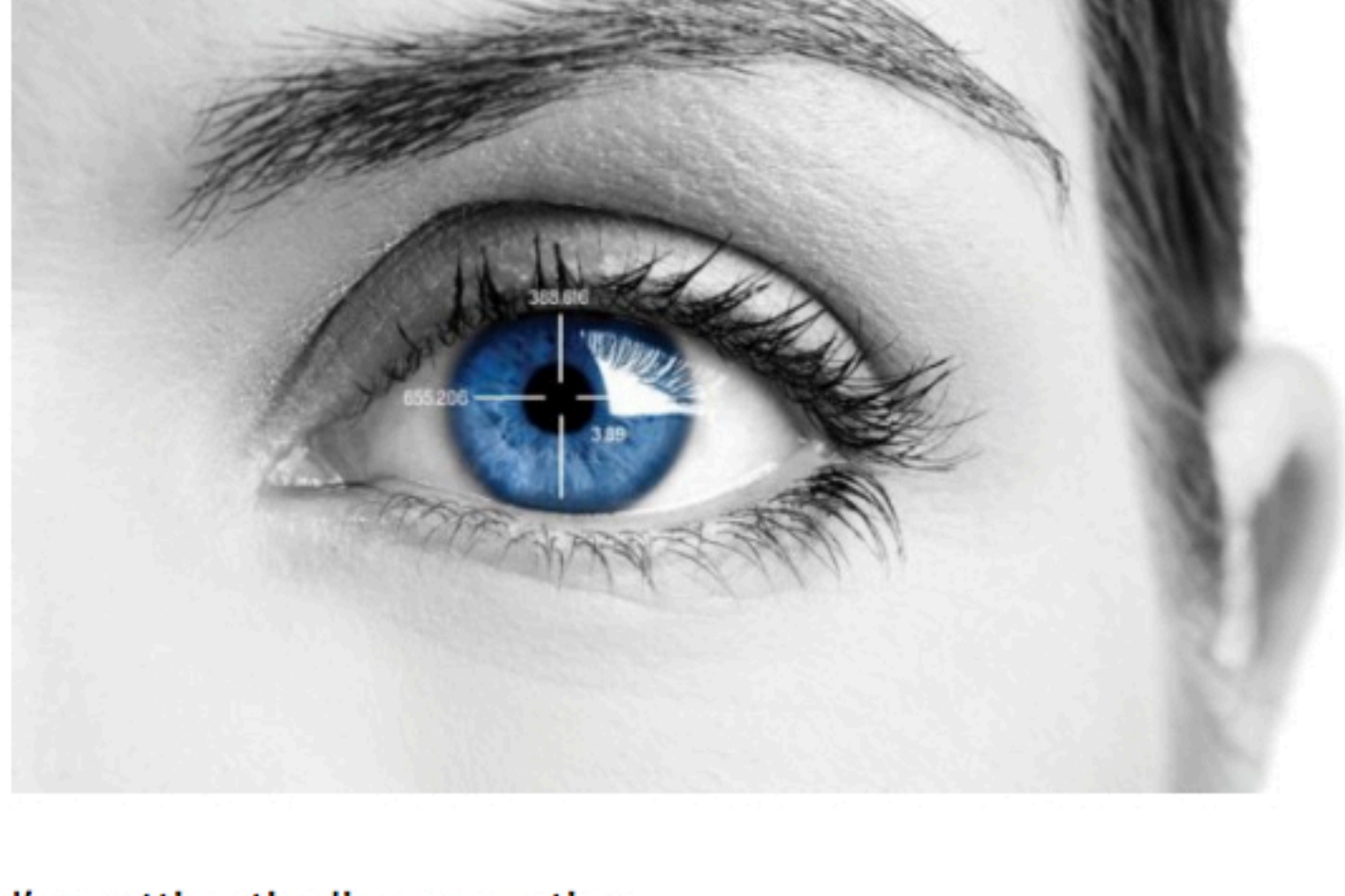OPINION

Will augmented reality make lying obsolete?

Honestly, the biggest culture-changing application for augmented reality will be always-on lie detection.

By Mike Elgan
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Converus

I'm putting the liars on notice.

The most underappreciated application for the combination of augmented reality (A.R.) and artificial intelligence (A.I.) is persistent lie detection.

Smartphones and smart glasses will soon support apps that show you in real time whether the person you're talking to is telling the truth or lying.

Imagine how that will affect business meetings, sales presentations, job interviews and department status updates.

(Not to mention political speech. Some 35 years ago, late-night talk show host Johnny Carson imagined what it would be like if politicians were hooked up to lie detectors.)

Soon, you won't have to imagine it. There will be an app for that.

Old-fashioned lie detectors, called polygraphs, track blood pressure, breathing and other physiological metrics to gauge stress levels during questioning. The administrator of a polygraph asks questions to determine a baseline response, then watches for signs of stress with additional questioning.

Polygraphs are unreliable and controversial. They have to be administered by an expert using expensive equipment in a controlled environment. Even then, the results are not admissible as evidence in court in the U.S. and the U.K.

