Deepfakes with AI

Description

Deepfakes (a portmanteau of “deep learning” and “fake”) are media that take a person in an existing image or video and replace them with someone else’s likeness using artificial neural networks.[2] They often combine and superimpose existing media onto source media using machine learning techniques known as autoencoders and generative adversarial networks (GANs). Deepfakes have garnered widespread attention for their uses in celebrity pornographic videos, revenge porn, fake news, hoaxes, and financial fraud. This has elicited responses from both industry and government to detect and limit their use.

Academic research

Academic research related to deepfakes lies predominantly within the field of computer vision, a subfield of computer science.[11] An early landmark project was the Video Rewrite program, published in 1997, which modified existing video footage of a person speaking to depict that person mouthing the words contained in a different audio track.[14] It was the first system to fully automate this kind of facial reanimation, and it did so using machine learning techniques to make connections between the sounds produced by a video’s subject and the shape of the subject’s face.[14]

Contemporary academic projects have focused on creating more realistic videos and on improving techniques.[15][16] The “Synthesizing Obama” program, published in 2017, modifies video footage of former president Barack Obama to depict him mouthing the words contained in a separate audio track.[15] The project lists as a main research contribution its photorealistic technique for synthesizing mouth shapes from audio.[15] The Face2Face program, published in 2016, modifies video footage of a person’s face to depict them mimicking the facial expressions of another person in real time.[16] The project lists as a main research contribution the first method for re-enacting facial expressions in real time using a camera that does not capture depth, making it possible for the technique to be performed using common consumer cameras.[16]

In August 2018, researchers at the University of California, Berkeley published a paper introducing a fake dancing app that can create the impression of masterful dancing ability using AI.[17][18] This project expands the application of deepfakes to the entire body; previous works focused on the head or parts of the face.[17]

Politics

Deepfakes have been used to misrepresent well-known politicians in videos. In separate videos, the face of the Argentine President Mauricio Macri has been replaced by the face of Adolf Hitler, and Angela Merkel’s face has been replaced with Donald Trump’s.[41][42] In April 2018, Jordan Peele collaborated with Buzzfeed to create a deepfake of Barack Obama with Peele’s voice; it served as a public service announcement to increase awareness of deepfakes. [43] In January 2019, Fox television affiliate KCPQ aired a deepfake of Trump during his Oval Office address, mocking his appearance and skin color.[44]

"Truth has to be repeated constantly, because Error also is being preached all the time, and not just by a few, but by the multitude. In the Press and Encyclopaedias, in Schools and Universities, everywhere Error holds sway, feeling happy and comfortable in the knowledge of having Majority on its side." ~Johann Wolfgang von Goethe

In May 2019, speaker of the United States House of Representatives Nancy Pelosi was the subject of two viral videos, one of which had the speed slowed down to 75 percent,[45] and another which edited together parts of her speech at a news conference for the Fox News segment Lou Dobbs Tonight. Both videos were intended to make Pelosi appear as though she was slurring her speech.[46] President Donald Trump shared the latter video on Twitter, captioning the video "'PELOSI STAMMERS THROUGH NEWS CONFERENCE'".[47] These videos were featured by many major news outlets, which brought deepfakes to the attention of the United States House Intelligence Committee.[48][49]

Source: en.wikipedia.org/wiki/Deepfake

Category

1. General

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