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[Software Security Engineering](#) Addison-Wesley Professional

This complete guide to physical-layer security presents the theoretical foundations, practical implementation, challenges and benefits of a groundbreaking new model for secure communication. Using a bottom-up approach from the link level all the way to end-to-end architectures, it provides essential practical tools that enable graduate students, industry professionals and researchers to build more secure systems by exploiting the noise inherent to communications channels. The book begins with a self-contained explanation of the information-theoretic limits of secure communications at the physical layer. It then goes on to develop practical coding schemes, building on the theoretical insights and enabling readers to understand the challenges and opportunities related to the design of physical layer security schemes. Finally, applications to multi-user communications and network coding are also included.

[Building Secure and Reliable Systems](#) John Wiley & Sons

As more companies move toward microservices and other distributed technologies, the complexity of these systems increases. You can't remove the complexity, but through Chaos Engineering you can discover vulnerabilities and prevent outages before they impact your customers. This practical guide shows engineers how to navigate complex systems while optimizing to meet business goals. Two of the field's prominent figures, Casey Rosenthal and Nora Jones, pioneered the discipline while working together at Netflix. In this book, they expound on the what, how, and why of Chaos Engineering while facilitating a conversation from practitioners across industries. Many chapters are written by contributing authors to widen the perspective across verticals within (and beyond) the software industry. Learn how Chaos Engineering enables your organization to navigate complexity Explore a methodology to avoid failures within your application, network, and infrastructure Move from theory to practice through real-world stories from industry experts at Google, Microsoft, Slack, and LinkedIn, among others Establish a framework for thinking about complexity within software systems Design a Chaos Engineering program around game days and move toward highly targeted, automated experiments Learn how to design continuous collaborative chaos experiments

[Countering Cyber Sabotage](#) CRC Press

A ground shaking expos é on the failure of popular cyber risk management methods How to Measure Anything in Cybersecurity Risk exposes the shortcomings of current "risk management" practices, and offers a series of improvement techniques that help you fill the holes and ramp up security. In his bestselling book How to Measure Anything, author Douglas W. Hubbard opened the business world's eyes to the critical need for better measurement. This book expands upon that premise and draws from The Failure of Risk Management to sound the alarm in the cybersecurity realm. Some of the field's premier risk management approaches actually create more risk than they mitigate, and questionable methods have been duplicated across industries and embedded in the products accepted as gospel. This book sheds light on these blatant risks, and provides alternate techniques that can help improve your current situation. You'll also learn which approaches are too risky to save, and are actually more damaging than a total lack of any security. Dangerous risk management methods abound; there is no industry more critically in need of solutions than cybersecurity. This book provides solutions where they exist, and advises when to change tracks entirely. Discover the shortcomings of cybersecurity's "best practices" Learn which risk management approaches actually create risk Improve your current practices with practical

alterations Learn which methods are beyond saving, and worse than doing nothing Insightful and enlightening, this book will inspire a closer examination of your company's own risk management practices in the context of cybersecurity. The end goal is airtight data protection, so finding cracks in the vault is a positive thing—as long as you get there before the bad guys do. How to Measure Anything in Cybersecurity Risk is your guide to more robust protection through better quantitative processes, approaches, and techniques.

[The Cybersecurity Manager's Guide](#) John Wiley & Sons

This first-of-its-kind resource offers a broad and detailed understanding of software systems engineering from both security and safety perspectives. Addressing the overarching issues related to safeguarding public data and intellectual property, the book defines such terms as systems engineering, software engineering, security, and safety as precisely as possible, making clear the many distinctions, commonalities, and interdependencies among various disciplines. You explore the various approaches to risk and the generation and analysis of appropriate metrics. This unique book explains how processes relevant to the creation and operation of software systems should be determined and improved, how projects should be managed, and how products can be assured. You learn the importance of integrating safety and security into the development life cycle. Additionally, this practical volume helps identify what motivators and deterrents can be put in place in order to implement the methods that have been recommended.

