Computer scientist looks for deeper meaning in webcam videos

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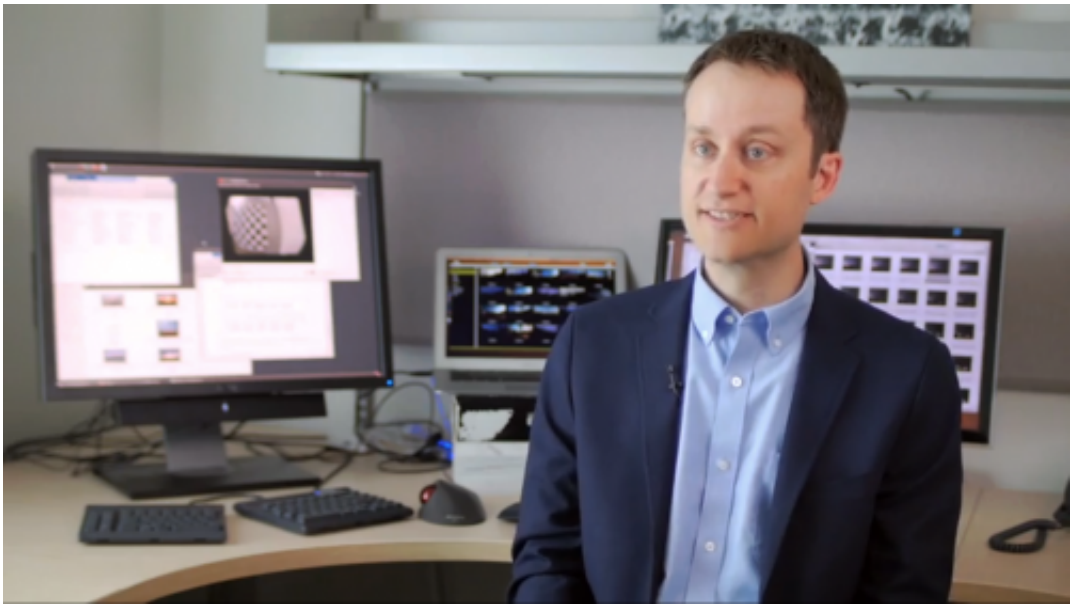

Nathan Jacobs is looking for ways to understand images in new ways.

An assistant professor in the Department of Computer Science at the University of Kentucky, Jacobs' research is focused on ways to use computers to interpret and understand images of outdoor scenes.

Using large sets of images collected from webcams or images uploaded to social networking sites, Jacobs can extract patterns and build

algorithms that use those patterns to make inferences and create predictions about the world around us.

"They can be patterns that we use to understand the patterns themselves, or patterns that we use to understand things about the camera or the location that we're in," Jacobs said. "We're really interested in taking video of outdoor scenes and trying to understand how people are moving through them, and how the way people move through an outdoor scene changes, based on various other conditions."

As an example, the presence of clouds moving through a scene can potentially be used to make inferences about the three-dimensional geometry of the scene, about which direction the camera is facing, or about the types of clouds moving through the scene. A similar type of pattern recognition can be used to detect and predict human movement, such as traffic on city streets or even pedestrians on campus. This data can be used to characterize normal movement patterns, which can be helpful in a variety of problem-solving applications.

Jacobs' work is featured in the above video, produced by the UK Center for Visualization & Virtual Environments (Vis Center) as part of its "What's Next" series. It may also be viewed at "Reveal," the official website for UK Research Media, at reveal.uky.edu.

Provided by University of Kentucky