

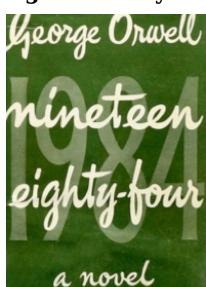


# Will Computers Be Watching Our Every Move?

Big Brother may potentially be armed with yet another tool against the American populace, according to the New York Times: computers that can see and report on the behaviors of individuals. The computers may be used in prisons to analyze inmates' behavior and can alert corrections officers to potential incidents based on what the computer observes.

The New York Times writes:

The computers cannot do anything more than officers who constantly watch surveillance monitors under ideal conditions. But in practice, officers are often distracted. When shifts change, an observation that is worth passing along may be forgotten. But machines do not blink or forget. They are tireless assistants.



In addition to security, the computers can serve a variety of purposes — for instance, in hospitals, they can warn patients if they are at risk of falling out of their beds.

The Bassett Medical Center in Cooperstown, New York has already experimented with cameras to help monitor the movements of patients in the special care unit. The cameras track movements in bed as well as traffic in and out of the patients' rooms.

The system, designed by General Electric, alerts nurses and doctors and reminds them to wash their hands before engaging with a patient.

If the experiment goes well at Bassett Medical Center, increased applications are expected to be added to the system, including those which can detect severe pain on a patient's face and the onset of delirium or other forms of distress.

They can also reportedly determine one's heart rate and vital signs based on an individual's face.

The Massachusetts Insitute of Technology's Media Lab experimented with the cameras on Daniel J. McDuff, a graduate student. After McDuff stood in front of the camera for approximately 20 seconds, the camera reported that his heart beat 65 times per minute. The camera was also able to track the blood flow in his face.

M.I.T. graduate student Ming zher Poh explains how the camera was able to do it. "Your heart-rate signal is in your face. Other vital signs, including breathing rate, blood-oxygen level and blood pressure, should leave similar color and movement clues."

Marketers can even use these special cameras to gauge the reactions of customers who are shopping online.



### Written by **Raven Clabough** on January 4, 2011



For example, Maria Sonin, 33, voluntarily allowed herself to sit in front of a notebook computer to watch a movie trailer, aware that she was being recorded through Affectiva software, whose facial expression analysis gauges the reactions of shoppers and consumers. While she was watching the trailer, the software measured her reactions, which are not easily detectable to the human eye.

The effectiveness of these computers can potentially land them in schoolyards, subway stations, offices, malls, stadiums, etc.

Google has been a leading proponent of such technology. Its Street View service allows Internet users to zoom in on locations, a technological development that prompted a number of privacy complaints. Google also introduced an application called Goggles, which permits people to take pictures with a smartphone and search the Internet for matching images, though a facial-recognition feature was not included, after careful consideration by Google executives.

While Google's applications have been intended for fun, the smart cameras could potentially be used by authorities to spot terrorists or locate individuals. The *Times* explains:

The future of law enforcement, national security and military operations will most likely rely on observant machines. A few months ago, the Defense Advanced Research Projects Agency, the Pentagon's research arm, awarded the first round of grants in a five-year research program called the Mind's Eye. Its goal is to develop machines that can recognize, analyze, and communicate what they see. Mounted on small robots or drones, these smart machines could replace human scouts.

A number of recreational applications already utilize facial recognition, including Picasa by Google and iPhoto by Apple. Similarly, Microsoft's Xbox 360 Kinect uses a digital camera to recognize people and gestures and responds to voice commands.

Because the technology serves as a computerized "supervisor," some experts have voiced concerns over potential privacy issues. It's reminiscent of George Orwell's <u>1984</u>, wherein Big Brother was virtually omnipresent on two-way televisions ("viewscreens") in all public and private settings.

Hany Farid, a computer scientist at Dartmouth, states, "With every technology, there is a dark side. Sometimes you can predict it, but often you can't."

For example, if a person is aware that he or she is being watched, how would that affect his or her behavior? While it could daunt criminal activity, could the technology also discourage creativity or spontaneity?

As is always the case, the road to hell is paved with good intentions. Where may this road lead?





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