[Information Privacy Engineering and Privacy by Design](#) O'Reilly Media

Cutting-edge cybersecurity solutions to defend against the most sophisticated attacks This professional guide shows, step by step, how to design and deploy highly secure systems on time and within budget. The book offers comprehensive examples, objectives, and best practices and shows how to build and maintain powerful, cost-effective cybersecurity systems. Readers will learn to think strategically, identify the highest priority risks, and apply advanced countermeasures that address the entire attack space. Engineering Trustworthy Systems: Get Cybersecurity Design Right the First Time showcases 35 years of practical engineering experience from an expert whose persuasive vision has advanced national cybersecurity policy and practices. Readers of this book will be prepared to navigate the tumultuous and uncertain future of cyberspace and move the cybersecurity discipline forward by adopting timeless engineering principles, including:

- Defining the fundamental nature and full breadth of the cybersecurity problem
- Adopting an essential perspective that considers attacks, failures, and attacker mindsets
- Developing and implementing risk-mitigating, systems-based solutions
- Transforming sound cybersecurity principles into effective architecture and evaluation strategies that holistically address the entire complex attack space

[A Practical Guide to Security Engineering and Information Assurance](#) CRC Press

Cybersecurity for medical devices is no longer optional. We must not allow sensationalism or headlines to drive the discussion... Nevertheless, we must proceed with urgency. In the end, this is about preventing patient harm and preserving patient trust. A comprehensive guide to medical device secure lifecycle management, this is a book for engineers, managers, and regulatory specialists. Readers gain insight into the security aspects of every phase of the product lifecycle, including concept, design, implementation, supply chain, manufacturing, postmarket surveillance, maintenance, updates, and end of life. Learn how to mitigate or completely avoid common cybersecurity vulnerabilities introduced during development and production. Grow your awareness of cybersecurity development topics ranging from high-level concepts to practical solutions and tools. Get insight into emerging regulatory and customer expectations. Uncover how to minimize schedule impacts and accelerate time-to-market while still accomplishing the main goal: reducing patient and business exposure to cybersecurity risks. Medical Device Cybersecurity for Engineers and Manufacturers is designed to help all stakeholders lead the charge to a better medical device security posture and improve the resilience of our medical device ecosystem.

[Guide to Computer Network Security](#) Springer Nature

Drawing upon a wealth of experience from academia, industry, and government service, Cyber Security Policy Guidebook details and dissects, in simple language, current organizational cyber security policy issues on a global scale—taking great care to educate readers on the history and current approaches to the security of cyberspace. It includes thorough descriptions—as well as the pros and cons—of a plethora of issues, and documents policy alternatives for the sake of clarity with respect to policy alone. The Guidebook also delves into organizational implementation issues, and equips readers with descriptions of the positive and negative impact of specific policy choices. Inside are detailed chapters that: Explain what is meant by cyber security and cyber security policy Discuss the process by which cyber security policy goals are set Educate the reader on decision-making processes related to cyber security Describe a new

framework and taxonomy for explaining cyber security policy issues Show how the U.S. government is dealing with cyber security policy issues With a glossary that puts cyber security language in layman's terms—and diagrams that help explain complex topics—Cyber Security Policy Guidebook gives students, scholars, and technical decision-makers the necessary knowledge to make informed decisions on cyber security policy.

[Engineering Safe and Secure Software Systems](#) CRC Press

In the Guide to the Software Engineering Body of Knowledge (SWEBOOK(R) Guide), the IEEE Computer Society establishes a baseline for the body of knowledge for the field of software engineering, and the work supports the Society's responsibility to promote the advancement of both theory and practice in this field. It should be noted that the Guide does not purport to define the body of knowledge but rather to serve as a compendium and guide to the knowledge that has been developing and evolving over the past four decades. Now in Version 3.0, the Guide's 15 knowledge areas summarize generally accepted topics and list references for detailed information. The editors for Version 3.0 of the SWEBOOK(R) Guide are Pierre Bourque (Ecole de technologie supérieure (ETS), Université du Québec) and Richard E. (Dick) Fairley (Software and Systems Engineering Associates (S2EA)).

