Your Problem

Current access control and CCTV solutions do not provide an answer. Many require the pre-identification of a person, hence in practice they are seldom used. Most CCTV solutions end up providing little more than a ‘post-event’ forensic analysis tool. While a multitude of commercial video analytic solutions exist, our research shows that none have the ability to robustly recognise people at a distance in a complex airport environment.

Video-based biometrics can provide a partial solution. However, in most case the only information available is a semantic description of the person (for example, he was 1.8m tall wearing a red shirt and jeans). Without images of a person’s face or iris this is of limited use. In the past, significant research effort has focused on person re-detection, relying on existing footage of the person of interest, which is often not readily available. Instead, QUT’s AoTF Project has developed a capability to search for a person matching a semantic or text description (i.e. 1.8m tall, red shirt, jeans). From a policing and law enforcement standpoint, this capability is highly desirable.

Our Solution

The AoTF solution uses soft-biometric descriptions of a person. They include information such as gender, ethnicity, height, build, and clothing colour. These traits are more easily captured in an open surveillance environment. With the incorporation of multiple traits, intelligent calibration, and efficient search algorithms, the capabilities of these traits, for tracking persons of interest, are unlocked.

The current AoTF system does not require a person detection routine to locate people in the scene. By utilising size and colour cues of a person, this method significantly improves the utility in crowded conditions. Operators can build a simple avatar of a person of interest through inputting their description.

Current research prototypes enable an automatic person search in CCTV video footage using simple descriptions, a huge step forward.

Where are your persons of interest?

Throughout the history of aviation, technology has always played an important role. This is especially true for aviation security, as airport operators, regulators, and policing organisations continually look for new and innovative ways to monitor airport environments and to detect threats and people of interest. However, without an army of people to search for them, how do you currently detect and locate your persons of interest?

IN PLANE TERMS

Special Edition: Aviation Security
AoTF is further developing research prototypes employing colour and height soft biometric traits. These prototypes are currently being embedded within existing video management systems for offline and live trials at QUT and AoTF partner facilities. Further traits including build, clothing type (i.e. shorts, trousers, singlet) gender and baggage are also undergoing further research.

Similar soft biometric technology is also being tested as part of the performance framework trial with Australian Customs, the National Passenger Facilitation Committee and Brisbane Airport.

While the technology is similar, the purpose for this trial is not on security or person search. Instead the aim here is to gather time-based metrics of passenger movements for operational monitoring purposes. Timeframes for this operational trail are set from August 2012 - Mar 2013.

Want more information? Please contact the Intelligent Surveillance team within the AoTF.