ADVANCES IN INFORMATION SECURITY

Computer Viruses and Malware

John Aycock

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Computer Viruses And Malware Advances In Information Security

John Daniel Aycock

Computer Viruses And Malware Advances In Information Security:

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 **Computer Viruses and Malware** John Daniel Aycock,2011 Information Security Mark Stamp,2011-11-08 Now updated your expert guide to twenty first century information security Information security is a rapidly evolving field As businesses and consumers become increasingly dependent on complex multinational information systems it is more imperative than ever to protect the confidentiality and integrity of data Featuring a wide array of new information on the most current security issues this fully updated and revised edition of Information Security Principles and Practice provides the skills and knowledge readers need to tackle any information security challenge Taking a practical approach to information security by focusing on real world examples this book is organized around four major themes Cryptography classic cryptosystems symmetric key cryptography public key cryptography hash functions random numbers information hiding and cryptanalysis Access control authentication and authorization password based security ACLs and capabilities multilevel security and compartments covert channels and inference control security models such as BLP and Biba s model firewalls and intrusion detection systems Protocols simple authentication protocols session keys perfect forward secrecy timestamps SSH SSL IPSec Kerberos WEP and GSM Software flaws and malware buffer overflows viruses and worms malware detection software reverse engineering digital rights management secure software development and operating systems security This Second Edition features new discussions of relevant security topics such as the SSH and WEP protocols practical RSA timing attacks botnets and security certification New background material has been added including a section on the Enigma cipher and coverage of the classic orange book view of security Also featured are a greatly expanded and upgraded set of homework problems and many new figures tables and graphs to illustrate and clarify complex topics and problems A comprehensive solutions manual is available to assist in course development Minimizing theory while providing clear accessible content Information Security remains the premier text for students and instructors in information technology computer science and engineering as well as for professionals working in these fields Information Security Practice and Experience Chunhua Su,Dimitris Gritzalis,Vincenzo Piuri,2022-11-18 This book constitutes the refereed proceedings of the 17th International Conference on Information Security Practice and Experience ISPEC 2022 held in Taipei Taiwan in November 2022 The 33 full papers together with 2

invited papers included in this volume were carefully reviewed and selected from 87 submissions The main goal of the conference is to promote research on new information security technologies including their applications and their integration with IT systems in various vertical sectors Introduction to Machine Learning with Applications in Information Security Mark Stamp,2017-09-22 Introduction to Machine Learning with Applications in Information Security provides a class tested introduction to a wide variety of machine learning algorithms reinforced through realistic applications The book is accessible and doesn t prove theorems or otherwise dwell on mathematical theory The goal is to present topics at an intuitive level with just enough detail to clarify the underlying concepts The book covers core machine learning topics in depth including Hidden Markov Models Principal Component Analysis Support Vector Machines and Clustering It also includes coverage of Nearest Neighbors Neural Networks Boosting and AdaBoost Random Forests Linear Discriminant Analysis Vector Quantization Naive Bayes Regression Analysis Conditional Random Fields and Data Analysis Most of the examples in the book are drawn from the field of information security with many of the machine learning applications specifically focused on malware The applications presented are designed to demystify machine learning techniques by providing straightforward scenarios Many of the exercises in this book require some programming and basic computing concepts are assumed in a few of the application sections However anyone with a modest amount of programming experience should have no trouble with this aspect of the book Instructor resources including PowerPoint slides lecture videos and other relevant material are provided on an accompanying website http www cs sjsu edu stamp ML For the reader s benefit the figures in the book are also available in electronic form and in color About the Author Mark Stamp has been a Professor of Computer Science at San Jose State University since 2002 Prior to that he worked at the National Security Agency NSA for seven years and a Silicon Valley startup company for two years He received his Ph D from Texas Tech University in 1992 His love affair with machine learning began in the early 1990s when he was working at the NSA and continues today at SJSU where he has supervised vast numbers of master s student projects most of which involve a combination of information security and machine learning