[Medical Device Cybersecurity for Engineers and Manufacturers](#) John Wiley & Sons

Cyber Security Engineering is the definitive modern reference and tutorial on the full range of capabilities associated with modern cyber security engineering. Pioneering software assurance experts Dr. Nancy R. Mead and Dr. Carol C. Woody bring together comprehensive best practices for building software systems that exhibit superior operational security, and for considering security throughout your full system development and acquisition lifecycles. Drawing on their pioneering work at the Software Engineering Institute (SEI) and Carnegie Mellon University, Mead and Woody introduce seven core principles of software assurance, and show how to apply them coherently and systematically. Using these principles, they help you prioritize the wide range of possible security actions available to you, and justify the required investments. Cyber Security Engineering guides you through risk analysis, planning to manage secure software development, building organizational models, identifying required and missing competencies, and defining and structuring metrics. Mead and Woody address important topics, including the use of standards, engineering security requirements for acquiring COTS software, applying DevOps, analyzing malware to anticipate future vulnerabilities, and planning ongoing improvements. This book will be valuable to wide audiences of practitioners and managers with responsibility for systems, software, or quality engineering, reliability, security, acquisition, or operations. Whatever your role, it can help you reduce operational problems, eliminate excessive patching, and deliver software that is more resilient and secure.

[Security Fundamentals](#) John Wiley & Sons

Front Cover; Dedication; Embedded Systems Security: Practical Methods for Safe and Secure Software and Systems Development; Copyright; Contents; Foreword; Preface; About this Book; Audience; Organization; Approach; Acknowledgements; Chapter 1 -- Introduction to Embedded Systems Security; 1.1 What is Security?; 1.2 What is an Embedded System?; 1.3 Embedded Security Trends; 1.4 Security Policies; 1.5 Security Threats; 1.6 Wrap-up; 1.7 Key Points; 1.8 Bibliography and Notes; Chapter 2 -- Systems Software Considerations; 2.1 The Role of the Operating System; 2.2 Multiple Independent Levels of Security.

[Cyber Security Engineering](#) Addison-Wesley Professional

Software Security Engineering draws extensively on the systematic approach developed for the Build Security In (BSI) Web site. Sponsored by the Department of Homeland Security Software Assurance Program, the BSI site offers a host of tools, guidelines, rules, principles, and other resources to help project managers address security issues in every phase of the software development life cycle (SDLC). The book 's expert authors, themselves frequent contributors to the BSI site, represent two well-known resources in the security world: the CERT Program at the Software Engineering Institute (SEI) and Cigital, Inc., a consulting firm specializing in software security. This book will help you understand why Software security is about more than just eliminating vulnerabilities and conducting penetration tests Network security mechanisms and IT infrastructure security services do not sufficiently protect application software from security risks Software security initiatives should follow a risk-management approach to identify priorities and to define what is "good enough" – understanding that software security risks will change throughout the SDLC Project managers and software engineers need to learn to think like an attacker in order to address the range of functions that software should not do, and how software can better resist, tolerate, and recover when under attack

[Cyber Security Policy Guidebook](#) No Starch Press

This book examines the requirements, risks, and solutions to improve the security and quality of complex cyber-physical systems (C-CPS), such as production systems, power plants, and

airplanes, in order to ascertain whether it is possible to protect engineering organizations against cyber threats and to ensure engineering project quality. The book consists of three parts that logically build upon each other. Part I "Product Engineering of Complex Cyber-Physical Systems" discusses the structure and behavior of engineering organizations producing complex cyber-physical systems, providing insights into processes and engineering activities, and highlighting the requirements and border conditions for secure and high-quality engineering. Part II "Engineering Quality Improvement" addresses quality improvements with a focus on engineering data generation, exchange, aggregation, and use within an engineering organization, and the need for proper data modeling and engineering-result validation. Lastly, Part III "Engineering Security Improvement" considers security aspects concerning C-CPS engineering, including engineering organizations' security assessments and engineering data management, security concepts and technologies that may be leveraged to mitigate the manipulation of engineering data, as well as design and run-time aspects of secure complex cyber-physical systems. The book is intended for several target groups: it enables computer scientists to identify research issues related to the development of new methods, architectures, and technologies for improving quality and security in multi-disciplinary engineering, pushing forward the current state of the art. It also allows researchers involved in the engineering of C-CPS to gain a better understanding of the challenges and requirements of multi-disciplinary engineering that will guide them in their future research and development activities. Lastly, it offers practicing engineers and managers with engineering backgrounds insights into the benefits and limitations of applicable methods, architectures, and technologies for selected use cases.

