The Art Of Computer Virus Research And Defense

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The Art of Deception - Kevin D. Mitnick 2011-08-04
The world's most infamous hacker offers an insider's view of the low-tech threats to high-tech security Kevin Mitnick's exploits as a cyber-desperado and fugitive form one of the most exhaustive FBI manhunts in history and have spawned dozens of articles, books, films, and documentaries. Since his release from federal prison, in 1998, Mitnick has turned his life around and established himself as one of the most sought-after computer security experts worldwide. Now, in The Art of Deception, the world's most notorious hacker gives new meaning to the old adage, "It takes a thief to catch a thief." Focusing on the human factors involved with information security, Mitnick explains why all the firewalls and encryption protocols in the world will never be enough to stop a savvy grifter intent on rifling a corporate database or an irate employee determined to crash a system. With the help of many fascinating true stories of successful attacks on business and government, he illustrates just how susceptible even the most locked-down information systems are to a slick con artist impersonating an IRS agent. Narrating from the points of view of both the attacker and the victims, he explains why each attack was so successful and how it could have been prevented in an engaging and highly readable style reminiscent of a true-crime novel. And, perhaps most importantly, Mitnick offers advice for preventing these types of social engineering hacks through security protocols, training programs, and manuals that address the human element of security.
Contemporary Computing - Sanjay Ranka 2010-08-12
This book constitutes the second part of the refereed proceedings of the Third International Conference, IC3 2010, held in Noida, India, in August 2010. The 23 revised full papers presented were carefully reviewed and selected from numerous submissions.
Proceedings of the International Conference on IT Convergence and Security 2011 - Kuinam J. Kim 2011-12-07
As we entered the 21st century, the rapid growth of information technology has changed our lives more conveniently than we have ever speculated. Recently in all fields of the industry, heterogeneous technologies have converged with information technology resulting in a new paradigm, information technology convergence. In the process of information technology convergence, the latest issues in the structure of data, system, network, and infrastructure have become the most challenging

task. Proceedings of the International Conference on IT Convergence and Security 2011 approaches the subject matter with problems in technical convergence and convergences of security technology by looking at new issues that arise from techniques converging. The general scope is convergence security and the latest information technology with the following most important features and benefits: 1. Introduction of the most recent information technology and its related ideas 2. Applications and problems related to technology convergence, and its case studies 3. Introduction of converging existing security techniques through convergence security Overall, after reading Proceedings of the International Conference on IT Convergence and Security 2011, readers will understand the most state of the art information strategies and technologies of convergence security.

AVIEN Malware Defense Guide for the Enterprise - David Harley 2011-04-18

Members of AVIEN (the Anti-Virus Information Exchange Network) have been setting agendas in malware management for several years: they led the way on generic filtering at the gateway, and in the sharing of information about new threats at a speed that even anti-virus companies were hard-pressed to match. AVIEN members represent the best-protected large organizations in the world, and millions of users. When they talk, security vendors listen: so should you. AVIEN's sister organization AVIEWS is an invaluable meeting ground between the security vendors and researchers who know most about malicious code and anti-malware technology, and the top security administrators of AVIEN who use those technologies in real life. This new book uniquely combines the knowledge of these two groups of experts. Anyone who is responsible for the security of business information systems should be aware of this major addition to security literature. * "Customer Power" takes up the theme of the sometimes stormy relationship between the antivirus industry and its customers, and tries to dispel some common myths. It then considers the roles of the independent researcher, the vendor-employed specialist, and the corporate security specialist. * "Stalkers on Your Desktop" considers the thorny issue of malware nomenclature and then takes a brief historical look at how we got here, before expanding on some of the malware-related problems we face today. * "A Tangled Web" discusses threats and countermeasures in the context of the World Wide Web. * "Big Bad Bots" tackles bots and botnets, arguably Public Cyber-Enemy Number One. * "Crème de la CyberCrime" takes readers into the underworld of old-school virus writing, criminal business models, and predicting future malware hotspots. * "Defense in Depth" takes a broad look at DiD in the enterprise, and looks at some specific tools and technologies. * "Perilous Outsorcery" offers sound advice on how to avoid the perils and pitfalls of outsourcing, incorporating a few horrible examples of how not to do it. * "Education in Education" offers some insights into user education from an educationalist's perspective, and looks at various aspects of security in schools and other educational establishments. * "DIY Malware Analysis" is a hands-on, hands-dirty approach to security management, considering malware analysis and forensics techniques and tools. * "Antivirus Evaluation & Testing" continues the D-I-Y theme, discussing at length some of the thorny issues around the evaluation and testing of antimalware software. * "AVIEN & AVIEWS: the Future" looks at future developments in AVIEN and AVIEWS. * Unique, knowledgeable, unbiased and hype-free commentary. * Written by members of the anti-malware community; most malware books are written by outsiders. * Combines the expertise of truly knowledgeable systems administrators and managers, with that of the researchers who are most experienced in the analysis of malicious code, and the development and maintenance of defensive programs.

