

TORONTO GLOBE AND MAIL

“Who Said That? Computers Fake Moving Mouths”

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A breakthrough in video technology will give television producers and film directors the power to animate images of real people saying words they've never actually spoken, researchers say.

Computer animators have been trying for years to achieve the perfect illusion of human speech. It could bring Marilyn Monroe back for a music video, or allow Peter Mansbridge to read the evening news in Chinese.

But now that researchers from the Massachusetts Institute of Technology have written the necessary software, media watchers are worrying that one of the last barriers between hard truth and video fantasy has been broken. "The old truism is that the camera never lies," said Chris Dornan, director of Carleton University's school of journalism and communication. "But here is a piece of software that places that entirely in question. You can never, from here on in, be absolutely sure that the images you see on-screen are true to life."

Though it might be tempting to use such technology to edit a news reader's delivery or customize broadcasts in dozens of languages, news organizations should be cautious about playing with viewers' perceptions, said Stephen Ward, who teaches journalism ethics at the University of British Columbia.

"I see it as very dangerous," Mr. Ward said.

The MIT team's software records facial expressions while a person speaks into a camera, and learns to associate the images with sounds. Using that database, a false image of the person can be synthesized to a soundtrack of new words.

It's a remarkable illusion, made possible by cutting-edge morphing algorithms that smooth out the jumps between frames.

When test groups of 21 and 22 people watched pairs of video clips -- one produced by the software, one genuine -- they identified the real speaker only about 50 per cent of the time.

"We were surprised," said Tomaso Poggio, a neuroscientist at the MIT's McGovern Institute for Brain Research and a member of the research team. "They absolutely could not distinguish them."

"A trained eye would be more likely to notice the faked video," Mr. Poggio said, "but future improvements may erase all hints of forgery."

Observers have complained that such powerful illusions could cast doubt on news footage, crime-scene surveillance and advertising endorsements. Mr. Poggio rejects the criticisms.

"I think people don't trust images already," he said. "It has been quite a few years that you could modify or retouch still pictures."

The MIT paper frequently cites previous work by Chris Bregler, an assistant professor at Stanford University, and others who have tried to compile large numbers of images into entirely new video.

"In a couple more years, as soon as we have enough footage we can do whatever we want," Mr. Bregler said.

Obvious applications such as replacing live movie stars with cheaper replicas have already caught the public's imagination, Mr. Bregler said. But the research is also being funded by telecommunications companies that imagine using the software for new movie compression formats or low-bandwidth video phones that display prestored images of frequent callers.

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