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

Machine Learning, Deep Learning and AI for Cybersecurity Mark Stamp,Martin Jureček,2025-05-09 This book addresses a variety of problems that arise at the interface between AI techniques and challenging problems in cybersecurity The book covers many of the issues that arise when applying AI and deep learning algorithms to inherently difficult problems in the security domain such as malware detection and analysis intrusion detection spam detection and various other subfields of cybersecurity The book places particular attention on data driven approaches where minimal expert domain knowledge is required This book bridges some of the gaps that exist between deep learning AI research and practical problems in cybersecurity The proposed topics cover a wide range of deep learning and AI techniques including novel frameworks and development tools enabling the audience to innovate with these cutting edge research advancements in various security related use cases The book is timely since it is not common to find clearly elucidated research that applies the latest developments in AI to problems in cybersecurity **Data Mining and Analysis in the Engineering Field** Bhatnagar, Vishal,2014-05-31 Particularly in the fields of software engineering virtual reality and computer science data mining techniques play a critical role in the success of a variety of projects and endeavors Understanding the available tools and emerging trends in this field is an important consideration for any organization Data Mining and Analysis in the Engineering Field explores current research in data mining including the important trends and patterns and their impact in fields such as software engineering With a focus on modern techniques as well as past experiences this vital reference work will be of greatest use to engineers researchers and practitioners in scientific engineering and business related fields International Joint Conference SOCO'17-CISIS'17-ICEUTE'17 León, Spain, September 6–8, 2017, Proceeding Hilde Pérez García,Javier Alfonso-Cendón,Lidia Sánchez González,Héctor Quintián,Emilio Corchado,2017-08-21 This volume includes papers presented at SOCO 2017 CISIS 2017 and ICEUTE 2017 all conferences held in the beautiful and historic city of Le n Spain in September 2017 Soft computing represents a collection of computational techniques in machine learning computer science and some engineering disciplines which investigate simulate and analyze highly complex issues and phenomena These

proceeding s feature 48 papers from the 12th SOCO 2017 covering topics such as artificial intelligence and machine learning applied to health sciences and soft computing methods in manufacturing and management systems The book also presents 18 papers from the 10th CISIS 2017 which provided a platform for researchers from the fields of computational intelligence information security and data mining to meet and discuss the need for intelligent flexible behavior by large complex systems especially in mission critical domains It addresses various topics like identification simulation and prevention of security and privacy threats in modern communication networks Furthermore the book includes 8 papers from the 8th ICEUTE 2017 The selection of papers for all three conferences was extremely rigorous in order to maintain the high quality and we would like to thank the members of the Program Committees for their hard work in the reviewing process **Contemporary Digital Forensic Investigations of Cloud and Mobile Applications** Kim-Kwang Raymond Choo,Ali Dehghantanha,2016-10-12 Contemporary Digital Forensic Investigations of Cloud and Mobile Applications comprehensively discusses the implications of cloud storage services and mobile applications on digital forensic investigations The book provides both digital forensic practitioners and researchers with an up to date and advanced knowledge of collecting and preserving electronic evidence from different types of cloud services such as digital remnants of cloud applications accessed through mobile devices This is the first book that covers the investigation of a wide range of cloud services Dr Kim Kwang Raymond Choo and Dr Ali Dehghantanha are leading researchers in cloud and mobile security and forensics having organized research led research and been published widely in the field Users will gain a deep overview of seminal research in the field while also identifying prospective future research topics and open challenges Presents the most current leading edge research on cloud and mobile application forensics featuring a panel of top experts in the field Introduces the first book to provide an in depth overview of the issues surrounding digital forensic investigations in cloud and associated mobile apps Covers key technical topics and provides readers with a complete understanding of the most current research findings Includes discussions on future research directions and challenges

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Table of Contents Computer Viruses And Malware Advances In Information Security

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