Hacking- The art Of Exploitation - J. Erickson 2018-03-06

This text introduces the spirit and theory of hacking as well as the science behind it all; it also provides some

core techniques and tricks of hacking so you can think like a hacker, write your own hacks or thwart potential system attacks.

The Giant Black Book of Computer Viruses - Mark Ludwig 2019-10-10

In this book you'll learn everything you wanted to know about computer viruses, ranging from the simplest 44-byte virus right on up to viruses for 32-bit Windows, Unix and the Internet. You'll learn how anti-virus programs stalk viruses and what viruses do to evade these digital policemen, including stealth techniques and poly-morphism. Next, you'll take a fascinating trip to the frontiers of science and learn about genetic viruses. Will such viruses take over the world, or will they become the tools of choice for the information warriors of the 21st century? Finally, you'll learn about payloads for viruses, not just destructive code, but also how to use a virus to compromise the security of a computer, and the possibility of beneficial viruses.

Cyber Infrastructure Protection: Volume II (Enlarged Edition) - U.S. Army War College

Combating Security Challenges in the Age of Big Data - Zubair Md. Fadlullah 2020-05-26

This book addresses the key security challenges in the big data centric computing and network systems, and discusses how to tackle them using a mix of conventional and state-of-the-art techniques. The incentive for joining big data and advanced analytics is no longer in doubt for businesses and ordinary users alike. Technology giants like Google, Microsoft, Amazon, Facebook, Apple, and companies like Uber, Airbnb, NVIDIA, Expedia, and so forth are continuing to explore new ways to collect and analyze big data to provide their customers with interactive services and new experiences. With any discussion of big data, security is not, however, far behind. Large scale data breaches and privacy leaks at governmental and financial institutions, social platforms, power grids, and so forth, are on the rise that cost billions of dollars. The book explains how the security needs and implementations are inherently different at different stages of the big data centric system, namely at the point of big data sensing and collection, delivery over existing networks, and analytics at the data centers. Thus, the book sheds light on how conventional security provisioning techniques like authentication and encryption need to scale well with all the stages of the big data centric system to effectively combat security threats and vulnerabilities. The book also uncovers the state-of-the-art technologies like deep learning and blockchain which can dramatically change the security landscape in the big data era.

New Trends in Networking, Computing, E-learning, Systems Sciences, and Engineering - Khaled Elleithy 2014-11-27

This book includes a set of rigorously reviewed world-class manuscripts addressing and detailing state-of-the-art research projects in the areas of Computer Science, Informatics, and Systems Sciences, and Engineering. It includes selected papers form the conference proceedings of the Ninth International Joint Conferences on Computer, Information, and Systems Sciences, and Engineering (CISSE 2013). Coverage includes topics in: Industrial Electronics, Technology & Automation, Telecommunications and Networking, Systems, Computing Sciences and Software Engineering, Engineering Education, Instructional Technology, Assessment, and E-learning. • Provides the latest in a series of books growing out of the International Joint Conferences on Computer, Information, and Systems Sciences, and Engineering; • Includes chapters in the most advanced areas of Computing, Informatics, Systems Sciences, and Engineering; • Accessible to a wide range of readership, including professors, researchers, practitioners and students.

Computer Security Handbook, Set - Seymour Bosworth 2012-07-18

The classic and authoritative reference in the field of computer security, now completely updated and revised

With the continued presence of large-scale computers; the proliferation of desktop, laptop, and handheld computers; and the vast international networks that interconnect them, the nature and extent of threats to computer security have grown enormously. Now in its fifth edition, Computer Security Handbook continues to provide authoritative guidance to identify and to eliminate these threats where possible, as well as to lessen any losses attributable to them. With seventy-seven chapters contributed by a panel of renowned industry professionals, the new edition has increased coverage in both breadth and depth of all ten domains of the Common Body of Knowledge defined by the International Information Systems Security Certification Consortium (ISC). Of the seventy-seven chapters in the fifth edition, twenty-five chapters are completely new, including: 1. Hardware Elements of Security 2. Fundamentals of Cryptography and Steganography 3. Mathematical models of information security 4. Insider threats 5. Social engineering and low-tech attacks 6. Spam, phishing, and Trojans: attacks meant to fool 7. Biometric authentication 8. VPNs and secure remote access 9. Securing Peer2Peer, IM, SMS, and collaboration tools 10. U.S. legal and regulatory security issues, such as GLBA and SOX Whether you are in charge of many computers or just one important one, there are immediate steps you can take to safeguard your computer system and its contents. Computer Security Handbook, Fifth Edition equips you to protect the information and networks that are vital to your organization.