[Cybersecurity](#) Cambridge University Press

Provides a guide to software security, ranging far beyond secure coding to outline rigorous processes and practices for managing system and software lifecycle operations. This book opens with a guide to the software lifecycle, covering all elements, activities, and practices encompassed by the universally accepted ISO/IEEE 12207-2008 standard.

[The Tangled Web](#) Springer Science & Business Media

Cutting-edge social engineering testing techniques "Provides all of the core areas and nearly everything [you] need to know about the fundamentals of the topic."--Slashdot Conduct ethical social engineering tests to identify an organization's susceptibility to attack. Written by a global expert on the topic, Social Engineering in IT Security discusses the roots and rise of social engineering and presents a proven methodology for planning a test, performing reconnaissance, developing scenarios, implementing the test, and accurately reporting the results. Specific measures you can take to defend against weaknesses a social engineer may exploit are discussed in detail. This practical guide also addresses the impact of new and emerging technologies on future trends in social engineering. Explore the evolution of social engineering, from the classic con artist to the modern social engineer Understand the legal and ethical aspects of performing a social engineering test Find out why social engineering works from a victim's point of view Plan a social engineering test--perform a threat assessment, scope the test, set goals, implement project planning, and define the rules of engagement Gather information through research and reconnaissance Create a credible social engineering scenario Execute both on-site and remote social engineering tests Write an effective social engineering report Learn about various tools, including software, hardware, and on-site tools Defend your organization against social engineering attacks

[Chaos Engineering](#) "O'Reilly Media, Inc."

Do you create tons of accounts you will never again visit? Do you get annoyed thinking up new passwords, so you just use the same one across all your accounts? Does your password contain a sequence of numbers, such as "123456"? This book will show you just how incredibly lucky you are that nobody's hacked you before.

[Cybersecurity: Engineering a Secure Information Technology Organization](#) Artech House

Now that there's software in everything, how can you make anything secure? Understand how to engineer dependable systems with this newly updated classic In Security Engineering: A Guide to Building Dependable Distributed Systems, Third Edition Cambridge University professor Ross Anderson updates his classic textbook and teaches readers how to design, implement, and test systems to withstand both error and attack. This book became a best-seller in 2001 and helped establish the discipline of security engineering. By the second edition in 2008, underground dark markets had let the bad guys specialize and scale up; attacks were increasingly on users rather than on technology. The book repeated its success by showing how security engineers can focus on usability. Now the third edition brings it up to date for 2020. As people now go online from phones more than laptops, most servers are in the cloud, online advertising drives the Internet and social networks have taken over much human interaction, many patterns of crime and abuse are the same, but the methods have evolved. Ross Anderson explores what security engineering means in 2020, including: How the basic elements of cryptography, protocols, and access control translate to the new world of phones, cloud services, social media and the Internet of Things Who the attackers are -- from nation states and business competitors through criminal gangs to stalkers and playground bullies What they do -- from phishing and carding through SIM swapping and software exploits to DDoS and fake news Security psychology, from privacy through ease-of-use to deception The economics of security and dependability -- why companies build vulnerable systems and governments look the other way How dozens of industries went online -- well or badly How to manage security

and safety engineering in a world of agile development -- from reliability engineering to DevSecOps The third edition of Security Engineering ends with a grand challenge: sustainable security. As we build ever more software and connectivity into safety-critical durable goods like cars and medical devices, how do we design systems we can maintain and defend for decades? Or will everything in the world need monthly software upgrades, and become unsafe once they stop? Embedded Systems Security John Wiley & Sons Can a system be considered truly reliable if it isn't fundamentally secure? Or can it be considered secure if it's unreliable? Security is crucial to the design and operation of scalable systems in production, as it plays an important part in product quality, performance, and availability. In this book, experts from Google share best practices to help your organization design scalable and reliable systems that are fundamentally secure. Two previous O'Reilly books from Google--Site Reliability Engineering and The Site Reliability Workbook--demonstrated how and why a commitment to the entire service lifecycle enables organizations to successfully build, deploy, monitor, and maintain software systems. In this latest guide, the authors offer insights into system design, implementation, and maintenance from practitioners who specialize in security and reliability. They also discuss how building and adopting their recommended best practices requires a culture that's supportive of such change. You'll learn about secure and reliable systems through: Design strategies Recommendations for coding, testing, and debugging practices Strategies to prepare for, respond to, and recover from incidents Cultural best practices that help teams across your organization collaborate effectively

[Security and Quality in Cyber-Physical Systems Engineering](#) "O'Reilly Media, Inc."

