Intrusion Detection System Using Datamining Techniques

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BRADLEY GONZALES

11th Asia-Pacific Network Operations and Management Symposium, APNOMS 2008, Beijing, China, October 22-24, 2008. Proceedings Springer
The third SIAM International Conference on Data Mining provided an open forum for the presentation, discussion and development of innovative algorithms, software and theories for data mining applications and data intensive computation. This volume includes 21 research papers.
Engineering Applications of Neural Networks World Scientific
This book presents state-of-the-art research on intrusion detection using reinforcement learning, fuzzy and rough set theories, and genetic algorithm. Reinforcement learning is employed to incrementally learn the computer network behavior, while rough and fuzzy sets are utilized to handle the uncertainty involved in the detection of traffic anomaly to secure data resources from possible attack. Genetic algorithms make it possible to optimally select the network traffic parameters to reduce the risk of network intrusion. The book is unique in terms of its content, organization, and writing style. Primarily intended for graduate electrical and computer engineering students, it is also useful for doctoral students pursuing research in intrusion detection and practitioners interested in network security and administration. The book covers a wide range of applications, from general computer security to server, network, and cloud security.
Proceedings of ICCAN 2017 Springer
Network security is a serious global concern. The increasing prevalence of malware and incidents of attacks hinders the utilization of the Internet to its greatest benefit and incur significant economic losses. The traditional approaches in securing systems against threats are designing mechanisms that create a protective shield, almost always with vulnerabilities. This has

created Intrusion Detection Systems to be developed that complement traditional approaches. However, with the advancement of computer technology, the behavior of intrusions has become complex that makes the work of security experts hard to analyze and detect intrusions. In order to address these challenges, data mining techniques have become a possible solution. However, the performance of data mining algorithms is affected when no optimized features are provided. This is because, complex relationships can be seen as well between the features and intrusion classes contributing to high computational costs in processing tasks, subsequently leads to delays in identifying intrusions. Feature selection is thus important in detecting intrusions by allowing the data mining system to focus on what is really important.

Proceedings of the Third SIAM International Conference on Data Mining World Scientific

Although the use of data mining for security and malware detection is quickly on the rise, most books on the subject provide high-level theoretical discussions to the near exclusion of the practical aspects. Breaking the mold, Data Mining Tools for Malware Detection provides a step-by-step breakdown of how to develop data mining tools for malware detection. Integrating theory with practical techniques and experimental results, it focuses on malware detection applications for email worms, malicious code, remote exploits, and botnets. The authors describe the systems they have designed and developed: email worm detection using data mining, a scalable multi-level feature extraction technique to detect malicious executables, detecting remote exploits using data mining, and flow-based identification of botnet traffic by mining multiple log files. For each of these tools, they detail the system architecture, algorithms, performance results, and limitations. Discusses data mining for emerging applications, including adaptable malware detection, insider threat detection, firewall policy analysis, and real-time data mining Includes four appendices that provide a firm foundation in data management, secure systems, and the semantic web Describes the authors' tools for stream data mining From algorithms to experimental results, this is one of the few books that will be equally valuable to those in industry, government, and academia. It will help technologists decide which tools to select for specific applications, managers will learn how to determine whether or not to proceed with a data mining project, and developers will find innovative alternative designs for a range of applications.

Concepts, Methodologies, Tools, and Applications LAP Lambert Academic Publishing

The application of data warehousing and data mining techniques to computer security is an important emerging area, as information processing and internet accessibility costs decline and more and more organizations become vulnerable to cyber attacks. These security breaches include attacks on single computers, computer networks, wireless networks, databases, or authentication compromises. This book

describes data warehousing and data mining techniques that can be used to detect attacks. It is designed to be a useful handbook for practitioners and researchers in industry, and is also suitable as a text for advanced-level students in computer science.

A Data Mining Approach to Network Intrusion Detection CRC Press

The ubiquity of modern technologies has allowed for increased connectivity between people and devices across the globe. This connected infrastructure of networks creates numerous opportunities for applications and uses. As the applications of the internet of things continue to progress so do the security concerns for this technology. The study of threat prevention in the internet of things is necessary as security breaches in this field can ruin industries and lives. Securing the Internet of Things: Concepts, Methodologies, Tools, and Applications is a vital reference source that examines recent developments and emerging trends in security and privacy for the internet of things through new models, practical solutions, and technological advancements related to security. Highlighting a range of topics such as cloud security, threat detection, and open source software, this multi-volume book is ideally designed for engineers, IT consultants, ICT procurement managers, network system integrators, infrastructure service providers, researchers, academics, and professionals interested in current research on security practices pertaining to the internet of things.