Proceedings of the International Conference on Soft Computing for Problem Solving (SocProS 2011) December 20-22, 2011 - Kusum Deep 2012-04-13

The objective is to provide the latest developments in the area of soft computing. These are the cutting edge technologies that have immense application in various fields. All the papers will undergo the peer review process to maintain the quality of work.

Software Engineering Research, Management and Applications 2009 - Roger Lee 2009-10-27

The 7th ACIS International Conference on Software Engineering Research, Management and Applications (SERA 2009) was held on Hainan Island, China from December 2 - 4. SERA '09 featured excellent theoretical and practical contributions in the areas of formal methods and tools, requirements engineering, software process models, communication systems and networks, software quality and evaluation, software engineering, networks and mobile computing, parallel/distributed computing, software testing, reuse and metrics, database retrieval, computer security, software architectures and modeling. Our conference officers selected the best 17 papers from those papers accepted for presentation at the conference in order to publish them in this volume. The papers were chosen based on review scores submitted by members or the program committee, and underwent further rigorous rounds of review.

Computer Viruses and Malware - John Aycock 2006-09-19

Our Internet-connected society increasingly relies on computers. As a result, attacks on computers from malicious software have never been a bigger concern. Computer Viruses and Malware draws together hundreds of sources to provide an unprecedented view of malicious software and its countermeasures. This book discusses both the technical and human factors involved in computer viruses, worms, and anti-virus software. It also looks at the application of malicious software to computer crime and information warfare. Computer Viruses and Malware is designed for a professional audience composed of researchers and practitioners in industry. This book is also suitable as a secondary text for advanced-level students in computer science.

The Art of Mac Malware - Patrick Wardle 2022-06-28

A comprehensive guide to the threats facing Apple computers and the foundational knowledge needed to become a proficient Mac malware analyst. Defenders must fully understand how malicious software works if they hope to stay ahead of the increasingly sophisticated threats facing Apple products today. The Art of Mac Malware: The Guide to Analyzing Malicious Software is a

comprehensive handbook to cracking open these malicious programs and seeing what's inside. Discover the secrets of nation state backdoors, destructive ransomware, and subversive cryptocurrency miners as you uncover their infection methods, persistence strategies, and insidious capabilities. Then work with and extend foundational reverse-engineering tools to extract and decrypt embedded strings, unpack protected Mach-O malware, and even reconstruct binary code. Next, using a debugger, you'll execute the malware, instruction by instruction, to discover exactly how it operates. In the book's final section, you'll put these lessons into practice by analyzing a complex Mac malware specimen on your own. You'll learn to: • Recognize common infections vectors, persistence mechanisms, and payloads leveraged by Mac malware • Triage unknown samples in order to quickly classify them as benign or malicious • Work with static analysis tools, including disassemblers, in order to study malicious scripts and compiled binaries • Leverage dynamical analysis tools, such as monitoring tools and debuggers, to gain further insight into sophisticated threats • Quickly identify and bypass anti-analysis techniques aimed at thwarting your analysis attempts A former NSA hacker and current leader in the field of macOS threat analysis, Patrick Wardle uses real-world examples pulled from his original research. The Art of Mac Malware: The Guide to Analyzing Malicious Software is the definitive resource to battling these ever more prevalent and insidious Apple-focused threats.

Guide to Vulnerability Analysis for Computer Networks and Systems - Simon Parkinson 2018-09-04

This professional guide and reference examines the challenges of assessing security vulnerabilities in computing infrastructure. Various aspects of vulnerability assessment are covered in detail, including recent advancements in reducing the requirement for expert knowledge through novel applications of artificial intelligence. The work also offers a series of case studies on how to develop and perform vulnerability assessment techniques using start-of-the-art intelligent mechanisms. Topics and features: provides tutorial activities and thought-provoking questions in each chapter, together with numerous case studies; introduces the fundamentals of vulnerability assessment, and reviews the state of the art of research in this area; discusses vulnerability assessment frameworks, including frameworks for industrial control and cloud systems; examines a range of applications that make use of artificial intelligence to enhance the vulnerability assessment processes; presents visualisation techniques that can be used to assist the vulnerability assessment process. In addition to serving the needs of security practitioners and researchers, this accessible volume is also ideal for students and instructors seeking a primer on artificial intelligence for vulnerability assessment, or a supplementary text for courses on computer security, networking, and artificial intelligence.

