



**ALERT**  
AWARENESS AND LOCALIZATION  
OF EXPLOSIVES-RELATED THREATS

Awareness and Localization of Explosives-Related Threats (ALERT)

*ALERT is supported by the Department of Homeland Security (DHS)  
Science and Technology (S&T) Directorate through the  
Office of University Programs (OUP)*

**Advanced Development for Security Applications (ADSA) Workshop 22:  
Reducing Operator Cognitive Load in Aviation Security  
Virtual Workshop**

Session 1

November 17, 2020, 11 AM - 1 PM ET

## SPEAKER BIOGRAPHIES



**Carl R. Crawford**

*Csuptwo*

Carl Crawford is president of Csuptwo, LLC, a technology development and consulting company in the fields of medical imaging and explosive detection for Homeland Security. He has been a technical innovator in the fields of computerized imaging for more than thirty years. His technology has resulted in 90 U.S. Patents. Dr. Crawford was the Technical Vice President of Corporate Imaging Systems at Analogic Corporation, Peabody, Massachusetts, where he led the application of signal and image processing techniques for medical and security scanners. He developed the reconstruction and explosive detection algorithms for a computerized tomographic (CT) scanner deployed in airports worldwide. He was also employed at General Electric Medical Systems, Milwaukee, Wisconsin, where he invented the enabling technologies for helical scanning for medical CT scanners and physiological motion compensation for projection-based imaging systems. At Elscint, Haifa, Israel, he developed technology for cardiac CT scanners. He also has developed technology for magnetic resonance imaging (MRI), single photon emission tomography (SPECT), positron emission tomography (PET), ultrasound imaging, dual energy imaging and automated threat detection algorithms. He has a PHD in electrical engineering from Purdue University. He is a Fellow of the IEEE and a Fellow of the American Association of Physicists in Medicine (AAPM).



**J. Matt Gilkeson**

*Transportation Security Administration*

J. Matt Gilkeson is the Division Director for the Innovation Task Force Division (ITF) within Requirements and Capabilities Analysis (RCA) at TSA. As Division Director, Mr. Gilkeson actively manages a diverse headquarters staff of program managers to integrate operations activities, develop strategic and tactical plans, and demonstrate innovative private-sector solutions in airport checkpoints across the country.

Prior to being named Division Director, Mr. Gilkeson headed a cross-agency team of personnel from headquarters and field staff in the creation of the dynamic screening initiative, which aims to create a faster, more user-friendly, and lighter-touch passenger and Transportation Security Officer experience by integrating capabilities, technologies, and procedures and tailoring screening to each passenger. Additionally, Mr. Gilkeson previously served as the Branch Manager for ITF's Demonstration Management & Execution team, where he managed and oversaw all of ITF's demonstration activities. Mr. Gilkeson also has experience leading ITF's industry exchange activities, helping ITF communicate in new ways with the vendor community and performing outreach to new solution providers that had not previously partnered with TSA.



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Prior to joining ITF, Mr. Gilkeson served as a Program Manager for Business Operations and Initiatives within the Office of Training and Development (OTD). With a strong information technology, process, and strategy background, he established the Integrated Curriculum Development Process, supported the TSA Academy TSO Basic stand-up, and led a study envisioning a new National Security Training and Education Enterprise.



**Austin Gould**

*Transportation Security Administration*

Mr. Austin Gould is the Transportation Security Administration's Assistant Administrator for Requirements and Capabilities Analysis. Mr. Gould has served in this capacity since June of 2018 and is a member of the Senior Executive Service.

As the Assistant Administrator for Requirements and Capabilities Analysis Mr. Gould is the TSA Component Requirements Executive, defining the operational requirements for transportation security equipment at airports nation-wide. He also directs the capability management functions at TSA, ensuring robust cradle-to-grave support of equipment across the enterprise. Mr. Gould also supervises the risk-analytics and procedures groups at TSA, and

is also currently serving as the Chairman of the Department of Homeland Security Joint Requirements Council.

