Computer Science

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Best Practices in Computer Network Defense: Incident Detection and Response

Volume 35 NATO Science for Peace and Security Series - D: Information and Communication Security
Editor: M. Hathaway
February 2014, 160 pp., softcover
Price: €108 / US$157 / £92
Computer & Communication Sciences, Computer Security

“The book identifies the state-of-the-art tools and processes being used for cyber defense and highlights gaps in the technology. It presents the best practice of industry and government for incident detection and response and examines indicators and metrics for progress along the security continuum.”
- Belfer Center (Harvard Kennedy School)

The cyber security of vital infrastructure and services has become a major concern for countries worldwide. The members of NATO are no exception, and they share a responsibility to help the global community to strengthen its cyber defenses against malicious cyber activity.

This book presents 10 papers and 21 specific findings from the NATO Advanced Research Workshop (ARW) ‘Best Practices in Computer Network Defense (CND): Incident Detection and Response, held in Geneva, Switzerland, in September 2013. The workshop was attended by a multi-disciplinary team of experts from 16 countries and three international institutions. The book identifies the state-of-the-art tools and processes being used for cyber defense and highlights gaps in the technology. It presents the best practice of industry and government for incident detection and response and examines indicators and metrics for progress along the security continuum. This book provides those operators and decision makers whose work it is to strengthen the cyber defenses of the global community with genuine tools and expert advice. Keeping pace and deploying advanced process or technology is only possible when you know what is available. This book shows what is possible and available today for computer network defense and for incident detection and response.
This book presents papers from the NATO Advanced Research Workshop (ARW), Examining Robustness and Vulnerability of Critical Infrastructure Networks, held in Kiev, Ukraine, in June 2013. Topics covered include: mathematical models; probability-based risk measures; algorithms for the design and detection of robust structures; identification of critical network components and case studies.
During the last years, the amount of RDF data has increased exponentially over the Web, exposed via SPARQL endpoints. These SPARQL endpoints allow users to direct SPARQL queries to the RDF data. Federated SPARQL query processing allows to query several of these RDF databases as if they were a single one, integrating the results from all of them. The W3C SPARQL-WG has standardized it in the new Recommendation SPARQL 1.1. This book provides a formalization of the W3C proposed recommendation. The book constitutes a valuable resource for any implementer.

The exponential growth of digital information available in companies and on the web creates the need for search tools that can respond to the most sophisticated information needs. Many user tasks would be simplified if search engines would support typed search, and return entities instead of just web documents. In this book, several options to achieve this are investigated.

This book presents a joint optimization framework for Natural Language Generation in dialogue that is based on Hierarchical Reinforcement Learning and learns the best utterance for a context by optimization through trial and error. The joint model considers decisions at different NLG stages interdependently and produces more context-sensitive utterances than a model that considers decisions in isolation.
The selected papers presented here cover many areas of information modeling and knowledge bases including: theory of concepts, semantic computing, data mining, context-based information retrieval, ontological technology, image databases, temporal and spatial databases, document data management, software engineering, cross-cultural computing, environmental analysis, social networks, WWW information management, and many others. The book will be of interest to all those interested in advances in research and applications in the academic disciplines concerned.

This book contains the 16 full papers and 6 short papers presented at the 26th International Conference on Legal Knowledge and Information Systems (JURIX 2013), held in December 2013 in Bologna, Italy. The book will be of interest to all those associated with the legal profession whose work involves the use of computer technology.

This book presents thirty six invited papers, previously published in a special edition of the journal *Fundamenta Informaticae* compiled to celebrate the 70th birthday of Andrzej Skowron, an eminent computer scientist who served as the Editor-in-Chief of *Fundamenta Informaticae* from 1994 till 2009. The articles that make up this volume cover a wide range of topics, reflecting Andrzej Skowron’s activities as a researcher and a scholar, as well as his influence on a broad scientific community.
This book presents the proceedings of ParCo2013 held from 10 to 13 September 2013, in Garching, Germany. The conference focused on several key parallel computing areas. It is clear that parallel computing – including the processing of large data sets (“Big Data”) – will remain a persistent driver of research in all fields of innovative computing, which makes this book relevant to all those with an interest in this field.

This publication brings together researchers and practitioners from different communities – natural language processing, machine learning, and the semantic web – in order to give an interdisciplinary overview of recent advances in ontology learning. The book is designed for researchers in the field of semantic technologies and developers of knowledge-based applications.

