

# No Pictures Please

*Researchers develop system to thwart video and still photography.*

BY RICK ROBINSON

Researchers at the Georgia Institute of Technology have completed a prototype device that can block digital-camera function in a given area. Commercial versions of the technology could be used to stymie unwanted use of video or still cameras.

The prototype device, produced by a team in the Interactive and Intelligent Computing division of the Georgia Tech College of Computing, uses off-the-shelf equipment — camera-mounted sensors, lighting equipment, a projector and a computer — to scan for, find and neutralize digital cameras. The system works by looking for the reflectivity and shape of the image-producing sensors used in digital cameras.

Gregory Abowd, an associate professor leading the project, says the new camera-neutralizing technology shows commercial promise in two principal fields — protecting limited areas against clandestine photography or stopping video copying in larger areas such as theaters.

“The prototype we have developed could lead to products for markets that have a small, critical area to protect,” Abowd says. “Then we’re also looking to do additional research that could increase the protected area for one of our more interesting clients, the motion picture industry.”

The small-area product could prevent espionage photography in government buildings, industrial settings or trade shows, Abowd notes. It also could be used in business settings — for instance, to stop amateur photography where shopping-mall-Santa pictures are being taken.

Meanwhile, preventing movie copying could be a major application for camera-blocking technology, says James Clawson, a research technician on Abowd’s prototype team.

“Movie piracy is a \$3 billion-a-year problem,” Clawson adds. It’s a problem that is reportedly acute in Asia. “If someone videotapes a movie in a theater and then puts it up on the Web that night or burns half a million copies to sell on the street, then the movie industry has lost a lot of in-theater revenue.”

Moreover, movie theaters are likely to be a good setting for camera-blocking technology, says Jay Summet, a research assistant who is also working on the prototype. A camera’s image sensor — called a CCD — is “retroreflective,” which means it sends light back directly to its origin rather than scattering it. Retroreflections probably would make it relatively easy to detect and identify video cameras in a darkened theater.

The current prototype uses visible light and two cameras to find CCDs, but a future commercial system might use invisible infrared lasers and photo-detecting transistors to scan for contraband cameras. Once such a system found a suspicious spot, it would feed information on the reflection’s properties to a computer for a determination.

Once a scanning laser and photodetector located a video camera, the system would flash a thin beam of

visible white light directly at the CCD. This beam — possibly a laser in a commercial version — would overwhelm the target camera with light, rendering recorded video unusable. Energy levels used to neutralize cameras would be low enough to preclude any health risks, researchers note.

Still-camera neutralization in small areas also shows near-term commercial promise, Abowd says. Despite ambient light levels far higher than in a theater, still cameras at a trade show or a mall should be fairly easy to detect, he adds. That’s because image sensors in most cell phones and digital cameras are placed close to the lens, making them easier to spot than the deeper-set sensors of video cameras.

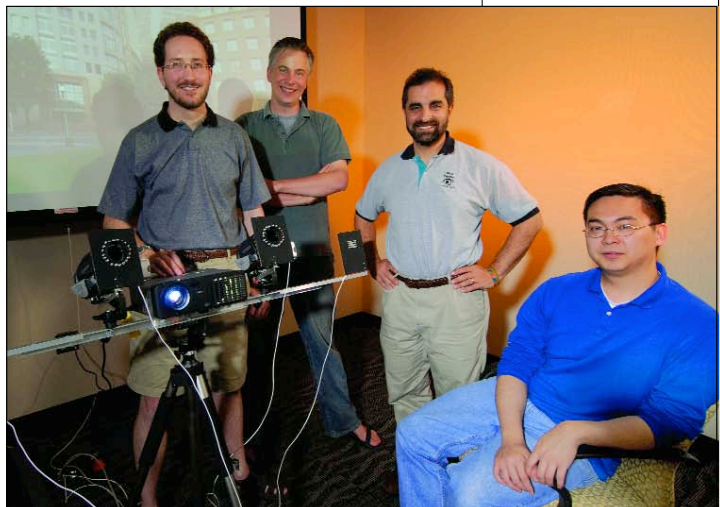
The potential of camera neutralization has helped bring it under the wing of VentureLab, a Georgia Tech group that assists fledgling companies through the critical feasibility and first-funding phases.

@ Read more at: [gtresearchnews.gatech.edu/reshor/rh-ss06/camera.html](http://gtresearchnews.gatech.edu/reshor/rh-ss06/camera.html)

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**BELOW:** Researchers in the College of Computing have developed a prototype device that can block digital-camera function in a given area. Pictured, left to right, are Jay Summet, James Clawson, Gregory Abowd and Khai Truong.



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