Preface

The IEEE International Conference on Intelligence and Security Informatics (ISI) and Pacific Asia Workshop on Intelligence and Security Informatics (PAISI) conference series (http://www.isiconference.org) have drawn significant attention in the recent years. Intelligence and Security Informatics is concerned with the study of the development and use of advanced information technologies and systems for national, international, and societal security-related applications. The ISI conference series have brought together academic researchers, law enforcement and intelligence experts, information technology consultant and practitioners to discuss their research and practice related to various ISI topics including ISI data management, data and text mining for ISI applications, terrorism informatics, deception and intent detection, terrorist and criminal social network analysis, public health and bio-security, crime analysis, cyber-infrastructure protection, transportation infrastructure security, policy studies and evaluation, information assurance, among others. In this book, we collect the work of the most active researchers in the area. Topics include data and text mining in terrorism, information sharing, social network analysis, Web-based intelligence monitoring and analysis, crime data analysis, infrastructure protection, deception and intent detection and more.

Scope and Organization

The book is organized in four major areas. The first unit focuses on the terrorism informatics and data mining. The second unit discusses the intelligence and crime analysis. The third unit covers access control, infrastructure protection, and privacy. The forth unit presents surveillance and emergency response.

There are twenty-two chapters contributed by authors coming from nine different countries, including Belgium, Canada, Israel, Italy, Northern Cyprus, Singapore, Taiwan, United Kingdom and United States. The titles of the twenty-two chapters are listed below:

Chapter 1: Assured Information Sharing: Technologies, Challenges and Directions
Chapter 2: Automatic Event Extraction for the Security Domain
Chapter 3: Knowledge Discovery and Information Visualization for Terrorist Social Networks
Chapter 4: Understanding the Nexus of Terrorist Web Sites
Chapter 5: Multi-lingual Detection of Web Terrorist Content
Chapter 6: Modeling Anticipatory Event Transitions
Chapter 7: Exploring Gray Web Forum: Analysis and Investigation of Forum-Based Communities in Taiwan
Chapter 8: Identifying Interesting Networks of Criminal Activity
Chapter 9: Name Matching in Law Enforcement Database
Chapter 10: Discovering Investigation Clues through Mining Criminal Databases
Chapter 11: Automated Filtering on Data Streaming for Intelligence Analysis
Chapter 12: Personal Information Management for Intelligence Tasks
Chapter 13: A Data Miner’s Approach to Country Corruption Analysis
Chapter 14: Protecting Private Information in Online Social Networks
Chapter 15: Protection of Database Security via Collaborative Inference Detection
Chapter 16: Suspect Vehicle Identification for Border Safety
Chapter 17: Optimization Problems for Port-of-Entry Detection Systems
Chapter 18: Modeling and Validation of Aviation Security
Chapter 19: Anomaly Detection in Moving Object
Chapter 20: Intelligent Face Recognition
Chapter 21: Video Analysis of Vehicles and Persons for Surveillance
Chapter 22: Video-based Deception Detection

Audience

1. Public and private sector practitioners in the national/international and homeland security area.
2. Consultants and contractors engaged in on-going relationships with federal, state, local, and international agencies on projects related to national security.
3. Graduate level students in Information Sciences, Public Policy, Computer Science, Information Assurance, and Terrorism.
4. Researchers engaged in security informatics, homeland security, information policy, knowledge management, public administration, and counterterrorism.

We hope that the readers will find the book valuable and useful in their study or work. We also hope that the book will be a contribution to the ISI community. The researchers and practitioners in this community will continue to grow and share our research findings to contribute to the national safety around the world.

USA
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Author Biographies

Hsinchun Chen, Ph.D.

