Identifying individuals with malintent at security checkpoints

Security checkpoint officers currently use visual inspection techniques and devices (e.g., X-ray machines) to detect weapons or other items that can be used to cause harm. To identify individuals with malintent, however, officers must rely on more simplistic techniques, including verifying credentials, randomly selecting individuals for questioning and observing individuals for visual cues. Often, screeners have insufficient time to evaluate individuals thoroughly, have limited access to supporting information or are not specially trained in detecting malintent indicators.

> *Malintent* is defined as the mental state of an individual intending to cause harm to our citizens or infrastructure.

FAST inconspicuously and objectively selects individuals for secondary security screenings

With the Future Attribute Screening Technology (FAST) system, the Department of Homeland Security (DHS) Science and Technology Directorate (S&T) seeks to improve DHS's ability to quickly and objectively screen individuals for malintent. FAST combines cutting-edge behavioral and physiological science with deception detection theory and state-of-the-art sensor technologies. It is designed to be used at checkpoints to help security officers identify individuals for secondary screening.

The FAST system is gender, culture and age-neutral and it does not use profiling techniques or collect personally identifiable information. Instead, FAST uses non-contact sensors to remotely analyze physiological and behavioral cues including, eye movement, body movements and other factors that an individual typically does not consciously control. The system conducts real-time analysis of the data collected in order to develop an objective recommendation for secondary screening.

FAST is intentionally designed to minimize the impact on subjects being screened by reducing or eliminating the inconvenience of current security practices (e.g., shoe removal, pat-downs, random checks). The technology offers a discreet screening process that is transparent to the individual. The ultimate goal is to allow people to move more freely and quickly through the screening process.

Protecting citizens' privacy and civil liberties

Throughout the development process, S&T has worked closely with both the DHS Privacy Office and Office for Civil Rights and Civil Liberties to protect individual privacy and liberties. For example, the system is intentionally designed to only examine physiological and behavioral cues so that no privacy or civil rights are violated.

In addition, as part of the privacy protections inherent in the system, FAST does not connect physiological data to an individual, nor does it permanently store collected data once the analysis is complete.

A typical security screening process using the FAST sensor suite.

Successful tests demonstrate FAST's potential

During early testing, FAST has previously demonstrated up to 81 percent classification accuracy when using contact sensors and more recently, between 70 to 74 percent classification accuracy when using remote, non-contact sensors. These tests, which required a question-and-answer session with security officials, validated the concept of using technology to detect malintent.

In the next phase of development, S&T is working to reduce the processing time while maintaining the level of accuracy. In Fiscal Year 2014, for example, S&T will be conducting a data collection exercise with an operational DHS component to further improve the FAST technology. Ideally, S&T will produce a tool that protects the public in the least intrusive manner possible. Future plans include conducting a pilot with a DHS operational component and using additional stimuli (e.g., pictures) to evoke responses that may indicate a person's malintent.

Homeland Security
Science and Technology

To learn more about the Future Attribute Screening Technology, contact sandt.rsd@hq.dhs.gov.

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