

SAFER INTERNET FORUM 2018

The impact of technology
on children, young people
and society



Tuesday, 20 November 2018
Crowne Plaza Hotel, Brussels, Belgium



Safer Internet Forum 2018

Deep dive session:

Deep fakes

Room: Exploration



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Assume nothing,
question everything.

James Patterson

“CAMERA NEVER LIES – BUT PEOPLE LIE OFTEN”



Anatomy of Deepfakes

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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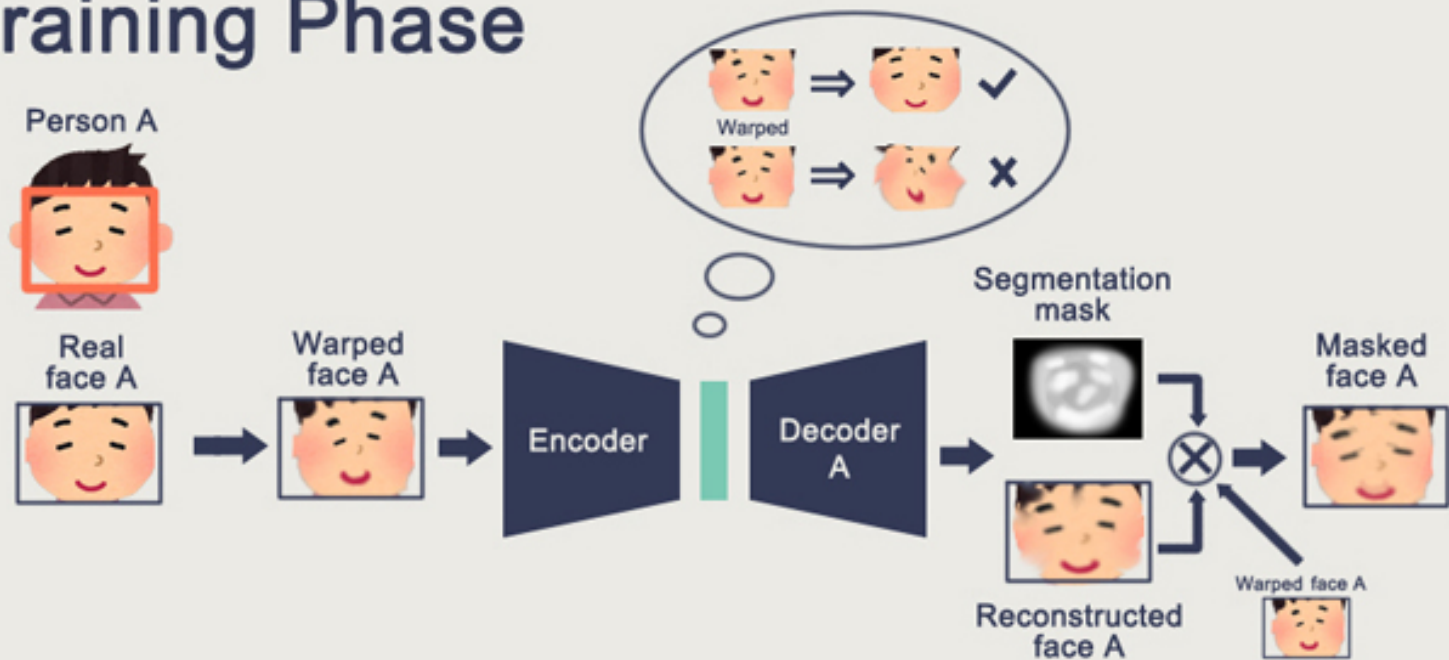
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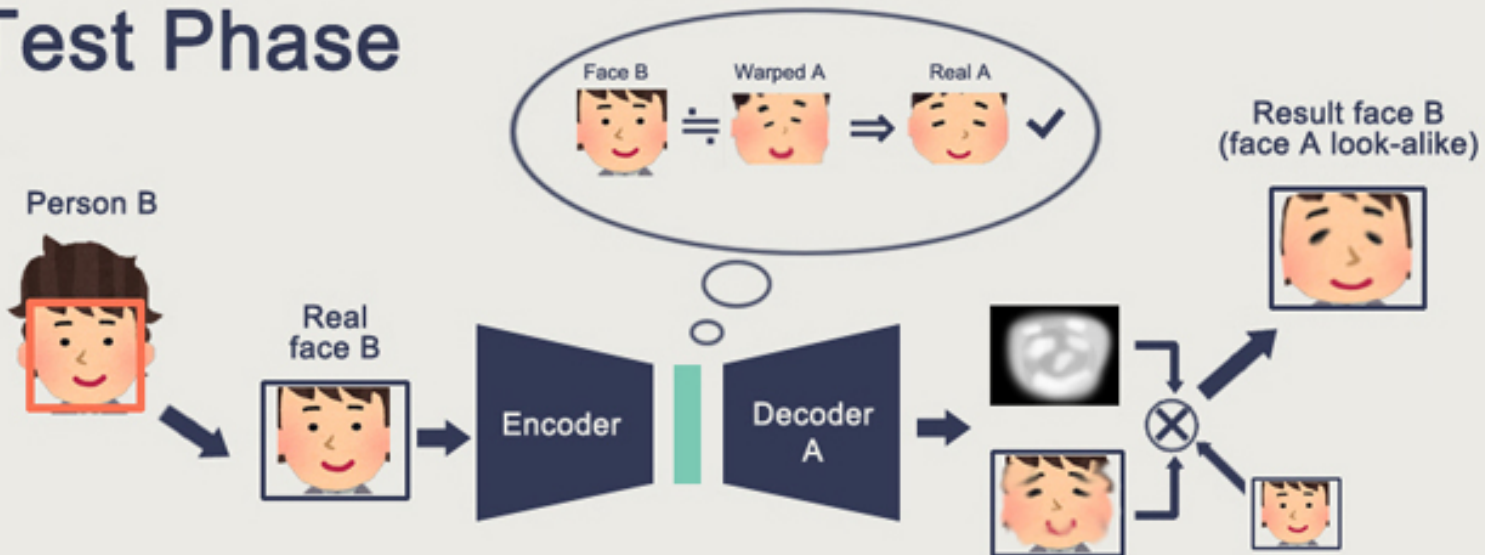
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Training Phase



