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Engineering : Circuits and Systems

Burleson, Wayne, Carrara, Sandro (Eds.), University of Massachusetts, Amherst, USA

Security and Privacy for Implantable Medical Devices

- Describes problems of security and privacy in implantable medical devices and proposes technological solutions
- Includes basic abstractions of cryptographic services and primitives such as public key cryptography, block ciphers and digital signatures
- Provides state-of-the-art research of interest to a multidisciplinary audience in electrical, computer and bio-engineering, computer networks and cryptography and medical and health sciences

This book presents a systematic approach to analyzing the challenging engineering problems posed by the need for security and privacy in implantable medical devices (IMD). It describes in detail new issues termed as lightweight security, due to the associated constraints on metrics such as available power, energy, computing ability, area, execution time, and memory requirements. Coverage includes vulnerabilities and defense across multiple levels, with basic abstractions of cryptographic services and primitives such as public key cryptography, block ciphers and digital signatures. Experts from Computer Security and Cryptography present new research which shows vulnerabilities in existing IMDs and proposes solutions. Experts from Privacy Technology and Policy will discuss the societal, legal and ethical challenges surrounding IMD security as well as technological solutions that build on the latest in Computer Science privacy research, as well as lightweight solutions appropriate for implementation in IMDs.

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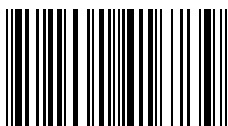
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