SAFER INTERNET FORUM 2018

The impact of technology on children, young people and society

Tuesday, 20 November 2018
Crowne Plaza Hotel, Brussels, Belgium
Deep dive session:
Deep fakes
Room: Exploration
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Assume nothing, question everything.

James Patterson
“CAMERA NEVER LIES – BUT PEOPLE LIE OFTEN”
Deepfake, a combination of "deep learning" and "fake", is an artificial intelligence-based human image synthesis technique. It is used to combine and superimpose existing images and videos onto source images or videos. A machine learning technique called a "generative adversarial network" (GAN) can be used to create fake videos.
Crow

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On November 2nd, 2017, Redditor deepfakes created the /r/deepfakes subreddit as a place to share his digitally-altered sexually explicit videos in which the subject's face was swapped with a celebrity or public figure. According to the Redditor, the technology uses open-source libraries Keras and TensorFlow to perform the face-swaps.

On January 8th, 2018, the deepfakeapp Reddit account announced the launch of FakeApp, an application described as "a desktop tool for creating deepfakes".
Training Phase

Person A

Real face A

Warped face A

Encoder

Decoder A

Segmentation mask

Reconstructed face A

Warped face A

Masked face A

Test Phase

Person B

Real face B

Encoder

Decoder A

Face B

Warped A

Real A

Result face B (face A look-alike)
a) Target frame (non-shirt part)  
b) Neck  
c) Shirt  
d) Mouth  
e) Final texture
Deep video portraits

https://youtu.be/cQ54GDm1eL0?t=69

https://www.youtube.com/watch?v=qc5P2bvfl44

https://www.youtube.com/watch?v=7Dg49wv2c_g
...production budget of $200 million ... the process of digitally recreating a young Leia Organa was like "a super high-tech and labor-intensive version of doing makeup."

In the picture above/below, image shown was the original big-budget CGI version created by Disney ... Not only does the deepfake version look more realistic, process takes around 20 minutes to complete! Cost?
Photoshop was developed in 1987
2016 VOCO – Adobe
https://soundcloud.com/user-535691776
Sven Charleer, a postdoctoral researcher at the Human-Computer Interaction group at KU Leuven, Belgium. His work focuses on User Experience and data visualization in domains such as eSports, Learning Analytics, and Unemployment. He is also a freelancer game developer, and dad of an awesome five year old ;)

• It is not so easy to do!
• “It was so easy to do it would be stupid not do it and publish it”
• Behind closed doors there are much more capable tech and people then we can see
• Deepfakes, old news
• Everything is up for debate now
• Further polarization of different parts of the world
https://youtu.be/PXdugvOv5fl?t=1
https://youtu.be/eB29ZVDOFfU?t=1
Age of non-consensual pornographic content
https://www.youtube.com/watch?v=9reHvktowLY
The Defense Department has produced the first tools for catching deepfakes

Fake video clips made with artificial intelligence can also be spotted using AI—but this may be the beginning of an arms race.

by Will Knight    August 7, 2018

DARPA Spent $68 Million on Technology to Spot Deepfakes

New military algorithms can tell whether a video was doctored, but DARPA think it’s losing the fight.

Intelligent Machines

Deepfake-busting apps can spot even a single pixel out of place

Two startups are using algorithms to track when images are edited—from the moment they’re taken.

by Karen Hao    November 1, 2018
How to handle/fight against it?
Assume nothing, question everything.

James Patterson
To see is not to believe anymore.

And thank the internet trolls for that!

What is real anymore?
Let’s try to make a deep fake?

Thank you 😊