Test Phase



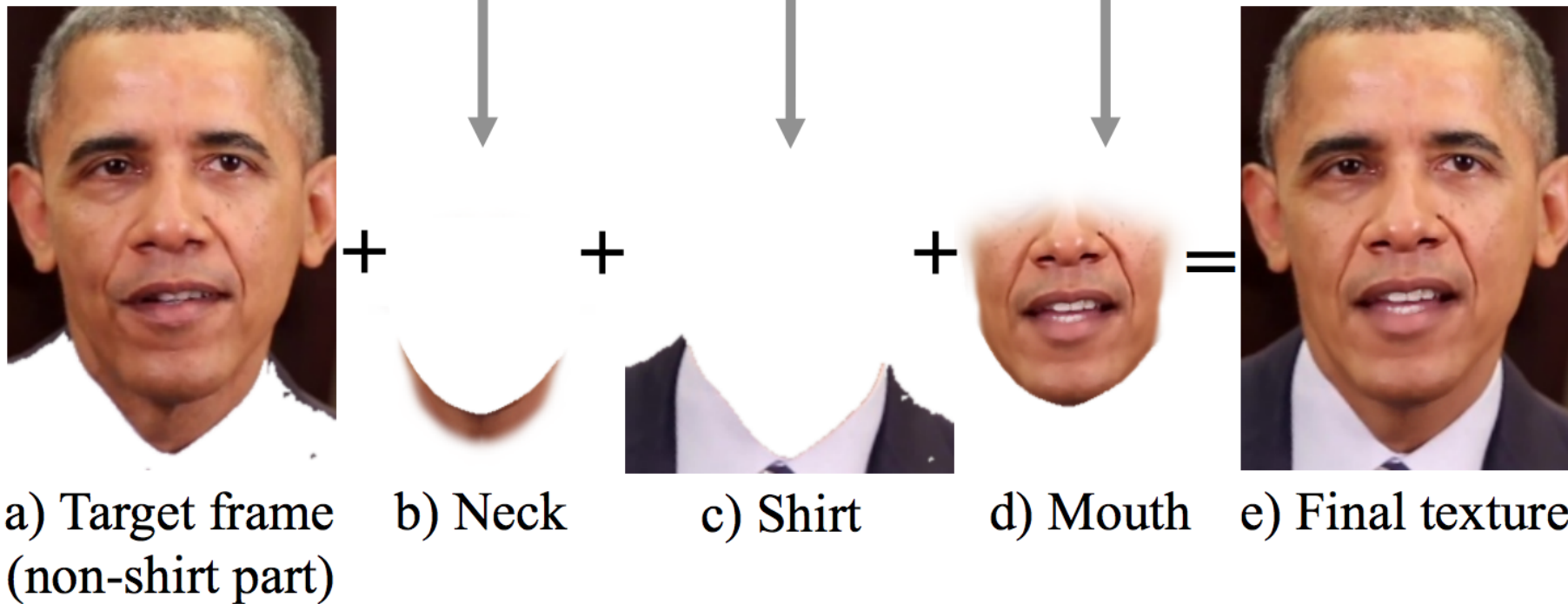
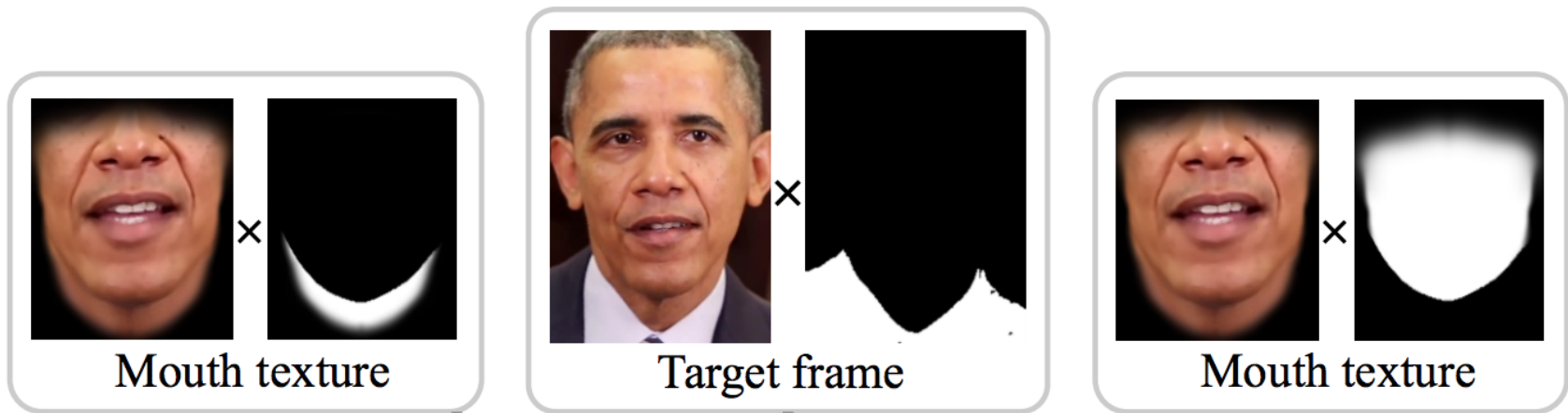