Prior to joining TSA, Mr. Gould served as a Captain in the United States Coast Guard. During his 30-year Coast Guard career, Mr. Gould served in a variety of operational and acquisition management positions. From 2003-2007, he served as the Coast Guard Boat Forces Capability Manager where he was responsible for the procurement, configuration management and support of the Coast Guards' fleet of 2000 boats. He also served as the Program Manager for the Coast Guard Research, Development, Test and Evaluation Program from 2009 through 2013. As the Program Manager, he supervised the Coast Guard Research and Development Center in the identification and testing of innovative technologies to improve Coast Guard operational capabilities. In addition, he orchestrated all the Test and Evaluation activities for the Coast Guard, ensuring that assets met or exceeded operational requirements.

Mr. Gould served as the Sector Commander of Coast Guard Sector Miami and as the Chief of Staff for the Coast Guard's Seventh Coast Guard District, also headquartered in Miami from 2013-2018. As the Sector Commander, he was responsible for Search and Rescue, Law Enforcement and pollution response at the Coast Guard's largest Sector. He was also responsible for the safety and security of over 11 million cruise ship passengers transiting Port Miami and Port Everglades annually. As the District Chief of Staff, he was second in command of the largest Coast Guard District, with an area running from North Carolina south to the Gulf of Mexico and including Puerto Rico, the U.S. Virgin Islands, and the Caribbean. In this role, he coordinated the unprecedented response to the 2017 hurricane season, when Hurricanes IRMA and MARIA impacted the entire region.

Mr. Gould holds a B.S. in Government from the United States Coast Guard Academy and a Master's in Business Administration from the Stern School of Business at New York University. He is a 2011 graduate of the Naval Postgraduate School in Acquisition Management and holds a Department of Homeland Security Level III Acquisition Program Management Certificate.



**Jason Lim**

*Transportation Security Administration*

Jason Lim is the Identity Management Capability Manager for Transportation Security Administration. In this role, Jason is charged to ensure the effective and efficient integration of identity-related activities and prioritization of resources through a unified strategy that enhances the enrollment, validation, vetting, authentication, and verification of populations throughout the TSA enterprise. Just prior to this position, Jason served as a Transportation Security Futurist, member of an internal think-tank recently established to drive agency-wide visioning process on the future of transportation security at TSA. Jason has been with TSA since July 2007.

Jason Lim has an MA in Security Studies from Naval Postgraduate School, MPA from Harvard Kennedy School, and MS from NYU Wagner School of Public Service. He graduated from Duke University with a BSE in Biomedical Engineering. Jason was selected as the 2007-2008 Fellow at Harvard Korea Institute, where his research focused on leadership archetypes in Asian history.



**Harry E. Martz**

*Lawrence Livermore National Laboratory*

Harry Martz is the Director for Non-destructive Characterization Institute and a distinguished member of the technical staff at Lawrence Livermore National Laboratory. He is also Principal Investigator (PI) on Department of Homeland Security, Science and Technology, Homemade Explosives Identification, Detection and Mitigation (*HEIDM*) program. Harry joined the Laboratory to develop the area of X-ray imaging and proton energy loss computed tomography for the non-destructive inspection of materials, components, and assemblies. He received his M.S. and Ph.D. in Nuclear Physics/Inorganic Chemistry from Florida State University, and his B.S.

in Chemistry from Siena Collage. Harry has applied CT to inspect one-millimeter sized laser targets, automobile and aircraft components, reactor-fuel tubes, new production reactor target particles, high explosives, explosive shape charges, dinosaur eggs, concrete and for non-destructive radioactive assay of waste drum contents. Recent R&D efforts include CT imaging for conventional and homemade explosives detection in luggage and radiographic imaging of cargo to detect special nuclear materials and radiological dispersal devices.



**Matthew Merzbacher**

Dr. Merzbacher recently retired from his position as Director of Certification and Qualification at Smiths Detection. There, and before that at Morpho Detection, Matthew was responsible for detection testing across products for explosives, chemical, and radiation detection. He also served as co-chair of the ANSI standards group on image quality for CT-based explosives detection systems and chaired the NEMA DICOS Threat Detection Working Group. Matthew joined InVision Technologies in 2003 as a Research Scientist in the Machine Vision group before taking over as manager of that group. Dr. Merzbacher has a Ph.D. in Computer Science from UCLA, specializing in data mining. He has several patents on image processing for explosives detection. He spends his time in the more rewarding pursuits of hiking and volunteering at the local food bank.



