

## When Audit Evidence (and Our Eyes) Lie to Us

By Eric E. Cohen, CPA



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On June 7, 2022, on the television series “America’s Got Talent,” some mind-bending technology was used to wow the audience. A world leading expert in the space with whom we consulted has said this demonstration has taken the technology to a next, important stage. While the ramifications to entertainment were made obvious, the potential to complicate controls and the audit process are also important to consider.

This article deals with an area of manipulated media known as “deepfakes.” Deepfakes are synthetic media where a person in an image or video is swapped with another’s likeness – it makes it look like a person is doing and saying things they never did. As the audit profession has been challenged with the traditional paper document for decades, and is still working to develop better guidance related to text-based computerized records, the threat of manipulated graphical and video media important as audit evidence is one where we need help to cope with it... and that help is being offered, if we can contribute to the cause. The call here is for the Profession to engage with the stakeholder community to help control the risks deepfakes and related technologies may bring.

### **Technology Advances (But Sometimes Takes Us with It)**

It is no secret that technology has advanced rapidly over the last 40 years, with major impact on accounting and operations. Arguably, we can look at the introduction of the IBM PC, in August 1981, of Lotus 1-2-3 in January 1983, and small business accounting software product Quickbooks later that year, along with the ripples of related products as milestones in the move from paper to electronic records.

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How well the profession has responded to this move is another question. Some may say it has purely reacted to the changes, at best being “fast followers,” rather than helping craft the future. Some of that may be laid on the shoulders of the regulators.

For example, the US PCAOB to this day speaks to the superiority of “original documents” over (their capture as) electronic records,<sup>1</sup> while noting that auditors are *not expected to be an expert in document authentication* but note that *if conditions indicate that a document may not be authentic ... the auditor should modify the planned audit procedures or perform additional audit procedures to respond to the conditions.*<sup>2</sup> The PCAOB also continues to use terminology that assumes audit documentation to be a *written record*,<sup>3</sup> where writing would exclude graphical (including video) and audit records.



The IAASB seems to have recognized that we have moved beyond paper documents and that *audit evidence in documentary form, whether paper, **electronic, or other media**, is more reliable than oral evidence*<sup>4</sup> but again uses similar terms about “original” documents compared with those later transformed into electronic format.

At the same time, the community is calling for those with responsibilities over the design and testing of internal controls, as well as of internal and external audit, to consider working with more types of audit

evidence, beyond trade transactions and internal activities marked with trade/business documents and other activities within the typical ERP system to other sources, including Big and Open Data sources. While much of this exogenous data remains written information, a number of audit procedures – especially in the post-pandemic era – are conducted remotely, and such audit procedures as inspection and observation, in particular, and even inquiry, may involve the use of remote video.

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### **CGI, Deepfakes and Other Tomfoolery**

With the call for more remote oversight and audit procedures, the ability of remote video to be altered becomes an important issue for the profession. While audio and image manipulation have a long history, the advances – as evidenced by “America’s Got Talent” – are growing.

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<sup>1</sup> *Audit Evidence*, AS 1105.08.

<sup>2</sup> *Audit Evidence*, AS 1105.09.

<sup>3</sup> *Audit Documentation*, AS 1215.02.

<sup>4</sup> *Audit Evidence*, ISA 500.A31.

Many people love the movies, and special effects can be a special treat. Special effects are not new and, 120 years ago, George Méliès's 1902 film, *Le Voyage Dans La Lune (A Trip to the Moon)*, extensively used techniques such as the substitution splice to wow audiences. In the 1970s, we began to see the use of computer-generated imagery (CGI) to create fantastic and impossible in films such as *Westworld*, *Star Wars*, and *Tron*.

Documents and graphics have long been altered using various techniques; alteration of photos has a long and sordid history. The more recent use of Adobe Photoshop to alter images is so well known that “to Photoshop” something is among the top 10 brand names that have passed into general use as a generic term for altering content (like *Xeroxing* something rather than making a photostatic copy, or *Googling* something instead of doing an Internet search).

