Table of Contents

Part I: Full Papers

Data Management and Mining

Using Support Vector Machines for Terrorism Information Extraction .................................................. 1
   Aixin Sun, Myo-Myo Naing, Ee-Peng Lim, Wai Lam

Criminal Incident Data Association Using the OLAP Technology ......................................................... 13
   Song Lin, Donald E. Brown

Names: A New Frontier in Text Mining .................................................. 27
   Frankie Patman, Paul Thompson

Web-Based Intelligence Reports System .................................................. 39
   Alexander Dolotov, Mary Strickler

Authorship Analysis in Cybercrime Investigation .................................................. 59
   Rong Zheng, Yi Qin, Zan Huang, Hsinchun Chen

Deception Detection

Behavior Profiling of Email .................................................. 74
   Salvatore J. Stolfo, Shlomo Hershkop, Ke Wang, Olivier Nimeskern, Chia-Wei Hu

Detecting Deception through Linguistic Analysis .................................................. 91
   Judee K. Burgoon, J.P. Blair, Tiantian Qin, Jay F. Nunamaker, Jr

A Longitudinal Analysis of Language Behavior of Deception in E-mail ................................. 102
   Lina Zhou, Judee K. Burgoon, Douglas P. Twitchell

Analytical Techniques

Evacuation Planning: A Capacity Constrained Routing Approach .................................................. 111
   Qingsong Lu, Yan Huang, Shashi Shekhar

Locating Hidden Groups in Communication Networks Using Hidden Markov Models ............ 126
   Malik Magdon-Ismail, Mark Goldberg, William Wallace, David Siebecker
Automatic Construction of Cross-Lingual Networks of Concepts from the Hong Kong SAR Police Department ......................................................... 138
  Kar Wing Li, Christopher C. Yang

Decision Based Spatial Analysis of Crime ............................................. 153
  Yifei Xue, Donald E. Brown

Visualization

CrimeLink Explorer: Using Domain Knowledge to Facilitate Automated Crime Association Analysis ................................................................. 168
  Jennifer Schroeder, Jennifer Xu, Hsinchun Chen

A Spatio Temporal Visualizer for Law Enforcement ................................ 181
  Ty Buetow, Luis Chaboya, Christopher O'Toole, Tom Cushna,
  Damien Daspit, Tim Petersen, Homa Atabakhsh, Hsinchun Chen

Tracking Hidden Groups Using Communications .................................... 195
  Sudarshan S. Chawathe

Knowledge Management and Adoption

Examining Technology Acceptance by Individual Law Enforcement Officers: An Exploratory Study ............................................................... 209
  Paul Jen-Hwa Hu, Chienting Lin, Hsinchun Chen

“Atrium” – A Knowledge Model for Modern Security Forces in the Information and Terrorism Age ................................................................. 223
  Chris C. Demchak

Untangling Criminal Networks: A Case Study ......................................... 232
  Jennifer Xu, Hsinchun Chen

Collaborative Systems and Methodologies

  T.S. Raghu, R. Ramesh, Andrew B. Whinston

Collaborative Workflow Management for Interagency Crime Analysis ..... 266
  J. Leon Zhao, Henry H. Bi, Hsinchun Chen

COPLINK Agent: An Architecture for Information Monitoring and Sharing in Law Enforcement ................................................................. 281
  Daniel Zeng, Hsinchun Chen, Damien Daspit, Fu Shan,
  Suresh Nandiraju, Michael Chau, Chienting Lin
# Table of Contents

## Monitoring and Surveillance

**Active Database Systems for Monitoring and Surveillance**

Antonio Badia

- Page 296

**Integrated “Mixed” Networks Security Monitoring – A Proposed Framework**

William T. Scherer, Leah L. Spradley, Marc H. Evans

- Page 308

**Bioterrorism Surveillance with Real-Time Data Warehousing**

Donald J. Berndt, Alan R. Hevner, James Studnicki

- Page 322

## Part II: Short Papers

### Data Management and Mining

**Privacy Sensitive Distributed Data Mining from Multi-party Data**

Hillol Kargupta, Kun Liu, Jessica Ryan

- Page 336

**PROGENIE: Biographical Descriptions for Intelligence Analysis**

Pablo A. Duboue, Kathleen R. McKeown, Vasileios Hatzivassiloglou

- Page 343

**Scalable Knowledge Extraction from Legacy Sources with SEEK**

Joachim Hammer, William O’Brien, Mark Schmalz

- Page 346

**“TalkPrinting”: Improving Speaker Recognition by Modeling Stylistic Features**

Sachin Kajarekar, Kemal Sönmez, Luciana Ferrer, Venkata Gadde, Anand Venkataraman, Elizabeth Shriberg, Andreas Stolcke, Harry Bratt

- Page 350

**Emergent Semantics from Users’ Browsing Paths**

D.V. Sreenath, W.I. Grosky, F. Fotouhi

- Page 355

### Deception Detection

**Designing Agent99 Trainer: A Learner-Centered, Web-Based Training System for Deception Detection**

Jinwei Cao, Janna M. Crews, Ming Lin, Judee Burgoon, Jay F. Nunamaker

- Page 358

**Training Professionals to Detect Deception**

Joey F. George, David P. Biros, Judee K. Burgoon, Jay F. Nunamaker, Jr.

- Page 366

**An E-mail Monitoring System for Detecting Outflow of Confidential Documents**

Bogju Lee, Youna Park

- Page 371
Methodologies and Applications

Intelligence and Security Informatics: An Information Economics Perspective .......................... 375
   Lihui Lin, Xianjun Geng, Andrew B. Whinston

An International Perspective on Fighting Cybercrime .................................................. 379
   Weiping Chang, Wingyan Chung, Hsinchun Chen, Shihchieh Chou

Part III: Extended Abstracts for Posters

Data Management and Mining

Hiding Traversal of Tree Structured Data from Untrusted Data ........................................ 385
   Ping Lin, K. Selçuk Candan

Criminal Record Matching Based on the Vector Space Model ............................................. 386
   Jau-Hwang Wang, Bill T. Lin, Ching-Chin Shieh, Peter S. Deng

Database Support for Exploring Criminal Networks ......................................................... 387
   M.N. Smith, P.J.H. King

Hiding Data and Code Security for Application Hosting Infrastructure .................................. 388
   Ping Lin, K. Selçuk Candan, Rida Bazzi, Zhichao Liu

Security Informatics

Secure Information Sharing and Information Retrieval Infrastructure with GridIR .................. 389
   Gregory B. Newby, Kevin Gamiel

Semantic Hacking and Intelligence and Security Informatics ........................................... 390
   Paul Thompson

Author Index ......................................................................................................................... 391