Swarm, Evolutionary, and Memetic Computing and Fuzzy and Neural Computing - Aleš Zamuda 2020-01-02

This volume constitutes the thoroughly refereed post-conference proceedings of the 7th International Conference on Swarm, Evolutionary, and Memetic Computing, SEMCCO 2019, and 5th International Conference on Fuzzy and Neural Computing, FANCCO 2019, held in Maribor, Slovenia, in July 2019. The 18 full papers presented in this volume were carefully reviewed and selected from a total of 31 submissions for inclusion in the proceedings. The papers cover a wide range of topics in swarm, evolutionary, memetic and other intelligent computing algorithms and their real world applications in problems selected from diverse domains of science and engineering.

Network Routing Basics - James Macfarlane 2007-03-31

A fresh look at routing and routing protocols in today's networks. A primer on the subject, but with thorough, robust coverage of an array of routing topics Written by a network/routing instructor who could never find quite the right book for his students -so he wrote his own Coverage of all routing protocols. In-depth coverage of

interior routing protocols, with extensive treatment of OSPF. Includes overview of BGP as well Not written as a "pass the test" guide. Rather, a close look at real world routing with many examples, making it an excellent choice for preparing for a variety of certification exams Many extras including a networking primer, TCPIP coverage with thorough explanations of subnetting / VLSMs / CIDR addressing, route summarization, discontiguous networks, longest match principal, and more.

Software Engineering and Computer Systems, Part II - Jasni Mohamad Zain 2011-06-22

This Three-Volume-Set constitutes the refereed proceedings of the Second International Conference on Software Engineering and Computer Systems, ICSECS 2011, held in Kuantan, Malaysia, in June 2011. The 190 revised full papers presented together with invited papers in the three volumes were carefully reviewed and selected from numerous submissions. The papers are organized in topical sections on software engineering; network; bioinformatics and e-health; biometrics technologies; Web engineering; neural network; parallel and distributed e-learning; ontology; image processing; information and data management; engineering; software security; graphics and multimedia; databases; algorithms; signal processing; software design/testing; e- technology; ad hoc networks; social networks; software process modeling; miscellaneous topics in software engineering and computer systems.

The Art of Memory Forensics - Michael Hale Ligh 2014-07-22

Memory forensics provides cutting edge technology to help investigate digital attacks Memory forensics is the art of analyzing computer memory (RAM) to solve digital crimes. As a follow-up to the best seller Malware Analyst's Cookbook, experts in the fields of malware, security, and digital forensics bring you a step-by-step guide to memory forensics—now the most sought after skill in the digital forensics and incident response fields. Beginning with introductory concepts and moving toward the advanced, The Art of Memory Forensics: Detecting Malware and Threats in Windows, Linux, and Mac Memory is based on a five day training course that the authors have presented to hundreds of students. It is the only book on the market that focuses exclusively on memory forensics and how to deploy such techniques properly. Discover memory forensics techniques: How volatile memory analysis improves digital investigations Proper investigative steps for detecting stealth malware and advanced threats How to use free, open source tools for conducting thorough memory forensics Ways to acquire memory from suspect systems in a forensically sound manner The next era of malware and security breaches are more sophisticated and targeted, and the volatile memory of a computer is often overlooked or destroyed as part of the incident response process. The Art of Memory Forensics explains the latest technological innovations in digital forensics to help bridge this gap. It covers the most popular and recently released versions of Windows, Linux, and Mac, including both the 32 and 64-bit editions.

Applications of Evolutionary Computation - Giovanni Squillero 2016-03-24

The two volumes LNCS 9597 and 9598 constitute the refereed conference proceedings of the 19th European Conference on the Applications of Evolutionary Computation, EvoApplications 2016, held in Porto, Portugal, in March/April 2016, co-located with the Evo* 2016 events EuroGP, EvoCOP, and EvoMUSART. The 57 revised full papers presented together with 17 poster papers were carefully reviewed and selected from 115 submissions. EvoApplications 2016 consisted of the following 13 tracks: EvoBAFIN (natural computing methods in business analytics and finance), EvoBIO (evolutionary computation, machine learning and data mining in computational biology), EvoCOMNET (nature-inspired techniques for telecommunication networks and other parallel and distributed systems), EvoCOMPLEX (evolutionary algorithms and complex systems), EvoENERGY (evolutionary computation in energy applications),

EvoGAMES (bio-inspired algorithms in games), EvoIASP (evolutionary computation in image analysis, signal processing, and pattern recognition), EvoINDUSTRY (nature-inspired techniques in industrial settings), EvoNUM (bio-inspired algorithms for continuous parameter optimization), EvoPAR (parallel implementation of evolutionary algorithms), EvoRISK (computational intelligence for risk management, security and defence applications), EvoROBOT (evolutionary robotics), and EvoSTOC (evolutionary algorithms in stochastic and dynamic environments).

