# Deepfake technology advances offer creative and societal benefits amid ethical challenges



Deepfake technology, once a niche area within computer-generated imagery (CGI), has evolved significantly since its early experimental stages in the 1990s. Recent advances have been largely propelled by the development of Generative Adversarial Networks (GANs) in the mid-2010s, a breakthrough attributed to Ian Goodfellow, a researcher associated with top tech firms including Google, OpenAI, Apple, and DeepMind. This advancement has enabled the creation of highly sophisticated image, video, and audio manipulations commonly referred to as deepfakes.

In recent years, deepfakes have made substantial inroads into the entertainment industry, with Visual Effects (VFX) studios employing the technology in various films and television projects. An example includes the Tom Hanks film *Here*, which incorporated deepfake techniques to enhance its visual storytelling. Beyond entertainment, creative applications of deepfake technology extend into healthcare, education, and security, offering unique opportunities to enhance accessibility and engagement.

Noteworthy positive uses of deepfakes include campaigns such as David Beckham’s Malaria Must Die initiative, which utilised AI-generated multilingual messaging to increase global reach. Furthermore, synthetic content creation has shown promise in sign language interpretation, potentially empowering deaf and hard of hearing communities to access experiences previously limited to audio formats. At the University of Bath, researchers Dr Christof Lutteroth and Dr Christopher Clarke explored how personalised deepfake training videos could facilitate more effective and engaging learning experiences, demonstrating that content featuring deepfake likenesses of learners themselves resulted in improved outcomes compared to unfamiliar narrators.

Despite such advances, ethical and legal concerns surrounding deepfake technology persist, particularly when it is used without consent or to propagate misinformation. In the UK, legislative responses include a recent amendment to the Criminal Justice Bill introduced in April 2024, which reformed the Online Safety Act to criminalise the sharing of non-consensual intimate deepfake images. Regulatory body OFCOM continues to assess the impact and management of deepfake media within the broadcasting sector.

The prevalence of deepfakes in public consciousness is high. A study conducted by OFCOM in July 2024 found over 43% of respondents aged 16 and older reported having seen at least one deepfake within the previous six months. However, only 9% of those surveyed felt confident in their ability to identify faked content, underscoring the challenges in recognising such media.

Common indicators to detect deepfakes include lighting inconsistencies, facial anomalies such as unnatural expressions or blurred features, odd distortions during movement, audio that does not synchronise with lip motions, and irregular reflections in surfaces like glasses or windows. Resources such as the MIT Media Lab’s Detect Fakes training and various free detection tools are available to assist in distinguishing genuine from manipulated content.

Recent collaborative efforts have demonstrated the creative potential of deepfakes when used responsibly. VFX studio Lux Aeterna partnered with Multi Story Films and ITV to produce the documentary *Georgia Harrison: Porn, Power, Profit*. The film follows reality star and campaigner Georgia Harrison as she investigates image-based sexual abuse through deepfake technology. To produce realistic deepfake footage for the documentary, Lux Aeterna’s Creative Technologist James Pollock directed a shoot involving both Harrison and model Maddison Fox. Using the Faceswap software, Georgia’s face was seamlessly overlaid onto Maddison’s body, with consistent lighting and camera settings maintained across shoots to enhance authenticity.

James Pollock explained the process: “To capture a full range of facial expressions, we used phonetic pangrams – sentences containing every sound in the English language – while Georgia moved her head at different angles. This provided the deepfake model with the necessary visual data for accurate synthesis.” Following days of computational training, the final footage was composited with detailed colour correction and cleanup to ensure natural alignment between facial movements and body language.

The widespread availability of public imagery, particularly of celebrities, combined with accessible deepfake creation tools such as Faceswap, DeepFaceLab, and DeepStar, has contributed to the technology’s rapid dissemination. While democratising such tools fosters innovation and creative expression, it also raises concerns over potential misuse, emphasising the need for ongoing developments in legal frameworks and technological safeguards at an international level.

The Creative Bloq is reporting that deepfakes, when developed and applied with due ethical consideration—including obtaining clear consent and maintaining transparency—offer substantial benefits across multiple sectors. At the same time, efforts continue to address the challenges of misuse and ensure that this advanced form of digital manipulation is harnessed responsibly.

Source: [Noah Wire Services](https://www.noahwire.com)

## References

* <https://www.proofpoint.com/us/threat-reference/deepfake> - Confirms the origin of deepfake technology with CGI experiments in the 1990s and the pivotal development of Generative Adversarial Networks (GANs) by Ian Goodfellow in 2014, which enabled advanced deepfake creation.
* <https://en.wikipedia.org/wiki/Deepfake> - Details how deepfake technology has evolved from academic research since the 1990s to broad use in entertainment and other sectors, supporting the claim about its use in films and wider applications.
* <https://www.ajg.com/news-and-insights/deep-fake-technology-the-frightening-evolution-of-social-engineering/> - Discusses the spread of deepfake use in entertainment and other sectors, highlighting ethical concerns and the rise in technological quality, aligning with mentions of positive uses and legal challenges.
* <https://www.ofcom.org.uk/about-ofcom/latest/media/media-releases/2024/deepfakes-familiar-but-hard-to-spot> - Supports the statistics from the OFCOM July 2024 study regarding public familiarity with deepfakes and low confidence in detecting them, highlighting public perception and awareness.
* <https://mitmedialab.github.io/detectfakes/> - Confirms the availability of resources such as the MIT Media Lab’s Detect Fakes training and various free tools designed to help users identify deepfake media through common detection indicators.