ALERT's CLASP Project is using video technology to make airport security smarter, safer, and faster.

ALERT
AWARENESS AND LOCALIZATION OF EXPLOSIVES-RELATED THREATS
A DHS CENTER OF EXCELLENCE

Improving the Airport Security Experience

Passengers, their baggage, and other items are separated at security checkpoints during normal screening operations. Theft, items left behind, and increased wait times at the checkpoint all lead to a more negative passenger experience.

Advancements in video analytics may soon be able to help improve passenger experience in the airport security checkpoint by automatically tracking and associating passengers and their luggage as they move through security. By successfully tracking passengers and their luggage, ALERT will enable advanced capabilities at the Transportation Security Administration (TSA) such as advanced risk-based screening and more efficient resource allocations.

ALERT has partnered with five U.S. Airports, the Transportation Security Administration, and several of our Industry Members to effectively craft a real-world solution to improve airport security.

How Alert is Automating the Checkpoint

ALERT's Correlating Luggage and Specific Passengers (CLASP) Project has developed software capable of processing data from CCTV video cameras to track passengers and their items through the airport security checkpoint in real time.

This software can automatically identify when passengers enter and exit the checkpoint, what items belong to which people, and unusual behaviors, such as a theft or items left at the checkpoint.

Automated Tracking Algorithms (ATAs) are trained to use video data to track passengers and their items through the checkpoint.

Making the TSA's Job Easier

The goal of CLASP is to assist the TSA in both improving the passenger experience through reduced wait times, enable more efficient screening processes, minimizing theft and keeping track of passenger items, as well as improving detection performance in airports.

ABOUT ALERT

Awareness and Localization of Explosives-Related Threats (ALERT) is an emeritus Department of Homeland Security Center of Excellence made up of 20 national and international academic, industrial, and government entities.

ALERT seeks to conduct transformational research, develop technology, and provide educational development to improve effective characterization, detection, mitigation, and response to explosives-related threats facing the country and the world.

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Building a Video Analytics Lab

The CLASP team needed to acquire video data that included a high number and variety of checkpoint security situations like a theft, or a bag left at the checkpoint. Since these situations are relatively rare in actual airport video footage and there can be limitations on the use of that footage, ALERT established a Video Analytics Lab at Northeastern University's Innovation Campus. The lab currently houses a mock airport security checkpoint and flexible camera grid allowing for data collection and testing.

The checkpoint uses much of the same hardware currently used by the Transportation Security Administration (TSA) at many airports and its configuration follows TSA's design. To generate the video footage, actors pass through the checkpoint, recreating a variety of different scenes, while being recorded by security cameras above.

DHS S&T Screening at Speed

CLASP is funded by the Department of Homeland Security (DHS) Science and Technology Directorate's (S&T) Screening at Speed program through the DHS Office of University Programs. The Screening at Speed program is pursuing transformative research and development activities that support a future vision for increasing security effectiveness from curb to gate, while dramatically reducing wait times and improving the passenger experience.

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CLASP Research Team

Comprised of video analytics experts from four ALERT Universities

- Boston University
- Northeastern University
- Rensselaer Polytechnic Institute
- University of Florida

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