



# PROGRAM

**46<sup>TH</sup> ANNUAL  
2012 IEEE INTERNATIONAL  
CARNAHAN CONFERENCE  
ON SECURITY TECHNOLOGY**

**BOSTON MARRIOTT HOTEL NEWTON  
BOSTON, MASSACHUSETTS USA**

**15–18 OCTOBER 2012**

# 46<sup>th</sup> IEEE INTERNATIONAL CARNAHAN CONFERENCE ON SECURITY TECHNOLOGY

## MONDAY 15 OCTOBER 2012

- 09:00 – 16:00 ICCST Carnahan Cup Golf Tournament at the Sandy Burr Country Club, Wayland, Massachusetts
- 18:00 – 21:00 Registration and Reception at the Boston Marriott Hotel Newton, Charles River Room. Registration will be available each day beginning at 7:30 am.

## TUESDAY 16 OCTOBER 2012

- Session 1: Welcome and Keynote Addresses  
*Mr. Daniel Pritchard, Organizing Committee Chairman* **Ballroom D-H**
- 08:30 – 8:45 Opening Remarks for the 46<sup>th</sup> Annual ICCST  
*Dr. Gordon Thomas*
- 08:45 – 09:00 Welcome Address
- 09:00 – 09:45 Architectural Challenges in Countering Existential Terrorist Threats  
*Ambassador Henry Cooper*
- 09:45 – 10:30 Sustaining Aviation Security Technology Applications  
*Mr. William Hall, Massachusetts Port Authority*
- 10:30 – 10:45 Refreshment Break
- Session 2: Special Topics  
*Dr. Gordon Thomas* **Ballroom D-H**
- 10:45 – 11:30 Outdoor Perimeter Security Sensors: A Forty Year Perspective  
*Keith Harman and Wayne Messner*
- 11:30 – 12:00 Introduction to Self-Organizing, Adaptive Systems  
*Rick Dove*
- 12:00 – 13:00 Lunch
- Session 3: Systems Engineering and Evaluation I  
*Mr. Pushkar Godbole* **Ballroom D-H**
- 13:00 – 13:20 Special Nuclear Material and Critical Infrastructure Security Modeling and Simulation of Physical Protection Systems  
*Dean Dominguez, Jordan Parks, Adam Williams and Susan Washburn*
- 13:20 – 13:40 Evaluation of Physical Protection System Effectiveness  
*Zdenek Vintr, Michal Vintr and Jindrich Malach*

13:40 – 14:00	Toward a Performance Requirement for Sensored Conformable Apertures <i>Mark Murton, Michael Ross, Frank Bouchier and Dale Vandongen</i>	
14:00 – 14:20	Leveraging a Crowd Sourcing Methodology to Enhance Supply Chain Integrity <i>Han Lin, Vince Urias, Mayuri Shakamuri, Philip Campbell, John Michalski, Moses Schwartz and John Mulder</i>	
14:20 – 14:40	Design and Performance Testing of an Integrated Detection and Assessment Perimeter System <i>Jeffrey Dabling, Jason Andersen and James McLaughlin</i>	
14:40 – 15:00	Refreshment Break	
Session 4:	Systems Engineering and Evaluation II <i>Mr. Brian Rich</i>	<b>Ballroom D-H</b>
15:00 – 15:20	Probabilistic Basis and Assessment Methodology for Effectiveness of Protecting Nuclear Materials <i>Felicia A Durán</i>	
15:20 – 15:40	A Mission Resilience Assessment Methodology for Infrastructure Disruptions <i>Eric Vugrin, Kevin Stamber, Michael Baca, Rick Ramirez, Gio Kao, Michael Mitchell, Hai Le and Kim Welch</i>	
15:40 – 16:00	Attack Tree-Based Evaluation of Physical Protection Systems Vulnerability <i>Zdenek Vintr, David Valis and Jindrich Malach</i>	
16:00 – 16:20	Software for Multimodal Signal Modeling and Optimal Sensor Placement <i>Kenneth Yamamoto, Sergey Vecherin, Keith Wilson, Christian Borden, Elizabeth Bettencourt, Chris Pettit and Lindamae Peck</i>	
16:20 – 16:40	Trial Results Conducted by Multiple Canadian Government Agencies of the Recent Covert Technology Developed by Tektrap to Trace and Track the Integrity of Maritime Containers Worldwide <i>André Gagnon</i>	

## WEDNESDAY 17 OCTOBER 2012

Session 5A:	Advanced Biometrics I <i>Mr. Chang En Pu</i>	<b>Ballroom D-H</b>
8:00 – 8:20	Tracking Formants in Spectrograms and its Application in Speaker Verification <i>Jia-Guu Leu, Liang-Tsair Geeng, Chang En Pu and Jyh-Bin Shiau</i>	
8:20 – 8:40	Towards Making HCS Ear Detection Robust Against Rotation <i>Anika Pflug, Philip Michael Back and Christoph Busch</i>	
8:40 – 9:00	Normalization and Feature Extraction on Ear Images <i>Esther Gonzalez and Luis Alvarez</i>	
9:00 – 9:20	On the Relevance of Age in Handwritten Biometric Recognition <i>Marcos Faundez-Zanuy, Enric Sesa-Nogueras and Josep Roure-Alcobé</i>	