Advanced Intelligent Computing Theories and Applications. With Aspects of Artificial Intelligence - De-Shuang Huang 2008-08-28

The International Conference on Intelligent Computing (ICIC) was formed to p- vide an annual forum dedicated to the emerging and challenging topics in artificial intelligence, machine learning, bioinformatics, and computational biology, etc. It aims to bring together researchers and practitioners from both academia and ind- try to share ideas, problems and solutions related to the multifaceted aspects of intelligent computing. ICIC 2008, held in Shanghai, China, September 15-18, 2008, constituted the 4th International Conference on Intelligent Computing. It built upon the success of ICIC 2007, ICIC 2006 and ICIC 2005 held in Qingdao, Kunming and Hefei, China, 2007, 2006 and 2005, respectively. This year, the conference concentrated mainly on the theories and methodologies as well as the emerging applications of intelligent computing. Its aim was to unify the picture of contemporary intelligent computing techniques as an integral concept that highlights the trends in advanced computational intelligence and bridges theoretical research with applications. Therefore, the theme for this conference was “Emerging Intelligent Computing Technology and Applications”. Papers focusing on this theme were solicited, addressing theories, methodologies, and applications in science and technology.

Network and System Security - Thomas M. Chen 2013-08-26

Guarding against network intrusions requires the monitoring of network traffic for particular network segments or devices and analysis of network, transport, and application protocols to identify suspicious activity. This chapter provides a detailed discussion of network-based intrusion protection technologies. It contains a brief overview of the major components of network-based intrusion protection systems and explains the architectures typically used for deploying the components. It also examines the security capabilities of the technologies in depth, including the methodologies they use to identify suspicious activity. The rest of the chapter discusses the management capabilities of the technologies and provides recommendations for implementation and operation.

Digital Contagions - Jussi Parikka 2007

Digital Contagions is the first book to offer a comprehensive and critical analysis of the culture and history of the computer virus phenomenon. The book maps the anomalies of network culture from the angles of security concerns, the biopolitics of digital systems, and the aspirations for artificial life in software. The genealogy of network culture is approached from the standpoint of accidents that are endemic to the digital media ecology. Viruses, worms, and other software objects are not, then, seen merely from the perspective of anti-virus research or practical security concerns, but as cultural and historical expressions that traverse a non-linear field from fiction to technical media, from net art to politics of software. Jussi Parikka mobilizes an extensive array of source materials and intertwines them with an inventive new materialist cultural analysis. Digital Contagions draws from the cultural theories of Gilles Deleuze and Félix Guattari, Friedrich Kittler, and Paul Virilio, among others, and offers novel insights into historical media analysis.

Computer Security Literacy - Douglas Jacobson 2016-04-19

Computer users have a significant impact on the security of their computer and personal information as a result of the actions they perform (or do not perform). Helping

the average user of computers, or more broadly information technology, make sound security decisions, Computer Security Literacy: Staying Safe in a Digital World focuses on practica

Security Warrior - Cyrus Peikari 2004-01-12

When it comes to network security, many users and administrators are running scared, and justifiably so. The sophistication of attacks against computer systems increases with each new Internet worm.What's the worst an attacker can do to you? You'd better find out, right? That's what Security Warrior teaches you. Based on the principle that the only way to defend yourself is to understand your attacker in depth, Security Warrior reveals how your systems can be attacked. Covering everything from reverse engineering to SQL attacks, and including topics like social engineering, antiforensics, and common attacks against UNIX and Windows systems, this book teaches you to know your enemy and how to be prepared to do battle.Security Warrior places particular emphasis on reverse engineering. RE is a fundamental skill for the administrator, who must be aware of all kinds of malware that can be installed on his machines -- trojaned binaries, "spyware" that looks innocuous but that sends private data back to its creator, and more. This is the only book to discuss reverse engineering for Linux or Windows CE. It's also the only book that shows you how SQL injection works, enabling you to inspect your database and web applications for vulnerability.Security Warrior is the most comprehensive and up-to-date book covering the art of computer war: attacks against computer systems and their defenses. It's often scary, and never comforting. If you're on the front lines, defending your site against attackers, you need this book. On your shelf--and in your hands.

