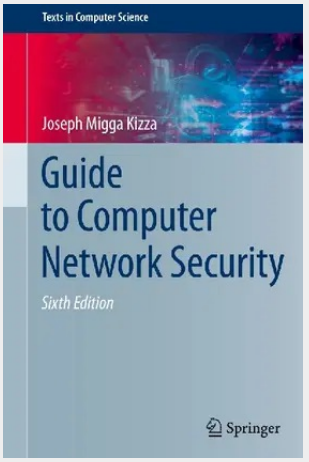
Kizza

Guide to Computer Network Security



This timely textbook presents a comprehensive guide to the core topics in computing and information security and assurance realms, going beyond the security of networks to the ubiquitous mobile communications and online social networks that have become part of daily life.

In the context of growing human dependence on a digital ecosystem, this book stresses the importance of security awareness—whether in homes, businesses, or public spaces. It also embraces the new and more agile and artificial-intelligence-boosted computing systems models, online social networks, and virtual platforms that are interweaving and fueling growth of an ecosystem of intelligent digital and associated social networks. This ***fully updated edition*** features new material on new and developing artificial intelligence models across all computing security systems spheres, blockchain technology, and the metaverse, leading toward security systems virtualizations.

Topics and features:

- Explores the range of risks and vulnerabilities in all connected digital systems
- Presents exercises of varying levels of difficulty at the end of each chapter, and concludes with a diverse selection of practical projects
- Describes the fundamentals of traditional computer network security, and common threats to security
- Discusses the role and challenges of artificial intelligence in advancing the security of computing systems' algorithms, protocols, and best practices
- Raises thought-provoking questions regarding legislative, legal, social, technical, and ethical challenges, such as the tension between privacy and security
- Offers supplementary material for students and instructors at an associated website, including slides, additional projects, and syllabus suggestions

This important textbook/reference is an invaluable resource for students of computer science, engineering, and information management, as well as for practitioners working in data- and information-intensive industries.

Professor Joseph Migga Kizza is a professor, former Head of the Department of Computer Science and Engineering, and a former Director of the UTC InfoSec Center, at the University of Tennessee at Chattanooga, USA. He also authored the successful Springer textbooks *Ethical and Social Issues in the Information Age* and *Ethical and Secure Computing: A Concise Module* .

1. Computer Network Fundamentals.- Computer Network Security Fundamentals.- 2. Security Threats and Threat Motives to Computer Networks.- 3. Introduction to Computer Network Vulnerabilities.- 4. Cyber Crimes and Hackers.- 5. Scripting and Security in Computer Networks and Web Browsers.- 6. Security Assessment, Analysis, and Assurance.- 7. Disaster Management.- Access Control and Authorization.- 8. Authentication Control and Authorization.- 9. Authentication.- Cryptography.- 10. Firewalls.- 11. System Intrusion Detection and Prevention.- 12. Computer and Network Forensics.- 13. Virus and Content Filtering.- 14. Standardization and Security Criteria: Security Evaluation of Computer Products.- 15. Computer Network Security Protocols.

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