9:20 – 9:40 Biometric Keys Based on Pseudorandom Sequences  
*Mofreh Hogo*

Session 5B: Information Security 1  
*Mr. Juan Yen Pan* **Ballroom A-C**

8:00 – 8:20 State Space Blow-up in the Verification of Secure Smartcard Interoperability  
*Maurizio Talamo, Maulahikmah Galinium, Christian H. Schunck and Franco Arcieri*

8:20 – 8:40 A Framework for Analysis of Quotidian Exposure in an Instrumented World  
*Lisa Shay, Gregory Conti, Dominic Larkin and John Nelson*

8:40 – 9:00 Multi-Morphological Image Data Hiding Based on the Application of Rubik's Cubic Algorithm  
*Chang-Lung Tsai, Chun-Jung Chen and Wei-Leih Hsu*

9:00 – 9:20 New Evolutionary Tools for a New Cipherring System SEC Version  
*Mohammed Bougrine, Fouzia Omary, Salima Trichni and Bouchra Boulahiat*

9:20 – 9:40 Addressing Insider Threat using "Where You Are" as Fourth Factor Authentication  
*Sung Choi and David Zage*

9:40 – 10:00 Refreshment Break

Session 6A: Advanced Biometrics II  
*Mr. Rick Lazarick* **Ballroom D-H**

10:00 – 10:20 Advanced Access Control System for Ports  
*Fabio Garzia, Enzo Sammarco and Roberto Cusani*

10:20 – 10:40 User Identification and Tracking with Online Device Fingerprints Fusion  
*Keiji Takeda*

10:40 – 11:00 Measuring Privacy and Security of Iris Fuzzy Commitment  
*Xuebing Zhou and Christoph Busch*

11:00 – 11:20 Handwritten Signature Recognition in Mobile Scenarios: Performance Evaluation  
*Ramon Blanco-Gonzalo, Oscar Miguel-Hurtado, Aitor Mendaza-Ormaza and Raul Sanchez-Reillo*

Session 6B: Information Security 2  
*Mr. Miguel Angel Ferrer* **Ballroom A-C**

10:00 – 10:20 A Concept of Automated Vulnerability Search in Contactless Communication Applications  
*Martin Henzl, Petr Hanacek, Peter Jurnecka and Matej Kacic*

10:20 – 10:30 Department of Defense Instruction 8500.2 "Information Assurance (IA) Implementation: A Retrospective"  
*Philip Campbell*

- 10:40 – 11:00 CPA Performance Enhancement Based on Spectrogram  
*Min Ku Kim, Jeong Choon Ryoo, Dong-Guk Han and Okyeon Yi*
- 11:00 – 11:20 CPA Performance Comparison based on Wavelet Transform  
*Aesun Park, Jeong Choon Ryoo and Dong-Guk Han*
- 11:20 – 11:40 Automatic Credit Card Fraud Detection based on Non-linear Signal Processing  
*Addisson Salazar, Gonzalo Safont, Antonio Soriano and Luis Vergara*

12:00 – 13:00 Lunch

Session 7A: Advanced Biometrics III  
*Ms. Virginia Espinosa-Duro* **Ballroom D-H**

- 13:00 – 13:20 Enhancing Static Biometric Signature Verification Using Speeded-Up Robust Features  
*Richard Guest and Oscar Miguel-Hurtado*
- 13:20 – 13:40 Automatic Lip Identification Applied Under Soft Facial Emotion Conditions  
*Carlos M. Travieso-Gonzalez, Jesús B. Alonso-Hernández and Miguel Ferrer*
- 13:40 – 14:00 Multisampling Approach for Contactless Hand Biometrics|  
*Aythami Morales, Miguel Ferrer, Carlos M. Travieso and Jesús B. Alonso*
- 14:00 – 14:20 Combination of Multiple Detectors for EEG based Biometric Identification/Authentication  
*Gonzalo Safont, Addisson Salazar, Antonio Soriano and Luis Vergara*

Session 7B: Wireless Communications  
*Mr. Adrian Schwaninger* **Ballroom A-C**

- 13:00 – 13:20 Methods for the Prevention of the Use of Mobile Phones in Correctional Institutions  
*Sylvio Bisson, Pushkar E. Godbole, Matthew McKee, Marc St-Amand*
- 13:20 – 13:40 Using Neural Networks for Extended Detection  
*Lester Cano*
- 13:40 – 14:00 Encryption in Mobile Wireless Mesh Networks  
*Edward Witzke, Joseph Brenkosh, Karl Green, Loren Riblett and James Wiseman*
- 14:00 – 14:20 Integrated Communications and Navigation Module  
*Paul Haddock*
- 14:20 – 14:40 A Radio Frequency Measurement Technique Utilizing Audio Distortion to Access the Instantaneous Sensitivity of a Security Systems Receiver  
*Paul Haddock*

