What's in Your Face

Are 'microexpressions' the key to better security?

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NEWSWEEK INTERNATIONAL

June 9, 2003 issue — When James J. Newberry started doing police work in California 30 years ago, questioning suspects often amounted to one thing: tossing the guy against the wall. "I decided there had to be a kinder, gentler way," he says.

NEWBERRY BEGAN STUDYING the faces of the people he was interrogating. He got so good at picking liars from truth tellers that psychologist Paul Ekman, of the University of California, San Francisco, began studying Newberry in the late '80s. His talent, it turned out, was for detecting those faint or fleeting expressions in a suspect's face that seemed inconsistent with what he was saying or other clues. Ekman called them "microexpressions."

Since then, Ekman has been teaching law-enforcement officers how to catch microexpressions and has written a book about them—"Emotions Revealed." He even trained Newberry to get perfect scores recognizing liars on videotape. Now the U.S. Defense Department and the CIA are funding work to incorporate Ekman's research into software that would analyze facial movements captured by digital cameras. Terry Sejnowski, a neurobiologist at the Salk Institute in La Jolla, California, wants to develop an airport-security system that in a few years could notify airport workers of peculiarities around your lips (suppressed anger, perhaps?) while you're answering questions.

Ordinary observation just isn't up to the task of catching liars. Judges, therapists and spies do no better than chance when asked to identify liars on videotape. In the 1970s Ekman developed a numbering technique—the Facial Action Coding System—for the movements of facial muscles. Narrowing your lips is 23; tightening a lip corner is 14. While recording these details, he observed expressions that flash across the face in as little as a 20th of a second.

Ekman guessed that certain gifted people who were good at catching lies noticed microexpressions without realizing it. So he sought out stars in law enforcement, including Newberry, tested their performance and honed their instincts with training. Seeing lies isn't easy. There's no single telltale expression—the key is seeing inconsistencies and making measured judgments about them. Texas Ranger David Maxwell, one of Ekman's star instructors, has seen murderers show microexpressions of happiness while professing grief. Or the wife of a murdered man might flash a microexpression of happiness while inwardly recalling her honeymoon. The expression is only a clue to ask more questions, Maxwell says.

Is it prudent to relegate such subtle judgments to software? Intelligence officials

seem to think so. Software developed at Carnegie Mellon now recognizes 20 facial movements with an accuracy of 80 percent or better. Face-reading software "could help our federal law-enforcement agencies do our job," says an intelligence official. Jeff Cohn at Carnegie Mellon sees the role of software as merely feeding data to an interviewer. Sejnowski envisions an airport kiosk like the ones that now print out boarding passes. You'd press a button for your native language, and the machine would ask you a series of questions. If you showed any unusual or unexpected expression it would come to the attention of a security official.

But judging when an expression is inconsistent with other behavior is tricky. Airline passengers with a tendency to suppress anger or anxiety may suffer more than their fair share of patdowns. And there's also the problem of creating false assurance. "People think, point this doohickey at it and I'm covered," argues University of Toledo law professor David Harris. "And that can draw you away from what works." Ekman is more interested in training people, citing Israel's example of relying on highly trained personnel to spot suspicious passengers.

If microexpression software doesn't make it as a security technology, it's got promise in medicine—doctors are testing it to monitor patients for signs of pain and to evaluate facial nerve damage. And get ready for market researchers interested in recording your twitches in response to television commercials. They might finally discover what you really think, even if it isn't polite.