Dr. Hsinchun Chen is McClelland Professor of Management Information Systems at the University of Arizona and Andersen Consulting Professor of the Year (1999). He received the B.S. degree from the National Chiao-Tung University in Taiwan, the MBA degree from SUNY Buffalo, and the Ph.D. degree in Information Systems from the New York University. Dr. Chen is a Fellow of IEEE and AAAS. He received the IEEE Computer Society 2006 Technical Achievement Award. He is author/editor of 18 books, 17 book chapters, 150 SCI journal articles, and 110 refereed conference articles covering digital library, intelligence analysis, biomedical informatics, data/text/web mining, knowledge management, and Web computing. His recent books include: Medical Informatics: Knowledge Management and Data Mining in Biomedicine and Intelligence and Security Informatics for International Security: Information Sharing and Data Mining, both published by Springer. Dr. Chen was ranked #8 in publication productivity in Information Systems (CAIS 2005) and #1 in Digital Library research (IP&M 2005) in two recent bibliometric studies. He serves on ten editorial boards including: ACM Transactions on Information Systems, ACM Journal on Educational Resources in Computing, IEEE Transactions on Intelligent Transportation Systems, IEEE Transactions on Systems, Man, and Cybernetics, Journal of the American Society for Information Science and Technology, Decision Support Systems, and International Journal on Digital Library. Dr. Chen has served as a Scientific Counselor/Advisor of the National Library of Medicine (USA), Academia Sinica (Taiwan), and National Library of China (China). He has been an advisor for major NSF, DOJ, NLM, DOD, DHS, and other international research programs in digital library, digital government, medical informatics, and national security research. Dr. Chen is founding director of Artificial Intelligence Lab and Hoffman E-Commerce Lab. The UA Artificial Intelligence Lab, which houses 40+ researchers, has received more than $25M in research funding from NSF, NIH, NLM, DOD, DOJ, CIA, DHS, and other agencies. The Hoffman E-Commerce Lab, which has been funded mostly by major IT industry partners, features one of the
most advanced e-commerce hardware and software environments in the College of Management. Dr. Chen is conference co-chair of ACM/IEEE Joint Conference on Digital Libraries (JCDL) 2004 and has served as the conference/program co-chair for the past eight International Conferences of Asian Digital Libraries (ICADL), the premiere digital library meeting in Asia that he helped develop. Dr. Chen is also (founding) conference co-chair of the IEEE International Conferences on Intelligence and Security Informatics (ISI) 2003-2007. The ISI conference, which has been sponsored by NSF, CIA, DHS, and NIJ, has become the premiere meeting for international and homeland security IT research. Dr. Chen’s COPLINK system, which has been quoted as a national model for public safety information sharing and analysis, has been adopted in more than 200 law enforcement and intelligence agencies in 20 states. The COPLINK research had been featured in the New York Times, Newsweek, Los Angeles Times, Washington Post, Boston Globe, and ABC News, among others. The COPLINK project was selected as a finalist by the prestigious International Association of Chiefs of Police (IACP)/Motorola 2003 Weaver Seavey Award for Quality in Law Enforcement in 2003. COPLINK research has recently been expanded to border protection (BorderSafe), disease and bioagent surveillance (BioPortal), and terrorism informatics research (Dark Web), funded by NSF, CIA, and DHS. In collaboration with Customs and Border Protection (CBP), the BorderSafe project develops criminal network analysis and vehicle association mining research for border-crosser risk assessment. The BioPortal system supports interactive geospatial analysis and visualization, chief complaint classification, and phylogenetic analysis for public health and biodefense. In collaboration with selected international terrorism research centers and intelligence agencies, the Dark Web project has generated one of the largest databases in the world about extremist/terrorist-generated Internet contents (web sites, forums, and multimedia documents). Dark Web research supports link analysis, content analysis, web metrics analysis, multimedia analysis, sentiment analysis, and authorship analysis of international terrorism contents. The project was featured in the Discover magazine, Arizona Republic, and Toronto Star, among others. Dr. Chen is the founder of the Knowledge Computing Corporation, a university spin-off company and a market leader in law enforcement and intelligence information sharing and data mining. Dr. Chen has also received numerous awards in information technology and knowledge management education and research including: AT&T Foundation Award, SAP Award, the Andersen Consulting Professor of the Year Award, the University of Arizona Technology Innovation Award, and the National Chaio-Tung University Distinguished Alumnus Award.

Christopher C. Yang, Ph.D.

Dr. Christopher C. Yang is an associate professor in the College of Information Science and Technology at Drexel University. He received his B.S., M.S., and Ph.D. in Electrical and Computer Engineering from the University of Arizona. He has been an associate professor in the Department of Systems Engineering and Engineering
Management and the director of the Digital Library Laboratory at the Chinese University of Hong Kong and an assistant professor in the Department of Computer Science and Information Systems at the University of Hong Kong. He has also been a research scientist in the Department of Management Information Systems at the University of Arizona. His recent research interests include security informatics, information visualization, social network analysis, cross-lingual information retrieval and knowledge management, Web search and mining, text summarization, multimedia retrieval, digital library, and electronic commerce. He has published over 150 referred journal and conference papers in Journal of the American Society for Information Science and Technology (JASIST), Decision Support Systems (DSS), IEEE Transactions on Image Processing, IEEE Transactions on Robotics and Automation, IEEE Computer, Information Processing and Management, Journal of Information Science, Graphical Models and Image Processing, Optical Engineering, Pattern Recognition, International Journal of Electronic Commerce, Applied Artificial Intelligence, IWWWC, SIGIR, ICIS, CIKM, and more. He has edited several special issues on multilingual information systems, knowledge management, and Web mining in JASIST and DSS. He chaired and served in many international conferences and workshops, including the IEEE International Conference on Intelligence and Security Informatics and Pacific Asia Workshop on Intelligence and Security Informatics. He has also frequently served as an invited panelist in the NSF Review Panels in US. He was the chairman of the Association for Computing Machinery Hong Kong Chapter.
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