A Short Course on Computer Viruses - Frederick B. Cohen 1994-04-04

Here is an outstanding opportunity to learn about computer viruses from the internationally acclaimed pioneer in the field who actually coined the phrase "computer virus." This new edition of Cohen's classic work has been updated and expanded to nearly double its original size and now includes entirely new chapters on LAN viruses, international viruses, and good viruses (including code). As entertaining as it is thorough, the text is enlivened by Cohen's down-to-earth wit and his many fascinating anecdotes and heretofore unpublished historical facts about viruses. Both broad in its coverage and deep in its consideration, it includes dozens of lucid explanations and examples that amicably guide the reader through the complex, often convoluted subject matter. Hailed as a tour de force, Cohen's discussion of defensive strategies reveals many of the stumbling blocks that often trip readers up.

Zuto - Udi Aharoni 2012-08-01

Zuto: The Adventures of a Computer Virus takes place inside a strange, little-known world: a personal computer, the perfect setting for a fast-paced, funny, one-minute-long story.Zuto, a smart, sneaky computer virus, leads a happy life in his secret hiding place: the Recycle Bin. There, among heaps of junk full of surprising treasures, he plans his tricks. Everything changes when a far more malicious program invades the computer . . . and threatens to end all life in it. Together with his Recycle Bin friends—outdated, buggy programs—Zuto sets off to save his world.Readers curious about the truth behind this rollicking adventure story will find it in the Zutopedia appendix, which explains concepts such as computer viruses, IP addresses, and binary numbers.Zuto was first published in Israel, where it was recommended by the Israeli Ministry of Education and voted in the top ten favorite books by children in grades 4-6 nationwide.

The Art of Computer Virus Research and Defense - Peter Szor 2005-02-03

Symantec's chief antivirus researcher has written the definitive guide to contemporary virus threats, defense techniques, and analysis tools. Unlike most books on computer viruses, The Art of Computer Virus Research and Defense is a reference written strictly for white hats: IT and security professionals responsible for protecting

their organizations against malware. Peter Szor systematically covers everything you need to know, including virus behavior and classification, protection strategies, antivirus and worm-blocking techniques, and much more. Szor presents the state-of-the-art in both malware and protection, providing the full technical detail that professionals need to handle increasingly complex attacks. Along the way, he provides extensive information on code metamorphism and other emerging techniques, so you can anticipate and prepare for future threats. Szor also offers the most thorough and practical primer on virus analysis ever published—addressing everything from creating your own personal laboratory to automating the analysis process. This book's coverage includes Discovering how malicious code attacks on a variety of platforms Classifying malware strategies for infection, in-memory operation, self-protection, payload delivery, exploitation, and more Identifying and responding to code obfuscation threats: encrypted, polymorphic, and metamorphic Mastering empirical methods for analyzing malicious code—and what to do with what you learn Reverse-engineering malicious code with disassemblers, debuggers, emulators, and virtual machines Implementing technical defenses: scanning, code emulation, disinfection, inoculation, integrity checking, sandboxing, honeypots, behavior blocking, and much more Using worm blocking, host-based intrusion prevention, and network-level defense strategies

Computer Security - Matt Bishop 2018-11-27

The Comprehensive Guide to Computer Security, Extensively Revised with Newer Technologies, Methods, Ideas, and Examples In this updated guide, University of California at Davis Computer Security Laboratory co-director Matt Bishop offers clear, rigorous, and thorough coverage of modern computer security. Reflecting dramatic growth in the quantity, complexity, and consequences of security incidents, Computer Security, Second Edition, links core principles with technologies, methodologies, and ideas that have emerged since the first edition's publication. Writing for advanced undergraduates, graduate students, and IT professionals, Bishop covers foundational issues, policies, cryptography, systems design, assurance, and much more. He thoroughly addresses malware, vulnerability analysis, auditing, intrusion detection, and best-practice responses to attacks. In addition to new examples throughout, Bishop presents entirely new chapters on availability policy models and attack analysis. Understand computer security goals, problems, and challenges, and the deep links between theory and practice Learn how computer scientists seek to prove whether systems are secure Define security policies for confidentiality, integrity, availability, and more Analyze policies to reflect core questions of trust, and use them to constrain operations and change Implement cryptography as one component of a wider computer and network security strategy Use system-oriented techniques to establish effective security mechanisms, defining who can act and what they can do Set appropriate security goals for a system or product, and ascertain how well it meets them Recognize program flaws and malicious logic, and detect attackers seeking to exploit them This is both a comprehensive text, explaining the most fundamental and pervasive aspects of the field, and a detailed reference. It will help you align security concepts with realistic policies, successfully implement your policies, and thoughtfully manage the trade-offs that inevitably arise. Register your book for convenient access to downloads, updates, and/or corrections as they become available. See inside book for details.

