



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

Awareness and Localization of Explosives-Related Threats (ALERT)

*ALERT is an emeritus Department of Homeland Security (DHS)  
Science and Technology (S&T) Directorate Center of Excellence*

**Advancing Collaboration for Enhanced Security  
Virtual Workshop**

Session 1

October 5, 2021, 10:00 AM – 2:00 PM ET

## SPEAKER BIOGRAPHIES



**Sarina Baumgartner**

*Center for Adaptive Security Research and Applications (CASRA)*

Sarina Baumgartner is Head of Product Management at Center for Adaptive Security Research and Applications (CASRA). She was previously part of the Customer Relations & Sales team and thus benefits from her experience and knowledge of customer needs and requirements concerning CASRA services and solutions. She develops and maintains contacts with research institutes, suppliers, governmental organizations, machine manufacturers and end users. The X-Ray Tutor therefore is continuously improved in a collaborative exchange to support screeners in all phases of their employment, covering selection, training and (re)certification in the best way possible.



**Linda Bixby**

*LMI Research Institute*

Dr. Linda Bixby leads development and management of LMI's academic programs, facilitating formal working relationships with universities nationwide. She plays an integral role in advancing the mission of the LMI Research Institute to spur innovation and further groundbreaking research in support of the U.S. government. Dr. Bixby has supported the U.S. government and academia for more than 30 years in executive, management, technical, operational, and analytical positions. She previously served as LMI's vice president for the Intelligence Community, leading a team dedicated to bringing LMI's services and capabilities to support critical mission requirements. Prior to LMI, Dr. Bixby served in the U.S. government, receiving numerous commendations. She's been an executive at a Fortune 500 company and the vice president of operations at a small, woman-owned business. Dr. Bixby is a former associate professor and scholar in residence at American University. Her publications and academic contributions include *Domestic Danger*, *In Pursuit of Justice*, *Learning from History*, and *War-Time Slave and Forced Labor*. She participates actively in AFCEA International, Intelligence and National Security Alliance, and National Defense Industrial Association. Dr. Bixby is on the Center for Supply Chain Research Advisory Board at Penn State University. She earned a doctorate in history (early form of data analytics and anticipatory intelligence) and completed her master's program in history and Soviet studies at the Freie Universität Berlin. Dr. Bixby obtained bachelor's degrees in communications and German studies from the University of Arizona. She continues her education at the MIT Program in Innovation and Technology.



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**Frank Cartwright**

*Transportation Security Administration*

Frank Cartwright currently serves as the Branch Manager for Capability Development & Integration (CDI) within the Requirements & Architecture Division (RAD). In this capacity Mr. Cartwright is responsible for the innovative development of the next generation of security capabilities that will be implemented across the fleet of Transportation Security Equipment under the governance of TSA. This includes capabilities (both hardware & software) used in Check-point, Checked Baggage and Cargo environments. For the past 20 years, Frank Cartwright has served the TSA in various technical capacities. As a contractor, he supported the TSL (Transportation Security Lab) with the development of technical requirements for Checked-baggage Systems. After several years developing requirements and helping to design the next generation of Checked-baggage systems, he performed similar duties for Infrastructure & Conveyance (i.e. Cargo/Intermodal). As a Federal employee, Mr. Cartwright supported the Passenger Screening Program as the Portfolio System Engineer for Carry-on-Bag screening technologies and later Passenger Screening technologies.



**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 fosters innovation by integrating key stakeholders in the identification, demonstration, and characterization of emerging solutions in an effort to increase security effectiveness and improve passenger experience. The ITF is composed of a diverse headquarters staff of program managers who integrate operations activities, develop strategic and tactical plans, and demonstrate innovative private-sector solutions that ensure the freedom of movement throughout the nation's transportation system. 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



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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. 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.



**Joel Greenberg**

Duke University

Joel A. Greenberg is an Associate Research Professor in the Department of Electrical and Computer Engineering and on the faculty of the Graduate Medical Physics Program at Duke University. His current research focuses on computational sensing (particularly in the X-ray domain) and its application to security, medical, and industrial imaging and detection, which involves substantial collaborations with academia, industry, and government partners. He is also Founder, President and CEO of Quadridox, Inc., a University spinout company focused on

supporting government and industrial R&D in the security space. Joel received his B.S.E. in Mechanical and Aerospace Engineering from Princeton University in 2005 and his Ph.D. in Physics from Duke University in 2012.



**Jiang Hsieh**

*GE Healthcare*

Jiang Hsieh received PhD from Illinois Institute of Technology in 1989 and later joined GE Medical Systems. He was a Chief Scientist at GE Healthcare before his retirement in July 2021, and is an adjunct professor at University of Wisconsin-Madison. He has over 37 years of experience in medical imaging and holds over 270 US patents, and has authored or co-authored over 300 articles, lectures, book chapters, and textbooks. He taught AAPM summer school, refresher courses at RSNA, short courses at IEEE NSS/MIC, and short courses at SPIE Medical Imaging Conference. He was an invited speaker at AAPM annual meetings, NIBIB dose summit, SPIE Computational Imaging, joint AFRL/CMU/Purdue workshop, SIAM

Conference on Imaging Science, and various universities and research institutions. He is a fellow of SPIE, AAPM, IEEE, and AIMBE.



**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 College. 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,



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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.



**David Menga**

*Booz Allen Hamilton*

David Menga is the Senior Associate at Booz Allen Hamilton with 35 years of Military, Federal and Industry experience in Military Intelligence systems and warfighting disciplines. His current focus areas include: Advanced Change Management Practitioner, Cybersecurity Risk Matrix Frameworks and Agile Software Product Management. His current certifications include: API/APM, CMAP, SCM



**Robert M. Nishikawa**

*University of Pittsburgh*

Robert M. Nishikawa received his B.Sc. in physics in 1981 and his M.Sc. and Ph.D. in Medical Biophysics in 1984 and 1990, respectively, all from the University of Toronto. While at the University of Chicago, he developed computer-aided diagnosis systems for classifying and detecting clustered calcifications in mammograms. He has 7 patents on CAD-related technologies. He is currently a Professor and director of the Imaging Research group in the Department of Radiology at the University of Pittsburgh. His research interests are in computer-aided diagnosis, breast imaging, radiomics, image quality assessment and evaluation of medical technologies. He has won 24 awards including two for “best” paper, two innovation awards, and one teaching award. He has over 200 publications in breast imaging. He is a fellow of the American Association of Physicists in Medicine, the Society of Breast Imaging, the College of American Institute for Medical and Biological Engineering (AIMBE), the International Society for Optics and Photonics (SPIE); and he is a Distinguished Investigator, Academy of Radiology Research. He has been a consultant for numerous medical imaging companies on digital imaging and computer-aided diagnosis.



**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



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### **Roshni Sherbondy**

*Booz Allen Hamilton*

Roshni Sherbondy has 15 years of federal and 15 years of private sector experience in support of aviation security, counter IED and a counter drone security technology and cyber solutions. Currently she works at Booz Allen delivering support at TSA and DHS S&T. Roshni has a MS and BS in Electrical Engineering.



### **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).

### **Diederik Stolk**

*Goldsworthy, Stolk & Associates*

Diederik Stolk supports his clients with problem-solving complex challenges using innovative practices such as design thinking, simulation and game development. He has outspoken thoughts on collaboration, management and goal-setting. Over the past 14 years, he has worked for clients such as NATO, Dutch MoD, UK MoD, various EU bodies / ministerial working groups, Dutch intelligence services and various large corporations, such as banks & insurance companies.