14:40 – 15:00 Refreshment Break

Session 8A:	Transportation Security <i>Mr. Alphonso Bilbao</i>	<b>Ballroom D-H</b>
15:00 – 15:20	Air Cargo Screening for Stowaway Detection: Carbon Dioxide Monitors and Heartbeat Monitor Assessment and Qualification <i>Ed Rao</i>	
15:20 – 15:40	Why Laptops Should be Screened Separately When Conventional X-Ray Screening is Used <i>Marcia Mendes, Adrian Schwaninger, Nadine Strelbel and Stefan Michel</i>	
15:40 – 16:00	Initial Results of Web Based Blended Learning in the Field of Air Cargo Security <i>Philipp Sury, Adrian Schwaninger and Sandrina Ritzmann</i>	
16:00 – 16:20	Video Based System for Railroad Warning Collision <i>Jesus Francisco Vargas Bonilla, Jonny Alexander Uribe and Luis Alejandro Fonseca</i>	
16:20 – 16:40	Accuracy of Automatic Number Plate Recognition (ANPR) and Real World UK Number Plate Problems <i>Mike Rhead, Robert Gurney, Neil Cohen and Soodamani Ramaligam</i>	
Session 8B:	Advanced Technologies and Adaptive Systems <i>Mr. Nigel Grist</i>	<b>Ballroom A-C</b>
15:00 – 15:20	Improved Surface Swimmer Detection Through Multimodal Data Fusion <i>Donald Sheaffer and David Burnett</i>	
15:20 – 15:40	Plasma Barrier Force-Field Access Denial System <i>Harold Cossette and Ernesto Gonzaga</i>	
15:40 – 16:00	Basic Genetic Algorithm Pattern for Use in Self-Organizing Agile Security <i>Rich Messenger and Rick Dove</i>	
16:00 – 16:20	Basic Genetic-Algorithm-Neural-Network (GANN) Pattern with a Self-Organizing Security Example <i>David Streisand and Rick Dove</i>	
16:20 – 16:40	Quorum Sensing as a Pattern for Making Actionable Decisions in Multi-Agent Self-Organizing Security Systems <i>Jeff Hamar and Rick Dove</i>	
17:30 – 21:00	46th ICCST Conference Banquet and Social Event <b>deCordova Sculpture Park and Museum</b>	

# THURSDAY 18 OCTOBER 2012

	Special Invited Speaker Introduction <i>Dr. Gordon Thomas</i>	<b>Ballroom D-H</b>
8:00 – 8:40:	Information Security and the US Department of Homeland Security <i>Mr. Doug Maughan</i>	
Session 9:	Insider Threats Tutorial Introduction <i>Mr. Bill Claycomb</i>	<b>Ballroom A-C</b>
8:40 – 12:00	Standing-Up an Insider Threat Program <i>Randy Trzeciak (CMU/CERT) and Mark Brooks (MITRE)</i>	
Session 10:	Advanced Video and Imaging 1 <i>Mr. Francisco Vargas</i>	<b>Ballroom D-H</b>
8:40 – 9:00	CCTV Operator Performance Benchmarking <i>Stuart Rankin, Dr. N. Cohen, Dr. K. MacLennan-Brown and Dr. K. Sage</i>	
9:00 – 9:20	Working Towards an International Automatic Number Plate Recognition (ANPR) Standard - An Initial Investigation into the UK Standard <i>Rob Gurney, Mike Rhead, Soodamani Ramalingam and Neil Cohen</i>	
9:20 – 9:40	Super-resolution processing of the partial pictorial image of the single pictorial image which eliminated artificiality <i>Yuichiro Yamada and Daisuke Sasagawa</i>	
9:40 – 10:00	Modeling and Evaluation of Image Quality in Wireless Surveillance Networks <i>Matthew Ibekwe, Stanislav Vitek, Milos Klima and Petr Dostal</i>	
10:00 – 10:20	Refreshment Break	
Session 11:	Advanced Video and Imaging 2 <i>Mr. Clifton Smith</i>	<b>Ballroom D-H</b>
10:20 – 10:40	Cost-Effective Automatic Stereoscopic Security Video System 3DSec <i>Petr Dostál, Stanislav Vitek and Milos Klima</i>	
10:40 – 11:00	Assessment of Video Analytics for Exterior Intrusion Detection Applications <i>Brad Norman</i>	
11:00 – 11:20	Long-wave Infrared Hyperspectral Imaging for Sensing Applications <i>Adam Bingham, Mac Reiter, Edward Knobbe and Paul Lucey</i>	
11:20 – 11:40	Contribution of the Temperature of the Objects to the Problem of Thermal Imaging Focusing <i>Virginia Espinosa-Duró, Jiri Mekyska and Marcos Faundez-Zanuy</i>	
11:40 – 12:00	HLFSIM: Objective Image Quality Metric Based on ROI Analysis <i>Petr Dostál, Lukáš Krasula and Miloš Klíma</i>	
12:00 – 12:10	Conference Closing <i>Dr. Gordon Thomas</i>	<b>Ballroom D-H</b>