The Comprehensive Guide to Engineering and Implementing Privacy Best Practices As systems grow more complex and cybersecurity attacks more relentless, safeguarding privacy is ever more challenging. Organizations are increasingly responding in two ways, and both are mandated by key standards such as GDPR and ISO/IEC 27701:2019. The first approach, privacy by design, aims to embed privacy throughout the design and architecture of IT systems and business practices. The second, privacy engineering, encompasses the technical capabilities and management processes needed to implement, deploy, and operate privacy features and controls in working systems. In Information Privacy Engineering and Privacy by Design, internationally renowned IT consultant and author William Stallings brings together the comprehensive knowledge privacy executives and engineers need to apply both approaches. Using the techniques he presents, IT leaders and technical professionals can systematically anticipate and respond to a wide spectrum of privacy requirements, threats, and vulnerabilities--addressing regulations, contractual commitments, organizational policies, and the expectations of their key stakeholders.

- Review privacy-related essentials of information security and cryptography
- Understand the concepts of privacy by design and privacy engineering
- Use modern system access controls and security countermeasures to partially satisfy privacy requirements
- Enforce database privacy via anonymization and de-identification
- Prevent data losses and breaches
- Address privacy issues related to cloud computing and IoT
- Establish effective information privacy management, from governance and culture to audits and impact assessment
- Respond to key privacy rules including GDPR, U.S. federal law, and the California Consumer Privacy Act

This guide will be an indispensable resource for anyone with privacy responsibilities in any organization, and for all students studying the privacy aspects of cybersecurity.

[The Art of Software Security Testing](#) John Wiley & Sons

Although most people don't give security much attention until their personal or business systems are attacked, this thought-provoking anthology demonstrates that digital security is not only worth thinking about, it's also a fascinating topic. Criminals succeed by exercising enormous creativity, and those defending against them must do the same. Beautiful Security explores this challenging subject with insightful essays and analysis on topics that include: The underground economy for personal information: how it works, the relationships among criminals, and some of the new ways they pounce on their prey How social networking, cloud computing, and other popular trends help or hurt our online security How metrics, requirements gathering, design, and law can take security to a higher level The real, little-publicized history of PGP This book includes contributions from: Peiter "Mudge" Zatkó Jim Stickley Elizabeth Nichols Chenxi Wang Ed Bellis Ben Edelman Phil Zimmermann and Jon Callas Kathy Wang Mark Curphey John McManus James Routh Randy V. Sabett Anton Chuvakin Grant Geyer and Brian Dunphy Peter Wayner Michael Wood and Fernando Francisco All royalties will be donated to the Internet Engineering Task Force (IETF).

[Engineering Information Security](#) Pearson Education

The only security book to be chosen as a Dr. Dobbs Jolt Award Finalist since Bruce Schneier's Secrets and Lies and Applied Cryptography! Adam Shostack is responsible for security development lifecycle threat modeling at Microsoft and is one of a handful of threat modeling experts in the world. Now, he is sharing his considerable expertise into this unique book. With pages of specific actionable advice, he details how to build better security into the design of systems, software, or services from the outset. You'll explore various threat modeling approaches, find out how to test your designs against threats, and learn effective ways to address threats that have been validated at Microsoft and other top companies. Systems security managers, you'll find tools and a framework for structured thinking about what can go wrong. Software developers, you'll appreciate the jargon-free and accessible introduction to this essential skill. Security

professionals, you'll learn to discern changing threats and discover the easiest ways to adopt a structured approach to threat modeling. Provides a unique how-to for security and software developers who need to design secure products and systems and test their designs Explains how to threat model and explores various threat modeling approaches, such as asset-centric, attacker-centric and software-centric Provides effective approaches and techniques that have been proven at Microsoft and elsewhere Offers actionable how-to advice not tied to any specific software, operating system, or programming language Authored by a Microsoft professional who is one of the most prominent threat modeling experts in the world As more software is delivered on the Internet or operates on Internet-connected devices, the design of secure software is absolutely critical. Make sure you're ready with Threat Modeling: Designing for Security.