But the future of lie detection is A.I.

A.I. can take various "signals," such as eye movements, facial gestures, body movements, voice intonations and others, to estimate the truthfulness of a person's statements.

In fact, lie detection is just one of the many uses for emotion or mood detection generally. When A.I. can tell when a person is happy or sad or mad or stressed, it can generally detect changes during conversation and figure out that some of those changes are caused by lie-induced mental activity or stress.

Because lie-detection A.I. is currently being developed by numerous companies, universities and governments, it's inevitable that the capability will become available broadly and inexpensively to businesses and consumers over the next two years.

In fact, lie-detection A.I. is already on the market.

A U.K. company called Human created technology that detects the emotional state of people in smartphone and security videos.

The company claims that its technology can benefit business in a variety of ways, from hiring to fraud detection to customer satisfaction analysis. It also says Human technology can profile potential customers based on their personality, as analyzed by A.I.

A Utah-based company called Converus makes a product called EyeDetect, which monitors pupil dilation in the human eye to detect truths and lies. (Pupils often dilate when a person is lying because lying uses more mental energy than telling the truth.)

EyeDetect is already in use for hiring and bank fraud, as well as by police departments as an alternative to the polygraph.

Governments are working on lie-detection A.I. as well.

Remember when the airlines used to ask if you had packed your own bags and if anyone had asked you to pack anything for them? Even now, customs agents worldwide ask you about the purpose of your travel and what you're carrying with you.

These questions are useless security theater because people can lie.

But what if people couldn't lie? What if everyone who worked at the airport could ask you any question and know instantly if your answer was true or not?

Researchers at the National Center for Border Security and Immigration at the University of Arizona and the U.S. Department of Homeland Security are testing something called the Automated Virtual Agent for Truth Assessments in Real Time (AVATAR). It's like an ATM where a virtual agent asks security questions, then alerts human agents when the kiosk detects lying.

The system detects lying by looking for changes in the traveler's posture, eyes, voice or other behavior that could indicate dishonesty.

These nascent efforts are different from what's coming soon.

First, today's lie-detection A.I. is less accurate than what will be possible down the road. EyeDetect, for example, is accurate 86% of the time. That's far better than a human — even better than a human expert, such as a police detective. Still, within a couple of years, lie-detection accuracy will rise above 90%, and then keep creeping toward the high 90s.

Second, these products aren't yet well-known and widely available. Most business buyers haven't purchased or even read about them. Soon, however, mainstream, cloud-based lie-detection A.I. applications will come out on the market, many targeted at business for use in hiring, fraud protection and other uses. A.I. lie detection will increasingly become a feature, rather than a product — something that's built in to business software and video products.

Third, today's lie detection comes mainly in the form of expensive products and requires training. The future of lie-detection products will be in apps for smartphones, desktops and — the Holy Grail of lie-detection ubiquity — smart glasses.

Today, lie detection happens in specific, limited scenarios, including job interviews, crime investigations and airport security. In each of these situations, subjects know they're being tested, and the detection lasts only for a brief, specific conversation.

In the future, smart glasses will go mainstream, and lie-detection apps will be widely available and usable without training or expertise. Your glasses will simply alert you when others are lying or telling the truth, perhaps with something as simple as colors — a red light means a lie.

A.I. will excel in so-called passive lie detection, where the subject isn't hooked up to any equipment. And because it's passive, it can be undetected. For example, lie detection connected to smart glasses — or to a videoconferencing system, for that matter — can take place without anyone but the user knowing about it.

Over time, it will become reasonable to assume that lie-detection A.I. is being applied during common business scenarios such as job interviews, conference calls and sales presentations.

Here comes Apple

A.R. smart glasses may be coming sooner than we think.

Bloomberg reported this month that Apple manufacturing partner Quanta Computer inked a deal with an Israeli company called Lumus Ltd. to make lenses for smart glasses.

Neither Apple nor the companies directly involved have announced whether the lenses resulting from this partnership will appear in expected Apple smart glasses. But the Economic Daily News has reported that Apple is working with Quanta to manufacture its smart glasses.

Apple is an important leading indicator for this category because its entry into a market tends to both signal and trigger mainstream acceptance in both consumer and enterprise markets. Apple smart glasses will probably be accompanied by a robust app store. If the Apple ARKit for iOS developers is any indication, A.R. applications will be fairly easy to build as well as powerful.

The current expectation in Silicon Valley is that Apple A.R. glasses will ship within three years and will trigger an explosion in app development. Some of these apps will be A.I. lie detectors.

The post-lie world

The purpose of this column is not to address the ethical or societal implications of widespread lie detection. The safe thing to say is that it might have both good and bad effects and that it might trigger disruptive changes in business communication.

What's certain is that pervasive, accurate and inexpensive lie detection is coming to a conversation or business meeting near you. It will be on the TV. It will be on the webcam. It will be in the office and boardroom. But most impactfully, it will be on your glasses — and the glasses of whoever you're talking to.

And that's the truth.

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Mike Elgan writes about technology and tech culture. Contact Mike and learn more about him at http://elgan.com/about.

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