## 7th International Conference on Information Warfare and Security 2012

(ICIW 2012)

Seattle, Washington, USA 22-23 March 2012

ISBN: 978-1-62276-647-5

## Printed from e-media with permission by:

Curran Associates, Inc. 57 Morehouse Lane Red Hook, NY 12571



Some format issues inherent in the e-media version may also appear in this print version.

Copyright© The Authors, (2012). All Rights Reserved.

No reproduction, copy or transmission may be made without written permission from the individual authors.

Papers have been double-blind peer reviewed before final submission to the conference. Initially, paper abstracts were read and selected by the conference panel for submission as possible papers for the conference.

Many thanks to the reviewers who helped ensure the quality of the full papers.

Printed by Curran Associates, Inc. (2013)

Published by Academic Conferences Ltd. Curtis Farm Kidmore End Reading RG4 9AY UK

Phone: 441 189 724 148 Fax: 441 189 724 691

info@academic-conferences.org

## Additional copies of this publication are available from:

Curran Associates, Inc. 57 Morehouse Lane Red Hook, NY 12571 USA Phone: 845-758-0400

Fax: 845-758-2634

Email: curran@proceedings.com Web: www.proceedings.com

## **Contents**

Paper Title	Author(s)	Page No.
Preface		iv
Biographies of Conference Chairs, Programme Chair, Keynote Speaker and Mini-track Chairs		vii
Biographies of contributing authors		ix
Detecting Hidden Logic Bombs in Critical Infrastructure Software	Hira Agrawal, James Alberi, Lisa Bahler Josephine Micallef, Alexandr Virodov, Mark Magenheimer, Shane Snyder, Vidroha Debroy and Eric Wong	1
The Development of IO / IW Curriculums in the United States: A Review of Current Efforts and a Case Study From Norwich University	Edwin Leigh Armistead	12
Establishing Cyberspace Sovereignty	Kris Barcomb, Dennis Krill, Robert Mills and Michael Saville	19
Study of the Perception of Cyber Threats and the Fear of Cybercrime	Igor Bernik and Gorazd Mesko	27
Effectively Teaching Cyber Warfare to a Non- Technical Audience	David Bibighaus, David Gibson, Martin Carlisle, David Merritt, Jeff Boleng and James Maher	36
Decision-Making by Effective C2I System	Martin Blaha and Kateřina Brabcová	44
Virtual NonState Actors as Clausewitzian Centers of Gravity: An Examination for Sensemaking, Elaboration and Discussion	Larisa Breton	51
BioONT: Improving Knowledge Organization and Representation in the Domain of Biometric Authentication	Stephen Buerle	56
Fairness of Trust Based Mobile ad hoc Network Protocols	Ivan Daniel Burke and Martin Olivier	67
Attribution of Drive-by Downloads Involved in Osama's Death Malware Campaign	Manoj Cherukuri and Srinivas Mukkamala	82
SCADA Systems in South Africa and Their Vulnerabilities	Grace Chileshe and Renier van Heerden	90
Cyber Security Awareness Initiatives in South Africa: A Synergy Approach	Zama Dlamini and Mapule Modise	98
Comparing Models of Offensive Cyber Operations	Tim Grant Ivan Burke and Renier van Heerden	108
Protecting Health Information Privacy and Safety on the Internet: United States eHealth Systems and Legal Perspectives	Virginia Greiman, Tanya Zlateva, and Lou Chitkushev	122
Security Preprocessor for Industrial Control Networks	Jeffrey Hieb, James Graham, Jacob Schreiver and Kyle Moss	130
The Influence of Cyber Security Levels of South African Citizens on National Security	Joey Jansen van Vuuren, Marthie Grobler and Jannie Zaaiman	138
A Targeted Wireless Denial of Service Attack: Deauth or not to Deauth, That is the Question	Michael Kraft and Jonathan Holston	148