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**Craig Mosford**

*Transportation Security Administration*

As the TSA Capability Manager for Checked Baggage, Craig serves as the focal point for checked baggage capability development at the Agency. This important role involves planning, organizing, leading and directing agency-wide checked baggage efforts to deliver and sustain capability, while maintaining consistent and accurate organizational capability and requirements information, in order to meet the TSA mission. Craig has extensive experience at TSA and has held many positions over his nearly 20-year career. Starting out in the field as a

Transportation Security Manager (TSM) and a Transportation Security Inspector (TSI), Craig eventually moved to Headquarters where he has spent the bulk of this TSA career focused on checked baggage operations improvement. Prior to TSA, Craig worked in the airline industry as a Station Manager and Quality Control Manager for Mesaba Airlines (dba NW Airlink). Craig received a Bachelor of Business Administration degree in Aviation Administration & Management from the John D. Odegard School of Aerospace Sciences, at the University of North Dakota. He is married and has 3 children; the family resides in Northern Virginia.



**Laura Parker**

*Department of Homeland Security*

Laura Parker is the Senior Advisor for Sensors in the Science and Technology Directorate at the Department of Homeland Security. She is also the Program Manager for the ALERT Center of Excellence, a DHS-sponsored consortium of universities led by Northeastern University to perform research that address explosive threats. Laura, most recently, was the Program Manager for the Next Generation Explosives Trace Detection Program focused on developing advanced explosives trace detectors for use at checkpoints and other DHS operational environments. Laura has worked on a variety of research projects focused on explosives screening technologies to include algorithm and hardware development and interfacing with DHS components such as Transportation Security Administration, Customs and Border

Protection, US Secret Service, the US Coast Guard and other government agencies. Previously, Laura worked as a contractor providing technical and programmatic support of chemical and biological defense and explosives programs for several Department of Defense (DoD) offices. She also performed research in several US Navy laboratories in the field of energetic materials. She obtained her Ph.D. in chemistry from the Pennsylvania State University.



**Carey Rappaport**

*Northeastern University*

Carey M. Rappaport received five degrees from the Massachusetts Institute of Technology: the SB in Mathematics, the SB, SM, and EE in Electrical Engineering in June 1982, and the PhD in Electrical Engineering in June 1987. He is married to Ann W. Morgenthaler, and has two children, Sarah and Brian. Prof. Rappaport joined the faculty at Northeastern University in Boston, MA in 1987. He has been Professor of Electrical and Computer Engineering since July 2000. In 2011, he was appointed College of Engineering Distinguished Professor. He was Principal Investigator of an ARO-sponsored Multidisciplinary University Research Initiative on Humanitarian Demining, Co-Principal Investigator and Associate Director of the NSF-sponsored

Engineering Research Center for Subsurface Sensing and Imaging Systems (CenSSIS), and Co-Principal Investigator and





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Deputy Director of the DHS-sponsored Awareness and Localization of Explosive Related Threats (ALERT) Center of Excellence. Prof. Rappaport has authored over 425 technical journal and conference papers in the areas of microwave antenna design, electromagnetic wave propagation and scattering computation, and bioelectromagnetics, and has received two reflector antenna patents, two biomedical device patents and three subsurface sensing device patents. He was awarded the IEEE Antenna and Propagation Society's H.A. Wheeler Award for best applications paper, as a student in 1986. He is a member of Sigma Xi and Eta Kappa Nu professional honorary societies.



**Michael B. Silevitch**

*Northeastern University*

Michael B. Silevitch is currently the Robert D. Black Professor of Engineering at Northeastern University in Boston, an elected life fellow of the IEEE, the Director of the Homeland Security Center of Excellence for Awareness and Localization of Explosives Related Threats (ALERT), and the Director of the Bernard M. Gordon Center for Subsurface Sensing and Imaging Systems (Gordon-CenSSIS), a graduated National Science Foundation Engineering Research Center (ERC). His training has encompassed both physics and electrical engineering disciplines. An author/co-author of over 65 journal papers, his research interests include laboratory and space plasma dynamics, nonlinear statistical mechanics, and K-12 science and mathematics curriculum implementation. Prof. Silevitch is also the creator of the Gordon Engineering Leadership (GEL) Program at Northeastern University, a graduate curriculum offered through the College of Engineering, with the mission of creating an elite cadre of engineering leaders. He and the current GEL Director, Simon Pitts, were awarded the 2015 Bernard M. Gordon Prize for Engineering Education by the National Academy of Engineering (NAE).