Computers might spot people up to no good

'Smart' cameras would find unusual patterns

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Jim Davis, an Ohio State University professor, is trying to build a camera-based security system that would automatically track suspicious behavior. It would simplify the university's Security Control Center, shown here.

In a few years, a security guard might sit in front of a single computer screen instead of a bank of video monitors to keep an eye on Ohio State University.

The idea is that "smart" cameras placed along walkways, parking lots, dorms and academic buildings will capture panoramic views of the pedestrians and cars that crisscross campus and detect suspicious activity.

How will it work? Let's say that late one night, two men are walking through the rows of cars parked outside St. John Arena lot, trying door handles. A camera there detects their suspicious movements and the guard is alerted.

A quick click of a mouse tracks the suspects, and if they split up, the system alerts other cameras to follow them.

Jim Davis, a computer-science and engineering professor at Ohio State, is working with a team of graduate and undergraduate researchers to build this smart-camera network.

"We don't care what you look like, we're interested in where did you go and when," Davis said.

He said a number of security organizations and government agencies are interested in his work.

Smart cameras already recognize faulty car parts as they come off the assembly line and count species of penguins by their feather patterns.

Government agencies are looking for systems to protect people and property.

J.K. "Jake" Aggarwal, a professor of electrical and computer engineering, is working on such a system at the University of Texas.

"To do this automatically with cameras and computers is not a trivial problem," he said.

Some of the men involved in the 2005 London subway bombing that killed 52 commuters were identified after the attack using surveillance video, Aggarwal said.

"To do this in real time, to prevent such an event, is the ultimate goal."

Davis' team has built computer programs that enhance six cameras around Dreese Laboratories on Neil Avenue. One program expands a camera's narrow focus into a panorama.

These panoramic views are mapped onto aerial photographs of the campus to provide context. A program automatically switches to whichever camera provides the best view as people travel through the area.

The researchers are now recording "normal" travel. These patterns will be used to write software that will enable cameras to detect abnormal movement and send an alert.

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