Video analysis software becomes more usable for police

April 22 2013, by Steve Johnson

As police increasingly sort through video surveillance tapes in their hunt for criminals, as happened in the search for the Boston Marathon bombers, some are turning to face-recognition and data-analysis software to help make sense of the images.

The products promise to one day revolutionize crime fighting. Although experts say police won't fully embrace the software until it becomes more sophisticated, they also say that day is not far away.

"I believe more and more law enforcement agencies will adopt this technology," said Anil Jain, a Michigan State University computer scientist and engineering professor who is researching the subject. "I would say in five years we should have significant gains in automatic face recognition in video."

One company whose face-recognition system already is being used by police is 3VR of San Francisco. In Elk Grove, Calif., for example, officers can use it to analyze images fed to them in real time from video cameras around the city, said CEO Al Shipp. Besides letting them search the data for suspects, he said, it can issue alerts when the cameras spot people the police are hunting.

"It's kind of like having a policeman on every corner," he said. Although he noted the technology is still evolving, he believes it will catch on with law enforcement, especially in "places like Boston and New York that have had terrorist events. I think the high-density urban areas will

probably be the lead in the thing."

Hewlett-Packard's information-crunching Autonomy software also is being used by some police to analyze [video data](). In addition, Apple recently won a face-recognition patent, and Intel officials have said they are working on the technology.

So far, law-enforcement adoption of the concept remains spotty.

"It's definitely not something we use now," said San Jose Police Department spokesman Albert Morales.

Neither do San Francisco Police, according to their spokesman, Sgt. Dennis Toomer, although he added, "It would be nice. We'd love to have it."

But the FBI is expected to create a face-recognition system next year for members of the Western Identification Network, a consortium of police agencies in California and eight other Western states, according to the network's CEO, Ken Bischoff.

Noting that the system will involve a photo database of people who have been arrested, Bischoff cautioned that "facial recognition at this state in the game is much less accurate than fingerprint biometrics or DNA biometrics. It's a useful investigative tool, but it's not lights-out yet."

Computer expert Jain agreed, adding that "the quality of images acquired from these networked cameras need to be continually improved to allow for more accurate face recognition."

One big problem, he said, is that photos police get from street-level video systems or witnesses' smartphone cameras often only show part of a suspect's face, making it hard to match the image with photos from

passports, drivers licenses and other publicly available sources.

"Typically, we need to locate a couple of points of reference on the face to 'align' face images for comparison," he said. "Normally, the two eye locations are used for this comparison." But, he added, "if the eyes are not visible in the video frame of the suspect, then the matching problem becomes difficult."

Because of that, Jain said he is studying ways to use multiple partial images of a suspect to create a three-dimensional portrait, which may provide clearer clues to their identity. Shipp said 3VR is also working with 3-D.

Cindy Cohn, legal director of the Electronic Frontier Foundation, a San Francisco-based public interest group, agreed that the technology "will get better over time," which should ease her group's concern that such systems might misidentify innocent people as suspects.

But even if the technology is improved, she said, another worry is that police might build massive visual databases that could impinge on people's privacy. While the police should be applauded for using video images to track down dangerous criminals, she said, "this should not be an open door to let law enforcement into your personal life."

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