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Deep video portraits

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

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

https://www.youtube.com/watch?v=7Dg49wv2c_g

Applications

...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?





DEEPFAKES PRINCESS LEIA

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Source Video



Detected Pose



Faking it all...

Photoshop was developed in 1987

2016 VOCCO – Adobe

<https://soundcloud.com/user-535691776>

Interview with Sven

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 to do it and publish it”
- Behind closed doors there are much more capable tech and people than we can see
- Deepfakes, old news
- Everything is up for debate now
- Further polarization of different parts of the world





FAKEAPP

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<https://youtu.be/PXdugvOv5fl?t=1>



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[https://youtu.be/eB29ZVDOfU?
t=1](https://youtu.be/eB29ZVDOfU?t=1)

Age of non-consensual pornographic content

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Monet ↔ Photos



Monet → photo



photo → Monet

Zebras ↔ Horses



zebra → horse



horse → zebra

Summer ↔ Winter



summer → winter



winter → summer



Photograph



Monet



Van Gogh



Cezanne



Ukiyo-e

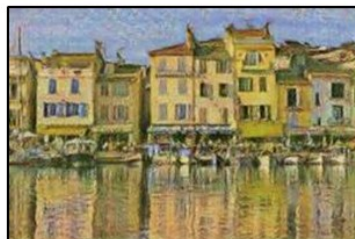
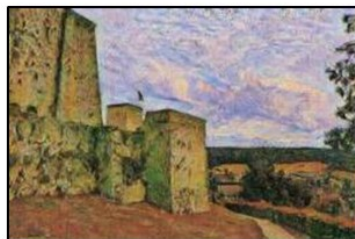
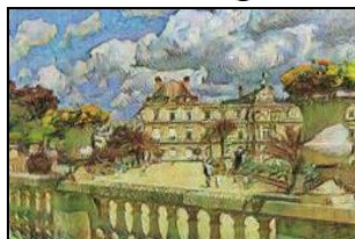
Input



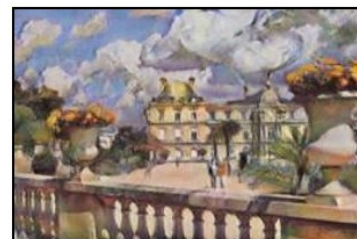
Monet



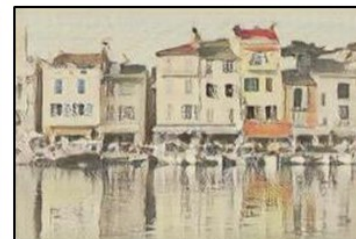
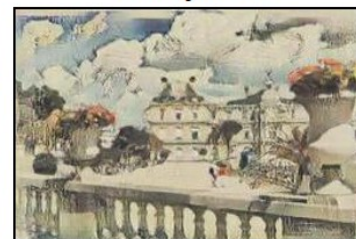
Van Gogh



Cezanne



Ukiyo-e



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

<https://youtu.be/ehD3C60i6lw>

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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

T

he first forensics tools for catching revenge porn and fake news created with AI have been developed through a program run by the US Defense Department.

Forensics experts have rushed to find ways of detecting videos synthesized and manipulated using machine learning because the

NEWS LEGIT

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.

an Robitzski | 20 hours ago



A falsified image put through Serelay's verification platform.

COURTESY OF SERELAY

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?



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To see is not to believe anymore.



And thank the internet trolls for that!

What is real anymore?



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Let's try to make a deep fake?

Thank you 😊