This book presents ten peer-reviewed papers from the 2013 workshop Radio Frequency Identification/Internet of Things Security (RFIDsec’13 Asia) held in Guangzhou, China, in November 2013. Topics covered include RFID authentication, mutual authentication and ownership transfer, security of RFID applications, NFC and the Internet of Things, as well as side channel attacks. The book will be of interest to all those whose work involves the security aspects of information management.
Reasoning Techniques for the Web of Data

Volume 19 Studies on the Semantic Web
Author: A. Hogan
May 2014, 344 pp., softcover
ISBN 978-1-61499-382-7 (print) / 978-1-61499-383-4 (online)
Price: €60 / US$87 / £51
Semantic Web

Linked Data publishing has brought about a novel “Web of Data”: a wealth of diverse, interlinked, structured data published on the Web. However, the heterogeneity of Linked Datasets – in terms of how resources are described and identified – poses major challenges to potential consumers. In this book, use cases for pragmatic, lightweight reasoning techniques that leverage Web vocabularies (described in RDFS and OWL) to better integrate large scale, diverse, Linked Data corpora are examined.

Smart Digital Futures 2014

Volume 262 Frontiers in Artificial Intelligence and Applications
June 2014, 808 pp., hardcover
ISBN 978-1-61499-404-6 (print) / 978-1-61499-405-3 (online)
Price: €185 / US$268 / £157
Artificial Intelligence

This book presents some 80 papers selected after peer review for inclusion in three KES conferences, held as part of the Smart Digital Futures 2014 (SDF-14) multi-theme conference in Chania, Greece, in June 2014. The three conferences are: Intelligent Decision Technologies (KES-IDT-14), Intelligence Interactive Multimedia Systems and Services (KES-IIMSS-14), and Smart Technology-based Education and Training (KES-STET-14). The book will be of interest to all those whose work involves the development and application of intelligent digital systems.

Software Systems Safety

Volume 36 NATO Science for Peace and Security Series - D: Information and Communication Security
Editors: O. Grumberg, H. Seidl and M. Irlbeck
May 2014, 400 pp., hardcover
Price: €135 / US$196 / £115
Computer Science, Computer Security

The computer science community is developing verification and synthesis tools which will mechanize ever more tasks in the design of secure programs. This book presents the papers delivered at the NATO Advanced Study Institute (ASI) Summer School Marktoberdorf 2013 – Software Systems Safety. This book will be of interest to all those whose work involves systems security.
The Design of High Performance Mechatronics – 2nd Revised Edition
High-Tech Functionality by Multidisciplinary System Integration

Editors: R. Munnig Schmidt, G. Schitter, A. Rankers and J. Van Eijk
February 2014, 928 pp., hardcover
Electronics, Mechanics, Engineering
Price: €135 / US$195 / £115

This book deals with the special class of mechatronics that has enabled the exceptional levels of accuracy and speed of high-tech equipment applied in the semiconductor industry, realizing the continuous shrink in detailing of micro-electronics and MEMS. As well as the more frequently presented standard subjects of dynamics, motion control, electronics and electromechanics, this book includes an overview of systems engineering, optics and precision measurement systems, in an attempt to establish a connection between these fields under one umbrella.

Twelfth Scandinavian Conference on Artificial Intelligence
SCAI 2013

Volume 257 Frontiers in Artificial Intelligence and Applications
Editors: M. Jaeger, T.D. Nielsen and P. Viappiani
November 2013, 324 pp. hardcover
Price: €120 / US$174 / £112
Artificial Intelligence

This book presents papers from the 12th Scandinavian Conference on Artificial Intelligence (SCAI), held in Aalborg, Denmark in November 2013. Topics cover the entire range of AI, with a particular focus on machine learning and knowledge representation, as well as uncertainty in AI and applications.

Workshop Proceedings of the 10th International Conference on Intelligent Environments

Volume 18 of Ambient Intelligence and Smart Environments
Editors: J.C. Augusto and T. Zhang
June 2014, approx. 320 pp., softcover
ISBN 978-1-61499-410-7 (print) / 978-1-61499-411-4 (online)
Price: €90 / US$130 / £77 (print)
Ambient Intelligence and Smart Environments

This volume is the combined proceedings of the workshops co-located with the prestigious 10th International Conference on Intelligent Environments (IE’14). This book offers an overview of the latest developments in key areas of the development of Intelligent Environments.
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