



Homeland Security

Science and Technology

The Center for Awareness and Localization of Explosives-Related Threats (ALERT)

A DHS Center of Excellence

ALERT conducts transformational research, technology, and educational development to characterize, detect, mitigate, and respond to explosives-related threats facing the country and the world.

LAUNCH ▶ 2008

PARTNERS ▶ More than 28 university, private industry, and national laboratory partners

EXPERTISE ▶ Explosives characterization, trace and vapor sensor design, standoff detection, signal processing, video analytics, and nano-materials identification

DHS ALIGNMENT ▶ Transportation Security Administration, U.S. Coast Guard, U.S. Customs and Border Protection, U.S. Secret Service

Research and Education Capabilities

- Developing advanced explosives detection technologies
- Transitioning innovative technologies to the field
- Fostering collaboration with industry partners
- Education and training for the current and future homeland security workforce



ALERT
AWARENESS AND LOCALIZATION
OF EXPLOSIVES-RELATED THREATS

A nationwide consortium led by:

Northeastern University

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Feedback from Our Partners

“We have assembled a great team of universities working with ALERT to develop innovative video capabilities that enhance aviation security and transition them to industry.”

John Fortune, Apex Screening at Speed Program Manager, Explosives Division Science and Technology Directorate, DHS, 2018

“I’ve come to the Advanced Development for Security Applications Workshop (ADSA) every year since our company joined ALERT because it’s the one event where there is always going to be a relevant theme, with the best people that the United States and Europe can offer to talk about aviation security themes.”

Mark Witinski, VP of Chemical Sensing and Co-Founder Pendar Technologies, 2018



University Partners

Boston University, MA
Duke University, NC
Marquette University, WI
Purdue University, IN
Rensselaer Polytechnic Institute, NY
Tufts University, MA
University of Notre Dame, IN
University of Puerto Rico at
Mayagüez, PR*
University of Rhode Island, RI

*Minority Serving Institution (MSI)

Enterprise Partners

908 Devices*
American Science and Engineering,
an OSI Systems Company*
Astrophysics, Inc.
DetectaChem, LLC
FLIR Systems
Guardian Centers, LLC*
HXI, LLC*
Implant Sciences Corporation
Kiernan Group Holdings*
Lawrence Livermore National Laboratory
Los Alamos National Laboratory
Pacific Northwest National Laboratory
Pendar Technologies*
Rapiscan Systems, an OSI Systems
Company*
Raytheon Company*
Rigaku Analytical Devices*
Sandia National Laboratories
Signature Science, LLC
Smiths Detection*

*ALERT Industrial Advisory Board Member



For a complete list of partners
and more information, please visit
northeastern.edu/alert

For more information on DHS
Centers of Excellence, please visit
[www.dhs.gov/science-and-
technology/centers-excellence](http://www.dhs.gov/science-and-technology/centers-excellence)



Impacts



Developing next generation technologies for the checkpoint of the future

The Transportation Security Administration screened more than 771 million passengers and over 2 billion carry-on and checked bags in 2017. ALERT has developed tools in advanced imaging technologies, computed tomography reconstruction (using special 3D equipment to create detailed pictures to screen luggage), video analytics, and trace detection to enable accurate and efficient security screening.



Partnering with industry to bring research to reality

University-industry partnerships have bolstered U.S. industry gross output by up to \$1.33 trillion, and supported up to 4.2 million jobs since 1996. ALERT partners with industry to identify research opportunities, develop next-generation technologies, and convene a biannual workshop series that facilitates dialogue among transportation security stakeholders.



Protecting and preparing first responders

Many explosives are too volatile for law enforcement and their canine partners to use for training. ALERT partnered with DetectaChem—a mobile explosives and drug detecting device producer—to develop a new method for encapsulating explosives in order to create safe, trace explosives sources for training. ALERT also provides annual intensive explosives training courses to over 400 security professionals and first responders.



Creating pathways to homeland security careers

To support the growing Homeland Security Enterprise, ALERT offers homeland security-oriented fellowships, engineering leadership training, and research internships to prepare a qualified, next-generation workforce. ALERT has placed over 100 researchers and professionals in key homeland security positions.