Malware, Rootkits & Botnets A Beginner's Guide - Christopher C. Elisan 2012-09-05

Security Smarts for the Self-Guided IT Professional Learn how to improve the security posture of your organization and defend against some of the most pervasive network attacks. Malware, Rootkits & Botnets: A Beginner's Guide explains the nature, sophistication, and danger of these risks and offers best practices for thwarting them. After reviewing the current threat

landscape, the book describes the entire threat lifecycle, explaining how cybercriminals create, deploy, and manage the malware, rootkits, and botnets under their control. You'll learn proven techniques for identifying and mitigating these malicious attacks. Templates, checklists, and examples give you the hands-on help you need to get started protecting your network right away. Malware, Rootkits & Botnets: A Beginner's Guide features: Lingo--Common security terms defined so that you're in the know on the job IMHO--Frank and relevant opinions based on the author's years of industry experience Budget Note--Tips for getting security technologies and processes into your organization's budget In Actual Practice--Exceptions to the rules of security explained in real-world contexts Your Plan--Customizable checklists you can use on the job now Into Action--Tips on how, why, and when to apply new skills and techniques at work

The Shellcoder's Handbook - Chris Anley 2011-02-16

This much-anticipated revision, written by the ultimate group of top security experts in the world, features 40 percent new content on how to find security holes in any operating system or application New material addresses the many new exploitation techniques that have been discovered since the first edition, including attacking "unbreakable" software packages such as McAfee's Entercept, Mac OS X, XP, Office 2003, and Vista Also features the first-ever published information on exploiting Cisco's IOS, with content that has never before been explored The companion Web site features downloadable code files

Computer Security - ESORICS 2008 - Sushil Jajodia 2008-10-05

These proceedings contain the papers selected for presentation at the 13th European Symposium on Research in Computer Security--ESORICS 2008--held October 6-8, 2008 in Torremolinos (Malaga), Spain, and hosted by the University of Malaga, C- puter Science Department. ESORICS has become the European research event in computer security. The symposium started in 1990 and has been organized on alternate years in different European countries. From 2002 it has taken place yearly. It attracts an international audience from both the academic and industrial communities. In response to the call for papers, 168 papers were submitted to the symposium. These papers were evaluated on the basis of their significance, novelty, and technical quality. Each paper was reviewed by at least three members of the Program Comm- tee. The Program Committee meeting was held electronically, holding intensive d- cussion over a period of two weeks. Finally, 37 papers were selected for presentation at the symposium, giving an acceptance rate of 22%.

Theoretical Aspects of Computing - ICTAC 2005 - Dang Van Hung 2005-10-21

This volume contains the proceedings of ICTAC 2005, the second ICTAC, International Colloquium on Theoretical Aspects of Computing. ICTAC 2005 took place in Hanoi, Vietnam, October 17-21, 2005. ICTAC was founded by the International Institute for Software Technology of the United Nations University (UNU-IIST) to serve as a forum for practiti- ers, lecturers and researchers from academia, industry and government who are interested in theoretical aspects of computing and rigorous approaches to so- ware engineering. The colloquium is aimed particularly, but not exclusively, at participants from developing countries. We believe that this will help developing countries to strengthen their research, teaching and development in computer science and engineering, improve the links between developing countries and developed countries, and establish collaboration in research and education. By providingavenueforthediscussionofcommonproblemsandtheirsolutions,and for the exchangeof experiencesand ideas,this colloquiumsupportsresearchand development in computer science and software technology. ICTAC is attracting more and more attention from more and more countries.

Data Science: From Research to Application - Mahdi Bohlouli 2020-01-28

This book presents outstanding theoretical and practical findings in data science and associated interdisciplinary areas. Its main goal is to explore how data science research can revolutionize society and industries in a positive way, drawing on pure research to do so. The topics covered range from pure data science to fake news detection, as well as Internet of Things in the context of Industry 4.0. Data science is a rapidly growing field and, as a profession, incorporates a wide variety of areas, from statistics, mathematics and machine learning, to applied big data analytics. According to Forbes magazine, “Data Science” was listed as LinkedIn’s fastest-growing job in 2017. This book presents selected papers from the International Conference on Contemporary Issues in Data Science (CiDaS 2019), a professional data science event that provided a real workshop (not “listen-shop”) where scientists and scholars had the chance to share ideas, form new collaborations, and brainstorm on major challenges; and where industry experts could catch up on emerging solutions to help solve their concrete data science problems. Given its scope, the book will benefit not only data scientists and scientists from other domains, but also industry experts, policymakers and politicians.

Cyber Infrastructure Protection - Tarek Nazir Saadawi 2013

Cyber attackers can introduce new viruses, worms, and bots capable of defeating many of our efforts. Costs to the economy from these threats are huge and increasing. Government, business, and academia must therefore work together to understand the threat and develop various modes of fighting cyber attacks, and to establish and enhance a framework to assess the vulnerability of our cyber infrastructure and provide strategic policy directions for the protection of such an infrastructure.

