# Research leads to improved human, object detection technology

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Computer software detects humans in a video. This technology creates new possibilities for safety and surveillance. Credit: Photo courtesy of Dr. Han.

When searching for basketball videos online, a long list of websites appears, which may contain a picture or a word describing a basketball. But what if the computer could search inside videos for a basketball? Researchers at the University of Missouri are developing software that would enable computers to search inside videos, detect humans and specific objects, and perform other video analysis tasks.

"The goal of our research is to improve how computers interpret the content of a video and how to identify it," said Tony Han, electrical and computer engineering professor in MU's College of Engineering. "There are lots of possibilities with video-based detection, and it could come at quite a low-cost compared to object and human detection using other sensors, such as thermal sensors."

Intelligent video surveillance requires human and object detection. If a security camera captures an image of an injured person lying on the ground, the computer would not only store the surveillance image, but also be able to detect that a human is falling and send signals for help. Human detection software could also be applied to assisted driving. For example, the software could make a car stop immediately when it detects a pedestrian.

Computer detection also might improve care for older adults living at home. If an older adult fell suddenly, computer detection software could detect the fall and alert medical professionals.

"My students and I are working on algorithms for automatic object detection, but these are very difficult to perfect," Han said. "We're trying to find a way to create reliable detection algorithms, but it takes a lot of time to test them. We have manually labeled more than 3,000 images with object locations and have used them to test our algorithms."

Source: University of Missouri-Columbia ([news](#) : [web](#))