

Eye in the sky

Researchers are building a surveillance system that will zero in on atypical patterns of behavior. Whatever you do, don't call it Big Brother.

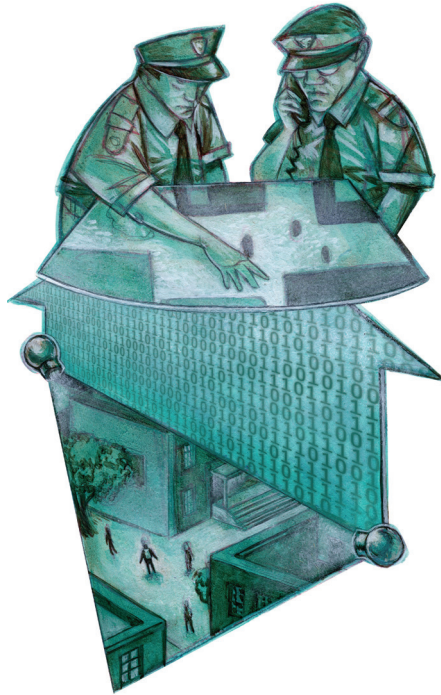
Police investigators need to identify behaviors that tip them off to possible criminal activity. Rescue teams need to quickly scan areas to identify people who appear to be lost, such as children or Alzheimer's patients.

Ohio State engineers are close to giving them the computerized surveillance system they need.

The system uses video cameras, large video screens, and geo-referencing software that expands the narrow field of view provided by traditional surveillance cameras such as those in retail stores.

James W. Davis, an associate professor of computer science and engineering, and doctoral student Karthik Sankaranarayanan have completed the first phases of the project. So far, operators can display a 360-degree video panorama of a scene, map it onto a high-resolution aerial image, calculate the exact location, and mouse-click to a live shot. They also can follow a selected target down a street.

The goal is not to gather specific information about individuals, Davis said. "We care what you do, not who you are. We aim to analyze and model the behavior patterns of people and vehicles moving through the scene, rather than attempting to determine the identity of people.



"We are trying to automatically learn what typical activity patterns exist in the monitored area, and then have the system look for atypical patterns that may signal a person of interest—perhaps someone engaging in nefarious behavior or a person in need of help."

The next step is figuring out what normal versus suspicious behavior looks

like. The system won't rely on traditional profiling, Davis said. A person's race, sex, or general appearance won't matter—only where the person goes and what he or she does. People who stop in an unusual spot or leave behind an object such as a package might be considered suspicious by law enforcement officers.

Davis believes the technology could be used to find lost people. He said he can easily pick out lost students himself—especially early in fall quarter—as he views video footage from the experimental system that surrounds his building on campus. While most students hurry directly to class, freshmen and others who aren't sure where they're going tend to stop, look around, and circle back and forth.

The researchers hope to test the technology in Ohio cities this year. They will monitor the paths of many people who walk through a particular area over a long period of time and analyze the patterns.

Davis said: "We envision our research being applied to common urban surveillance tasks. To date, we have been focusing on the monitoring and analysis of pedestrian movement and activity.

"Other related applications we are considering include persistent tracking of vehicles through complex downtown environments and analyzing the traffic flows to look for atypical patterns." ■

Illustrations by MARIANO SANTILLAN

Prior job experience not always a plus

Employers have long believed that experienced workers bring valuable knowledge and skills to new jobs. That's still true, but a study of telephone call center employees found that in some cases, experience may hinder performance on a new job.

That's because some employees may retain bad habits or cling to the way things were done at their former job, said Steffanie Wilk, associate professor of management and human resources in the Fisher College of Business.

Wilk and her team studied data from nearly 800 employees and job applicants at two call centers for a major U.S. insurance firm. They examined performance evaluations and separate ratings of work-related skills and knowledge. They then compared that information with the employees' work histories and experience at the current firm.

As expected, experience gained at other firms did lead to higher levels of skill and knowledge, which resulted in better reviews. However, the positive effects were balanced somewhat by negative factors.

