

### Forensic examination of surveillance video would benefit from more accurate analysis methods

Video recording media, such as camcorders, surveillance video and cell phone cameras, record nearly everything.

For the law enforcement community, video is more valuable when forensic examiners conducting criminal investigations can analyze and identify evidence when compared to physical items recovered from suspects in legal proceedings. Currently, methods and standards associated with analysis of video lack a scientific basis.

Video is qualitatively examined by experts where match/no-match judgments are rendered almost exclusively by that examiner. Decisions are not supported by statistics, specifications or defined error rates and can lead to bias or incorrect analysis. This leaves courtroom testimony regarding these comparisons susceptible to challenge.

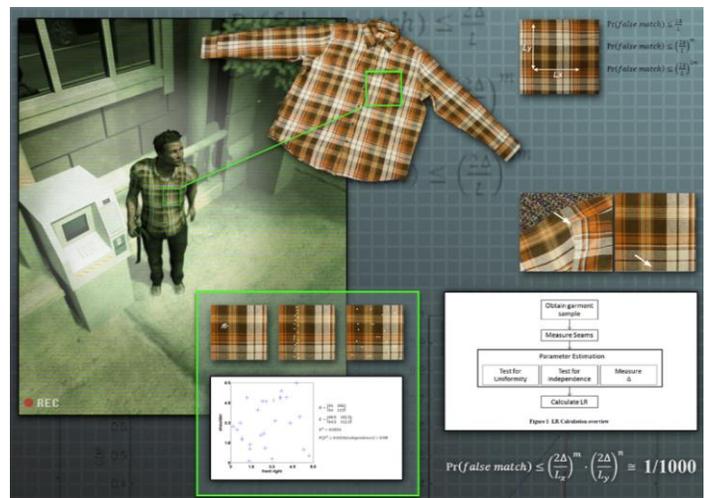
### CAVS compares similar characteristics of garments to positively identify subjects

The Department of Homeland Security Science and Technology Directorate's (S&T) developed a method of analyzing the forensic comparison of patterned garments that is statistically valid and peer accepted. It is called the Comparative Analysis of Forensic Video Specifications (CAVS) initiative.

Forensic examiners may use this tool to compare similar characteristics of garments. The tool analyzes pattern offsets by comparing garment pieces observed in the surveillance footage with those on the seized physical garment. This comparison estimates the probability of accidental match on patterned garments by measuring the relative alignment of the pattern on different garment pieces. A match is considered to exist if pattern offsets observed in the surveillance footage appear to be consistent with those on the seized physical garment and if that pattern offset difference is supported by a reasonable amount of certainty based on the quality of the observation and the surveillance system itself. This comparison technique provides an empirical foundation for this type of forensic analysis and is widely supported within the community for conveying the strength of forensic evidence.

### CAVS creates a scientific framework to validate forensic video comparison requests

The CAVS initiative creates a scientific framework that enables decision makers—such as forensic scientists and investigators associated with criminal investigations—to properly validate forensic video comparison requests. The initiative ultimately provides a reference on how to properly handle forensic video comparison cases. The technique used within this model statistically validates the use of garments as evidence in court and replaces other forensics methods that lack rigor.



Methodology to statistically analyze the forensic comparison of patterned garments.

### Successful tools that make a difference

S&T officially submitted a journal manuscript to the *Journal of Forensic Sciences* in September 2011.

**Note:** S&T transitioned CAVS to the U.S. Secret Service Forensic Services Division in FY 2011.