English writer and photographer Virginia Woolf noted in her 1938 book, *The Three Guineas*, that “Photographs, of course, are not arguments addressed to the reason; they are simply statements of fact addressed to the eye.” Just the next year, for example, Canadian Prime Minister William Lyon Mackenzie was said to have altered a photograph of himself with Queen Elizabeth and King George VI, perhaps to elevate his own importance.<sup>5</sup> While audit evidence should be factual, any alteration may result in an alteration of the facts.

And the technology moved forward. As one example, in 2016, The Mill Design Studios created a “car” called the Blackbird. With the Blackbird, you could create a movie, television show or advertisement when you are ready to do so, and not when the car you wished to include was ready. You could shoot and repurpose the video without needing the car you wish to show, so you could film ahead of the target vehicle’s availability, or even change the car you wanted to show with photorealism.

### As the impact of deepfakes is felt in the business reporting environment, enterprises will need to put controls into place to deal with the risks.

That photorealism divides between the real-time effects that you might find on an application such as Snapchat, with its “lenses” that use augmented reality to transform the way things look and today’s deepfake tech. The Zoom chat that turned an attorney into an unintended social media star and “broke the Internet” back in February 2021 proved that not all effects are lifelike, however humorous: Lawyer Cat. In that chat, an attorney named Rod Ponton made an appearance before the 394<sup>th</sup> Judicial District Court of Texas, inadvertently using a filter that turned him into a cat onscreen. Hearing the attorney apologize and note that “I’m here live ... I’m not a cat.” Oddly enough, Ponton may have been a victim of the default settings of his webcam!<sup>6</sup>

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[https://www.researchgate.net/publication/339663072\\_ImageVideo\\_Forensics\\_Theoretical\\_Backgrounds\\_Methods\\_and\\_Best\\_Practices\\_-\\_Part\\_one\\_can\\_we\\_trust\\_Images\\_and\\_Videos/figures?lo=1](https://www.researchgate.net/publication/339663072_ImageVideo_Forensics_Theoretical_Backgrounds_Methods_and_Best_Practices_-_Part_one_can_we_trust_Images_and_Videos/figures?lo=1),  
<https://www.dailystar.co.uk/pics/pictures/gallery/original-photoshop-historys-most-famous-18760557>.

<sup>6</sup> <https://www.youtube.com/watch?v=iJMJKVoruA>.

More relevant, perhaps, is the true deepfake, if that makes sense. As noted previously, deepfakes are synthetic media where a person in an image or video is swapped with another's likeness. Certainly, imposters and impersonators have been used to try to fool or entertain people in the past, but the use of artificial intelligence is key to today's trend. Over the last three or four years, more examples of deepfake videos have emerged, most often to showcase the technological advance, but sometimes for more nefarious purposes, such as being part of a misinformation campaign meant to show Ukraine's Volodymyr Zelenskiy asking citizens to put down their arms.<sup>7</sup> YouTube's terms of service recognize and prohibit the posting of manipulated content meant to mislead users.<sup>8</sup> Deepfakes, however, make it seem like people are saying things they never said, with video to support the audio and make it seem that much more authentic.

### **Next Step in Deepfake Technology**

That brings us back to the beginning of this article and *America's Got Talent*. On June 6, a singer named Daniel Emmet walked on stage, supported by representatives of a company called Metaphysic, which uses AI to create hyperreal content. A large camera was rolled on the stage. When Emmet started to sing, it was not Emmet's image that appeared on the big screen; it was that of AGT judge Simon Cowell.<sup>9</sup> The judges gasped and the audience were instantly amazed. Judge Sofia Vergara noted that she would have thought it was Simon ... if he wasn't sitting right beside her.

