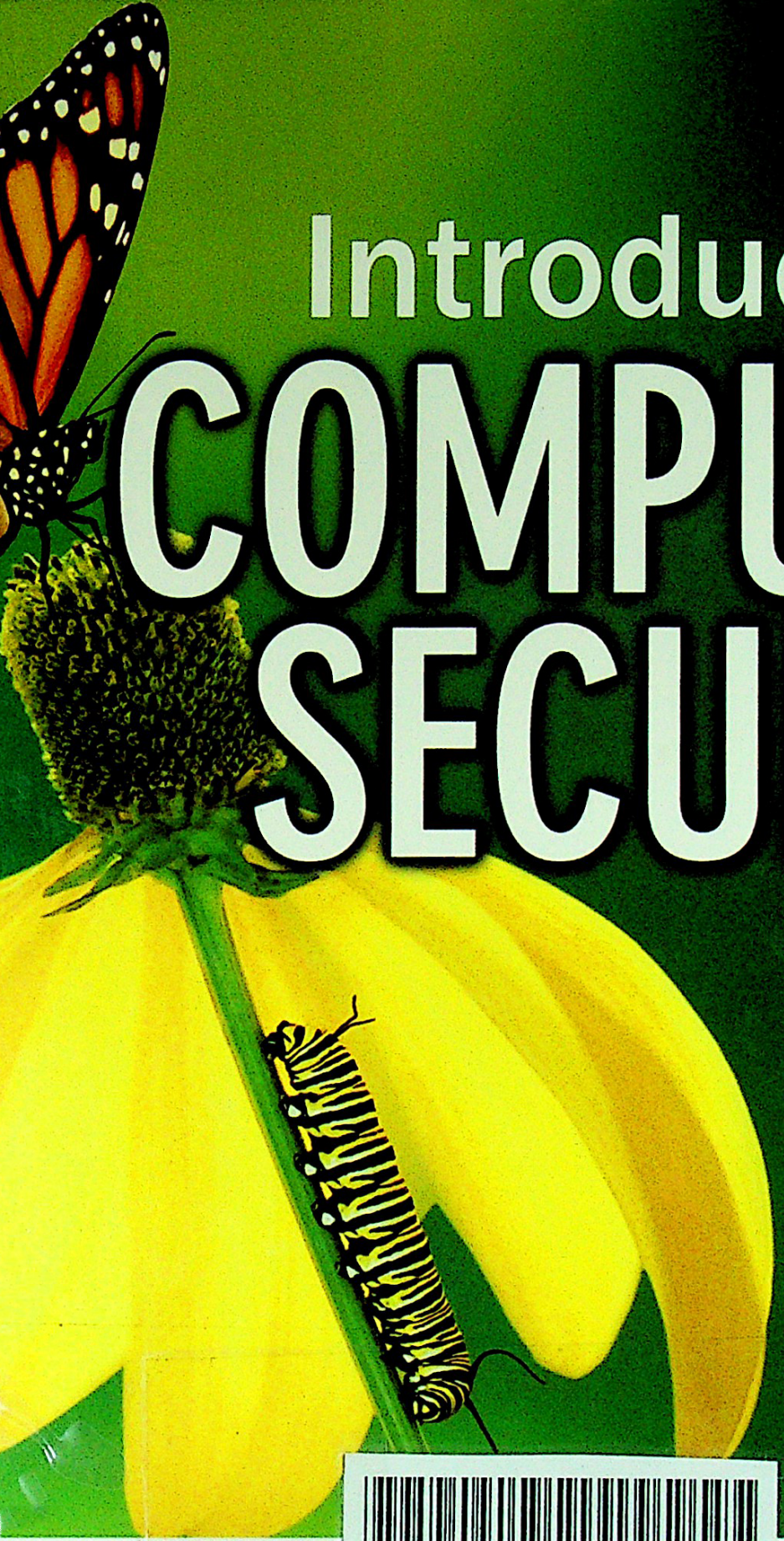
Introduction to COMPUTER SECURITY



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Introduction to Computer Security

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Security

Introduction to COMPUTER SECURITY

In this authoritative book, widely respected practitioner and teacher Matt Bishop presents a clear and useful introduction to the art and science of information security. Bishop's insights and realistic examples will help any practitioner or student understand the crucial links between security theory and the day-to-day security challenges of IT environments.

Bishop explains the fundamentals of security: the different types of widely used policies, the mechanisms that implement these policies, the principles underlying both policies and mechanisms, and how attackers can subvert these tools—as well as how to defend against attackers. A practicum demonstrates how to apply these ideas and mechanisms to a realistic company.

Coverage includes

- Confidentiality, integrity, and availability
- Operational issues, cost-benefit and risk analyses, legal and human factors
- Planning and implementing effective access control
- Defining security, confidentiality, and integrity policies
- Using cryptography and public-key systems, and recognizing their limits
- Understanding and using authentication: from passwords to biometrics
- Security design principles: least-privilege, fail-safe defaults, open design, economy of mechanism, and more
- Controlling information flow through systems and networks
- Assuring security throughout the system lifecycle
- Malicious logic: Trojan horses, viruses, boot sector and executable infectors, rabbits, bacteria, logic bombs—and defenses against them
- Vulnerability analysis, penetration studies, auditing, and intrusion detection and prevention
- Applying security principles to networks, systems, users, and programs

Introduction to Computer Security is adapted from Bishop's comprehensive and widely praised book, *Computer Security: Art and Science*. This shorter version of the original work omits much mathematical formalism, making it more accessible for professionals and students who have a less formal mathematical background, or for readers with a more practical than theoretical interest.

Matt Bishop is a professor in the Department of Computer Science at the University of California at Davis. A recognized expert in vulnerability analysis, secure systems/software design, network security, access control, authentication, and UNIX security, Bishop also works to improve computer security instruction. He is the author of *Computer Security: Art and Science* (Addison-Wesley, 2003).

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