



**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

## **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

## **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**

360 Huntington Avenue, Suite 302  
Stearns Center, Boston, MA 02115



[alert-info@coe.neu.edu](mailto:alert-info@coe.neu.edu)



[northeastern.edu/alert](http://northeastern.edu/alert)



(617) 373-4673



## University Partners

Boston University, MA  
Duke University, NC  
Marquette University, WI  
New Mexico State University, NM\*  
Purdue University, IN  
Rensselaer Polytechnic Institute, NY  
The Hebrew University of Jerusalem,  
Israel  
Tufts University, MA  
University of Notre Dame, IN  
University of Puerto Rico at  
Mayagüez, PR\*  
University of Rhode Island, RI  
Washington State University, WA

*\*Minority Serving Institution (MSI)*

## Enterprise Partners

American Science and Engineering,  
an OSI Systems Company\*  
Astrophysics, Inc.  
Bruker Detection  
Defence Science and Technology Lab,  
UK  
DetectaChem, LLC  
FLIR-Nomadics  
Guardian Centers, LLC\*  
HXI, LLC\*  
Kiernan Group Holdings\*  
L-3 Communications  
Pendar Technologies\*  
Rapiscan Systems, an OSI Systems  
Company\*  
Raytheon Company\*  
Siemens  
Smiths Detection\*  
Sundance Tech\*

*\*ALERT Industrial Advisory Board Member*



For a complete list of partners  
and more information, please visit  
[northeastern.edu/alert](http://northeastern.edu/alert)

For more information on DHS  
Centers of Excellence, please visit  
[hsuniversityprograms.org](http://hsuniversityprograms.org)



## 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.