I sought feedback from a colleague who leads various ISO digital media efforts, holds more than a dozen patents in the space, and leads a business that commercializes scientific breakthroughs in AI-powered computational vision. Dr. Touradj Ebrahimi is a professor at the Swiss Federal Institute of Technology Lausanne (EPFL – École polytechnique fédérale de Lausanne) and my primary mentor in static and moving images. His reaction was that this was indeed something special; although similar performance may have been demonstrated before, it was not in real time and in the difficult environment of a live television show.

**Remote interactions, continuous monitoring and the future of the audit rely on automated (and selective manual) assessment of more types of media.**

### **React ... or Act**

There may be many other rapid advances in deepfake technology, and these can have a major impact on a profession already seeking to respond to, and itself exploit, technological advancements. Some technology advocates believe that artificial intelligence and blockchain will make the profession obsolete, ironically by both doing the work of the profession and by making the work of the profession much more difficult. Recognizing that this technology is coming and may bring new risks is important, and one piece of good news is that there are experts ready to help.

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<sup>7</sup> <https://www.youtube.com/watch?v=X17yrEV5sl4>.

<sup>8</sup> <https://support.google.com/youtube/answer/10834785?hl=en>.

<sup>9</sup> <https://www.youtube.com/watch?v=mPU0WNUzsBo>.

The Joint Photographic Experts Group (JPEG) Committee<sup>10</sup> has begun serious consideration of what they call “JPEG Fake Media.”<sup>11</sup> They note that there are risks that counter the creative uses in entertainment and art. These include “copyright infringements, social unrest, spread of rumours for political gain or encouraging hate crimes.” To that, we can add the creation of misleading audit information and new ways of circumventing controls that rely on video and audio proof.

To work to remediate the risk, the group is “exploring if a JPEG standard can facilitate a secure and reliable annotation of media modifications, both in good faith and malicious usage scenarios.” And to solicit more information, they have issued a call for input related to that work.

For the profession to get ahead of the challenge requires action now. Acting is difficult, requiring investment, consideration and expertise; reacting may be more difficult and expensive in the long run, but is an approach that delays investment.

### **Controls, Prevention, or Both?**

As the impact of deepfakes is felt in the business reporting environment, enterprises will need to put controls into place to deal with the risks. In a future article, we may have more opportunity to deal with the issue; the current post-pandemic environment may be a transition back to more in-person activities and less reliance on remote observation and other off-site interactions. The advantages of remote activities may, however, lead to more opportunities to leverage deepfake technology for fraud or other malevolent activities.

However, they (“they” perhaps being American statesman and all-around polymath Benjamin Franklin) say “an ounce of prevention is worth a pound of cure” (28 grams of prevention is worth .45 kg of cure?). As such, developing a series of principles of “No deception by design,” in the manner of *Privacy by Design*,<sup>12</sup> may be an important foundation for development. A deepfake company seeking to provide “responsible deepfake creation services” calls it “Imperfection by design.”<sup>13</sup>

Copying with impunity from the principles of “Privacy by design,” a straw person draft of principles for “No deception by design” might include:

1. Proactive not Reactive; Preventative not Remedial
2. Imperfection as the Default
3. Imperfection/Identification Embedded into Design
4. End-to-End Lifecycle Protection
5. Visibility and Transparency
6. Consideration of User's Planned Usage

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<sup>10</sup> JPEG.org.

<sup>11</sup> <https://jpeg.org/jpegfakemedia/index.html>.

<sup>12</sup> <https://www.ipc.on.ca/wp-content/uploads/resources/7foundationalprinciples.pdf>.

<sup>13</sup> <https://deepfakesweb.com/>.

Altering media such as documents, photos and videos for fun and profit is not new. The Profession’s reliance on media, however, on a more rapid basis, for more uses, has to grow. Remote interactions, continuous monitoring and the future of the audit rely on automated (and selective manual) assessment of more types of media. The advances in deepfake technology (or more positive AI-driven manipulations) are jumping forward, and the profession should work with the business reporting supply chain and audit community to consider the potential risks and work to remediate them. One way is to actively engage with the JPEG committee in its deliberations.

