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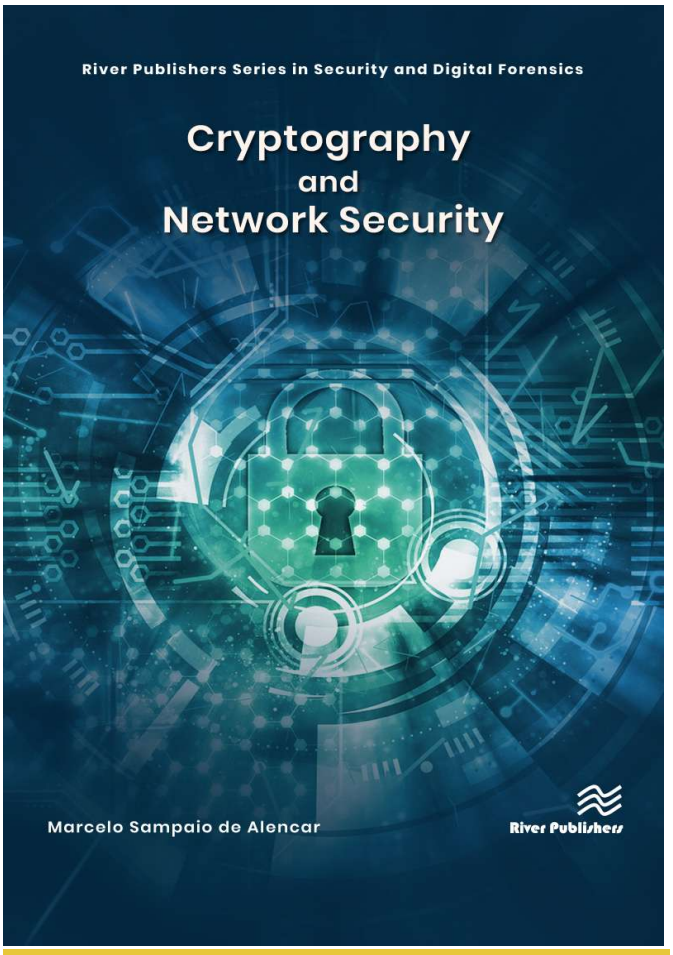
Cryptography and Network Security

Author: Marcelo Sampaio de Alencar

Starting with the historical evolution of computer and communications networks and their security, the book then arrives at the main definitions of cryptography and network security. Next, the basics of information theory, how to measure information, the information associated with a certain source are also discussed. Source codes are presented, along with the concepts of information transmission, joint information, conditional entropy, mutual information and channel capacity. Computer networks are discussed, including the main protocols and network architectures, and the important TCP/IP protocol. Network security, a topic intrinsically connected to computer networks and the Internet, is presented, along with information about basic hacker attacks, alternatives to prevent attacks, data protection and secure protocols. The information theoretical aspects of cryptography are described including the hash function. An appendix includes a review of probability theory. Illustrations and graphics will help the reader understand the theory.



River Publishers Series in Digital Security and Forensics

ISBN: 9788770224079
e-ISBN: 9788770224062
Available From: April 2022
Price: € 110.00 $ 150.00

KEYWORDS:
Cryptography. Network security. Information and coding theory. Network protocols.

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