Data Warehousing and Data Mining Techniques for Cyber Security Springer

MACHINE LEARNING TECHNIQUES AND ANALYTICS FOR CLOUD SECURITY This book covers new methods, surveys, case studies, and policy with almost all machine learning techniques and analytics for cloud security solutions The aim of Machine Learning Techniques and Analytics for Cloud Security is to integrate machine learning approaches to meet various analytical issues in cloud security. Cloud security with ML has long-standing challenges that require methodological and theoretical handling. The conventional cryptography approach is less applied in resource-constrained devices. To solve these issues, the machine learning approach may be effectively used in providing security to the vast growing cloud environment. Machine learning algorithms can also be used to meet various cloud security issues, such as effective intrusion detection systems, zero-knowledge authentication systems, measures for passive attacks, protocols design, privacy system designs, applications, and many more. The book also contains case studies/projects outlining how to implement various security features using machine learning algorithms and analytics on existing cloud-based products in public, private and hybrid cloud respectively. Audience Research scholars and industry engineers in computer sciences, electrical and electronics engineering, machine learning, computer security, information technology, and cryptography.

Feature Selection for Intrusion Detection Systems Springer
Security is a big issue for all networks including defense and government infrastructure. Attacks on network infrastructure are threats against the information security. The Intrusion detection system (IDS) is one that scans incoming data activities and attempt to detect the intrusions. The classification algorithms in IDS are used to categorize the well known large variety of intrusions. In recent years, data mining based IDS have executed good performance. Still challenges exist in the design and implementation of quality IDSs. The goal of this classification and clustering based IDS system is to decrease the False alarm rates and increase the accuracy.
2018 11th International Conference on Intelligent Computation Technology and Automation (ICICTA) Springer
The IDDM project aims to determine the feasibility and effectiveness of data mining techniques in real-time intrusion detection and produce solutions for this purpose.
Traditionally, data mining is designed to operate on large off-line data sets. Previous attempts to apply the discipline in real-time environments met with varying success. In this paper, the author overviews earlier attempts to employ data mining principles in intrusion detection and present a possible system architecture for this purpose. As a consequence, it is shown that by combining data mining algorithms with agent technologies, near real-time operation may be attained.
Securing the Internet of Things: Concepts, Methodologies, Tools, and Applications Springer Science & Business Media
"Machine Learning and Data Mining for Computer Security" provides an overview of the current state of research in machine learning and data mining as it applies to problems in computer security. This book has a strong focus on information processing and combines and extends results from computer security. The first part of the book surveys the data sources, the learning and mining methods, evaluation methodologies, and past work relevant for computer security. The second part of the book consists of articles written by the top researchers working in this area. These articles deals with topics of host-based intrusion detection through the analysis of audit trails, of command sequences and of system calls as well as network intrusion detection through the analysis of TCP packets and the detection of malicious executables. This book fills the great need for a book that collects and frames work on developing and applying methods from machine learning and data mining to problems in computer security.
Intrusion Detection System Using Data Mining Technique \\ Journal of the ACS Springer
The 11th International Conference on Intelligent Computation Technology and Automation (ICICTA 2018) aims to bring together researchers, engineers and practitioners working towards improving the power of both intelligent computation,cloud computation, cognitive system, information processing using the most advanced methods available today The fast development of the Intelligent system require

the intelligent computation technology and other fundamental related to improve at a high pace
Proceedings of ICDMAI 2018, Volume 1 LAP Lambert Academic Publishing
This book constitutes the thoroughly refereed post-workshop proceedings of the 7th International Workshop on Agents and Data Mining Interaction, ADMI 2011, held in Taipei, Taiwan, in May 2011 in conjunction with AAMAS 2011, the 10th International Joint Conference on Autonomous Agents and Multiagent Systems. The 11 revised full papers presented were carefully reviewed and selected from 24 submissions. The papers are organized in topical sections on agents for data mining; data mining for agents; and agent mining applications.
Data Mining Techniques in Cyber Security John Wiley & Sons
With the innovation in technology and increasing global infrastructure for.
IDDM Springer
Principal Investigator and research fellows conduct research in the investigation of network-based intrusion detection using data mining techniques based on advanced computational statistics and visualization techniques. These new methods will provide the means to detect the presence of covert channels operating on user systems, passively perform continuous user authentication, discern subtle network attacks and information-gathering activities, and provide interface support for "storm center" situational display of intrusion detection alerts, damage assessment, and current network state-of-health.
Advances in Computer Science .- 2010, Vol. 4 CRC Press
This book constitutes the thoroughly refereed post-workshop proceedings at PAKDD Workshops 2018, held in conjunction with the 22nd Pacific-Asia Conference on Knowledge Discovery and Data Mining, PAKDD 2018, in Melbourne, Australia, in June 2018. The 32 revised papers presented were carefully reviewed and selected from 46 submissions. The workshops affiliated with PAKDD 2018 include: Workshop on Big Data Analytics for Social Computing, BDASC, Australasian Workshop on Machine Learning for Cyber-security, ML4Cyber, Workshop on Biologically-inspired Techniques for Knowledge Discovery and Data Mining, BDM, Pacific Asia Workshop on Intelligence and Security Informatics, PAISI, and Workshop on Data Mining for Energy Modeling and Optimization, DaMEMO.
MATLAB Programming for Engineers SIAM
This book aims to explain Data Analytics towards decision making in terms of models and algorithms, theoretical concepts, applications, experiments in relevant domains or focused on specific issues. It explores the concepts of database technology, machine learning, knowledge-based system, high performance computing, information retrieval, finding patterns hidden in large datasets and data visualization. Also, it presents various paradigms including pattern mining, clustering, classification, and data analysis. Overall aim is to provide technical solutions in the field of data analytics and data mining. Features: Covers descriptive statistics with respect to predictive analytics and business analytics. Discusses different data analytics platforms for real-time applications. Explain SMART business models.

