Contents

Recent Advances in Computational Intelligence in Defense and Security ............................................ 1
Rami Abielmona, Rafael Falcon, Nur Zincir-Heywood and Hussein Abbass

Part I Physical Security and Surveillance

Computational Intelligence Methods in Forward-Looking Explosive Hazard Detection ........................................ 13
Timothy C. Havens, Derek T. Anderson, Kevin Stone, John Becker and Anthony J. Pinar

Classification-Driven Video Analytics for Critical Infrastructure Protection .............................................. 45
Phillip Curtis, Moufih Harb, Rami Abielmona and Emil Petriu

Fuzzy Decision Fusion and Multiformalism Modelling in Physical Security Monitoring ................................. 71
Francesco Flammini, Stefano Marrone, Nicola Mazzocca and Valeria Vittorini

Intelligent Radar Signal Recognition and Classification ................................................................. 101
Ivan Jordanov and Nedyalko Petrov

Part II Cyber Security and Intrusion Detection Systems

An Improved Decision System for URL Accesses Based on a Rough Feature Selection Technique .................. 139
P. de las Cuevas, Z. Chelly, A.M. Mora, J.J. Merelo and A.I. Esparcia-Alcázar
A Granular Intrusion Detection System Using Rough Cognitive Networks
Gonzalo Nápoles, Isel Grau, Rafael Falcon, Rafael Bello and Koen Vanhoof

169

NNCS: Randomization and Informed Search for Novel Naval Cyber Strategies
Stuart H. Rubin and Thouraya Bouabana-Tebibel

193

Semi-Supervised Classification System for the Detection of Advanced Persistent Threats
Fátima Barceló-Rico, Anna I. Esparcia-Alcázar and Antonio Villalón-Huerta

225

A Benchmarking Study on Stream Network Traffic Analysis Using Active Learning
Jillian Morgan, A. Nur Zincir-Heywood and John T. Jacobs

249

Part III Biometric Security and Authentication Systems

Visualization of Handwritten Signatures Based on Haptic Information
Julio J. Valdés, Fawaz A. Alsulaiman and Abdulmotaleb El Saddik

277

Extended Metacognitive Neuro-Fuzzy Inference System for Biometric Identification
Bindu Madhavi Padmanabhuni, Kartick Subramanian and Suresh Sundaram

309

Privacy, Security and Convenience: Biometric Encryption for Smartphone-Based Electronic Travel Documents
David Bissessar, Carlisle Adams and Alex Stoianov

339

A Dual-Purpose Memory Approach for Dynamic Particle Swarm Optimization of Recurrent Problems
Eduardo Vellasques, Robert Sabourin and Eric Granger

367

Risk Assessment in Authentication Machines
S. Eastwood and S. Yanushkevich

391

Part IV Situational Awareness and Threat Assessment

Game Theoretical Approach for Dynamic Active Patrolling in a Counter-Piracy Framework
Francesca De Simio, Marco Tesei and Roberto Setola

423
mspMEA: The Microcones Separation Parallel Multiobjective Evolutionary Algorithm and Its Application to Fuzzy Rule-Based Ship Classification ........................................ 445 Marco Cococcioni

Synthetic Aperture Radar (SAR) Automatic Target Recognition (ATR) Using Fuzzy Co-occurrence Matrix Texture Features .................. 467 Sansanee Auephanwiriyakul, Yutthana Munklang and Nipon Theera-Umpon

Text Mining in Social Media for Security Threats ..................... 491 Diana Inkpen

DroidAnalyst: Synergic App Framework for Static and Dynamic App Analysis ........................................... 519 Parvez Faruki, Shweta Bhandari, Vijay Laxmi, Manoj Gaur and Mauro Conti

Part V Strategic/Mission Planning and Resource Management

Design and Development of Intelligent Military Training Systems and Wargames ........................................... 555 D. Vijay Rao

Improving Load Signal and Fatigue Life Estimation for Helicopter Components Using Computational Intelligence Techniques .......... 605 Catherine Cheung, Julio J. Valdés and Jobin Puthuparampil

Evolving Narrations of Strategic Defence and Security Scenarios for Computational Scenario Planning .................................. 635 Kun Wang, Eleni Petraki and Hussein Abbass

A Review of the Use of Computational Intelligence in the Design of Military Surveillance Networks ........................................ 663 Mark G. Ball, Blerim Qela and Slawomir Wesolkowski

Sensor Resource Management: Intelligent Multi-objective Modularized Optimization Methodology and Models .................. 695 Boris Kovalerchuk and Leonid Perlovsky

Recent Advances in Computational Intelligence in Defense and Security
Abielmona, R.; Falcon, R.; Zincir-Heywood, N.; Abbass, H.A. (Eds.)
2016, XI, 752 p. 236 illus., 72 illus. in color., Hardcover
ISBN: 978-3-319-26448-6