PGP: Pretty Good Privacy - Simson Garfinkel 1995

PGP is a freely available encryption program that protects the privacy of files and electronic mail. It uses powerful public key cryptography and works on virtually every platform. This book is both a readable technical user's guide and a fascinating behind-the-scenes look at cryptography and privacy. It describes how to use PGP and provides background on cryptography, PGP's history, battles over public key cryptography patents and U.S. government export restrictions, and public debates about privacy and free speech.

Intelligent Computing Technology - De-Shuang Huang 2012-07-23

This book constitutes the first of 3 volumes of refereed conference proceedings of the 8th International Conference on Intelligent Computing, ICIC 2012, held in Huangshan, China, in July 2012. The 242 revised full papers presented were carefully reviewed and selected from 753 submissions. The 84 papers included in this volume are organized in topical sections on evolutionary learning and genetic algorithms, fuzzy theory and models, swarm intelligence and optimization, kernel methods and supporting vector machines, nature inspired computing and optimization, systems biology and computational biology, knowledge discovery and data mining, graph theory and algorithms, machine learning theory and methods, biomedical informatics theory and methods, complex systems theory and methods, pervasive/ubiquitous computing theory and methods, intelligent computing in bioinformatics, intelligent computing in pattern recognition, intelligent computing in image processing, intelligent computing in robotics, intelligent computing in computer vision, intelligent computing in Petri nets/transportation systems, intelligent data fusion and information security, intelligent sensor networks, knowledge representation/reasoning and expert systems, hybrid optimization, and bio-inspired computing and application.

Practical Malware Analysis - Michael Sikorski 2012-02-01

Malware analysis is big business, and attacks can cost a company dearly. When malware breaches your defenses, you need to act quickly to cure current infections and prevent future ones from occurring. For those who want to stay ahead of the latest malware, Practical Malware

Analysis will teach you the tools and techniques used by professional analysts. With this book as your guide, you'll be able to safely analyze, debug, and disassemble any malicious software that comes your way. You'll learn how to: -Set up a safe virtual environment to analyze malware -Quickly extract network signatures and host-based indicators -Use key analysis tools like IDA Pro, OllyDbg, and WinDbg -Overcome malware tricks like obfuscation, anti-disassembly, anti-debugging, and anti-virtual machine techniques -Use your newfound knowledge of Windows internals for malware analysis -Develop a methodology for unpacking malware and get practical experience with five of the most popular packers -Analyze special cases of malware with shellcode, C++, and 64-bit code Hands-on labs throughout the book challenge you to practice and synthesize your skills as you dissect real malware samples, and pages of detailed dissections offer an over-the-shoulder look at how the pros do it. You'll learn how to crack open malware to see how it really works, determine what damage it has done, thoroughly clean your network, and ensure that the malware never comes back. Malware analysis is a cat-and-mouse game with rules that are constantly changing, so make sure you have the fundamentals. Whether you're tasked with securing one network or a thousand networks, or you're making a living as a malware analyst, you'll find what you need to succeed in Practical Malware Analysis.

Agent and Multi-Agent Systems: Technologies and Applications - Geun Sik Jo 2008-04-03

Following from the very successful First KES Symposium on Agent and Multi-Agent Systems - Technologies and Applications (KES-AMSTA 2007), held in Wroclaw, Poland, 31 May-1 June 2007, the second event in the KES-AMSTA symposium series (KES-AMSTA 2008) was held in Incheon, Korea, March 26-28, 2008. The symposium was organized by the School of Computer and Information Engineering, Inha University, KES International and the KES Focus Group on Agent and Mul- agent Systems. The KES-AMSTA Symposium Series is a sub-series of the KES Conference Series. The aim of the symposium was to provide an international forum for scientific research into the technologies and applications of agent and multi-agent systems. Agent and multi-agent systems are related to the modern software which has long been recognized as a promising technology for constructing autonomous, complex and intelligent systems. A key development in the field of agent and multi-agent systems has been the specification of agent communication languages and formalization of ontologies. Agent communication languages are intended to provide standard declarative mechanisms for agents to communicate knowledge and make requests of each other, whereas ontologies are intended for conceptualization of the knowledge domain. The symposium attracted a very large number of scientists and practitioners who submitted their papers for nine main tracks concerning the methodology and applications of agent and multi-agent systems, a doctoral track and two special sessions.

Malicious Cryptography - Adam Young 2004-02-27

This title describes recent discoveries on how to design advanced malicious computer viruses, worms, and Trojan horses. The area in question has recently been dubbed Crypotovirology, since it involves the application of modern cryptographic techniques to subvert computer systems.