Includes algorithms in data sciences alongwith automated methods and models. Explores varied challenges encountered by researchers and businesses in the realm of real-time analytics. This book aims at researchers and graduate students in data analytics, data sciences, data mining, and signal processing.

Proceedings of the 2018 Future of Information and Communication Conference (FICC), Vol. 2 CRC Press

Knowledge Mining Using Intelligent Agents explores the concept of knowledge discovery processes and enhances decision-making capability through the use of intelligent agents like ants, termites and honey bees. In order to provide readers with an integrated set of concepts and techniques for understanding knowledge discovery and its practical utility, this book blends two distinct disciplines data mining and knowledge discovery process, and intelligent agents-based computing (swarm intelligence and computational intelligence). For the more advanced reader, researchers, and decision/policy-makers are given an insight into emerging technologies and their possible hybridization, which can be used for activities like dredging, capturing, distributions and the utilization of knowledge in their domain of interest (i.e. business, policy-making, etc.). By studying the behavior of swarm intelligence, this book aims to integrate the computational intelligence paradigm and intelligent distributed agents architecture to optimize various engineering problems and efficiently represent knowledge from the large gamut of data.

Design and Implementation of Data Mining Tools Springer

Advanced Computing, Networking and Informatics are three distinct and mutually exclusive disciplines of knowledge with no apparent sharing/overlap among them. However, their convergence is observed in many real world applications, including cyber-security, internet banking, healthcare, sensor networks, cognitive radio, pervasive computing amidst many others. This two-volume proceedings explore the combined use of Advanced Computing and Informatics in the next generation wireless networks and security, signal and image processing, ontology and human-computer interfaces (HCI). The two volumes together include 148 scholarly papers, which have been accepted for presentation from over 640 submissions in the second International Conference on Advanced Computing, Networking and Informatics, 2014, held in Kolkata, India during June 24-26, 2014. The first volume includes innovative computing techniques and relevant research results in informatics with selective applications in pattern recognition, signal/image processing and HCI. The second volume on the other hand demonstrates the possible scope of the computing techniques and informatics in wireless communications, networking and security.

Improving Intrusion Detection Systems Using Data Mining Techniques Applications of Data Mining in Computer Security Introduces the concept of intrusion detection, discusses various approaches for intrusion detection systems (IDS), and presents the architecture and

implementation of IDS. This title also includes the performance comparison of various IDS via simulation.

7th International Workshop, ADMI 2011, Taipei, Taiwan, May 2-6, 2011, Revised Selected Papers CRC Press

Since 1998, RAID has established its reputation as the main event in research on intrusion detection, both in Europe and the United States. Every year, RAID gathers researchers, security vendors and security practitioners to listen to the most recent research results in the area as well as experiments and deployment issues. This year, RAID has grown one step further to establish itself as a well-known event in the security community, with the publication of hardcopy proceedings. RAID 2000 received 26 paper submissions from 10 countries and 3 continents. The program committee selected 14 papers for publication and examined 6 of them for presentation. In addition RAID 2000 received 30 extended abstracts proposals; 15 of these extended abstracts were accepted for presentation. - tended abstracts are available on the website of the RAID symposium series, http://www.raid-symposium.org/. We would like to thank the technical p- gram committee for the help we received in reviewing the papers, as well as all the authors for their participation and submissions, even for those rejected. As in previous RAID symposiums, the program alternates between fun- mental research issues, such as newtechnologies for intrusion detection, and more practical issues linked to the deployment and operation of intrusion det- tion systems in a real environment. Five sessions have been devoted to intrusion detection technology, including modeling, data mining and advanced techniques.