The Art in the Algorithm

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The Art in the Algorithm

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Evaluating the Dataset
Celeb-DF v2

Images sourced from: https://www.cs.albany.edu/~lsw/celeb-deepfakeforensics.html
Celeb-DF v2

- 590 videos of 59 celebrities collected from YouTube
- 5639 DeepFakes generated
- Gender
  - 56.8% Male
  - 43.2% Female
- Ethnicity
  - 88.1% Caucasian
  - 5.1% Asian
  - 6.8% Black & Brown
- Age Distribution:
  - 65.6% 40 and older
  - 34.4% under 40

Images sourced from: https://www.cs.albany.edu/~lsw/celeb-deepfakeforensics.html
Celeb-DF v2

- Recognized the need for higher quality source material
- Used custom algorithm
- Encoding 256 bit
- Decoding 256 bit
- Color correction applied at training
- Kalman smoothing algorithm to reduce temporal flicker
- Facial landmark masking
- Smoothness mask to blend overlay

Images sourced from: https://www.cs.albany.edu/~lsw/celeb-deepfakeforensics.html
### Celeb-DF v2 – Compression

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The Art in the Algorithm

Evaluating the Dataset

Where do you want to go?
Selecting a target subject

Public figures historically are easier targets. Conferencing, social media and tube sites can make us all targets.
The more available footage the better
Curating found content
Evaluating the Dataset

Art is born of observation
Details Matter
When Source and destination do not match

Images sourced from Celeb-DF Dataset
Better body shape but...

Image sourced from Celeb-DF Dataset
How can we improve a dataset?
Replicate the target for success

Image sourced from VFXChris Ume YouTube Channel – Deepfake breakdown of Tom Cruise
Angles and Expressions
Curating Source Files
The Art in the Algorithm

How can we improve the dataset?

What would Hollywood do?
Example 1: The Basics

Original
id41_0009, Natalie Portman

Synthesis
id41_id42_0009, Eva Mendes
Organizing the Project
Masking & Feathering

V1: Tracking
V2: Rudimentary Mask
V3: Refining
Color Correction
Results

Synthesis
id41_id42_0009, Eva Mendes

Synthesis (corrected)
id41_id42_0009, Eva Mendes
Detail Transfer

Original
id28_0002, Jude Law

Synthesis
id28_id22_0002, Mark Wahlberg
Background Replacement

Photoshop → After Effects Workflow
Content Aware Fill
Clone Stamp Tool

Images sourced from Steve Ramsden (YouTube)
Example 2: Level Up

Original
id52_0009, Cate Blanchett

Synthesis
id52_id49_0004, Miley Cyrus
Breaking a Deepfake

WHERE'D YOU GO, BERNADETTE
Setup Considerations
Masking & Feathering
Color Correction
Results

**Synthesis**
id52_id49_0004, Miley Cyrus

**Synthesis (corrected)**
id52_id49_0004, Miley Cyrus
Fast-forward the evolution
What happens when encoder/decoder is increased x4

Image sourced from PAGI Studios YouTube Channel
Puppet mastery enhanced with NERF

Now, AI is turning 2D photos into 3D scenes in seconds.

Video sourced from NVIDIA Developer YouTube

Image sourced from Disney Research YouTube

Image sourced from AD-NeRF: Guo Yudong YouTube
What are Metahumans

- Data comes from real life scans
- Rigged for animation with live performance capture.
- Tutorials readily available
Mesh to Metahuman

- Photo/Lidar Smartphone App
- 30+ images can create a model
- Neutral Expression
- Mouth Closed
- Even bright lighting
- Model does not have to be water-tight.
- Set Body parameters
- Metahuman Mesh can be created in as little as 10 minutes.

Photo sourced from Unreal
Metahumans Deepfakes

Created by NotFace Studio

Hokunin 4 weeks ago
Amazing. Now you can make a proper matrix sequel with Neo.

ponzexxx 4 weeks ago
So you applied the deepfake "filter" on a mesh in metahuman or this is the output mesh results?

 Vlad Bereznjak 4 weeks ago
You're breathtaking 😍

Brian Mosley 4 weeks ago
I don't know why, but the blinking breaks this for me. Otherwise outstanding 👍

CreationK 1 month ago
Fantastic likeness! Well done!
DeepFaceLab Live

#deepfakewithproduction

How to make a real-time Deep Fake | Tutorial

56,374 views  Premised Nov 18, 2021 Today we learn how to easily make a real-time deep fake with the amazing software https://github.com/iperov/DeepFaceLab. This is incredible tec: ...more

Richard Frantzin
9.4K subscribers

1.5K Dislike Share Thanks Clip Save

Comments
HI, I am iptron. Do you have any idea how to make newbies click on the text labels that are highlighted in yellow to get help on options?
DeepFaceLab Live + Unreal Engine 5
Live Deepfakes are successful manipulating leaders

Photo sourced from Senatskanzlei Berlin Twitter feed