Paper Title	Author(s)	Page No.
A Novel Friendly Image-Based CAPTCHA With Auto-Generation of Test Data	Chun-Jung Lee, Wei-Bin Lee, Chin- Sheng Liu, Kevin Ho and Chyi-Ren Dow	158
Using Attack Trees to Assess Security Controls for Supervisory Control and Data Acquisition Systems (SCADA)	Juan Lopez Jr., Jason Nielsen, Jeffrey Hemmes and Jeffrey Humphries	166
Measures to Abate Evil Twin Attacks in 802.11	Sayonnha Mandal and Nagadivya Veldanda	178
Securing America Against Cyber war	Jayson McCune and Dwight Haworth	185
Examining Trade Offs for Hardware-Based Intellectual Property Protection	Jeffrey Todd McDonald and Yong Kim	192
An Approach for Cross-Domain Intrusion Detection	Thuy Nguyen, Mark Gondree, Jean Khosalim, David Shifflett, Timothy Levin and Cynthia Irvine	203
Perceptions Towards eBanking Security: An Empirical Investigation of a Developing Country's Banking Sector, how Secure is eBanking?	Bongani Ngwenya	213
Implementation of Symmetric Block Ciphers Using GPGPU	Naoki Nishikawa, Keisuke Iwai and Takakazu Kurokawa	222
Trolling Online for Real World Identities	Christopher Perr, Daniel Compton and John Hamilton	233
From Traditional Local to Global Cyberspace – Slovenian Perspectives on Information Warfare	Kaja Prislan and Igor Bernik	237
Convergence of Electronic Warfare and Computer Network Exploitation/Attacks Within the Radio Frequency Spectrum	David Rohret and Abiud Jimenez	245
Supply Chain Attacks: Basic Input Output Systems (BIOS), Mux Multiplexers and Field Programmable Gate Arrays (FPGA)	David Rohret and Justin Willmann	254
Attribution: Accountability in Cyber Incidents	Daniel Ryan and Julie Ryan	265
A Game Theoretic Model of Strategic Conflict in Cyberspace	Harrison Schramm, David Alderson, Matthew Carlyle and Nedialko Dimitrov	272
Visualization in Information Security	Dino Schweitzer and Steven Fulton	288
A Novel Biometric System Based on Tongueprint Images	Mohammad Reza Shahriari, Shirin Manafi and Sepehr Sadeghian	297
Intelligence and Influence Potential in Virtual Worlds	George Stein	304
Classifying Network Attack Scenarios Using an Ontology	Renier Pelser van Heerden Barry Irwin and Ivan Burke	311
A Practical Method for Minimization of Attack Surfaces in Information Warfare	Charles Wilson and Bradley Wilkerson	325
Simulated e-Bomb Effects on Electronically Equipped Targets	Enes Yurtoğlu	330
PhD Papers		349
Cyberpower: Learning From the Rich, Historical Experience of War	Ernest Lincoln Bonner	351

Paper Title	Author(s)	Page No.
Reducing False Positives in an Anomaly- Based NIDS	Saeide Hatamikhah and Mohammad Laali	358
An Ontological Approach to Information Security Management	Teresa Pereira and Henrique Santos	368
Non Academic paper		377
The Crawl, Walk, run Progression for Strategic Communication	Christopher Paul	379
Work In Progress papers		387
Cyber Fratricide: A Literature Review	Norah Abokhodair and Aaron Alva	389
Behavioral-Based Method for Detecting SCADA Malware	Henry Bushey, Juan Lopez and Jonathan Butts	392
Modelling Organizational Management by Strengthening the Information Protection Requirements in Innovative Organizations	Marcela Izabela Ciopa Stiuca and Cristian Silviu Banacu	395
Evaluation of Traditional Security Solutions in the SCADA Environment	Robert Larkin, Juan Lopez and Jonathan Butts	399
Hackers at the State Service: Cyberwars Against Estonia and Georgia	Volodymyr Lysenko and Barbara Endicott-Popovsky	404