

First Appearance of AI Face-Swapping in Chinese Web Series: “Fifty-cent special effects” invite ridicule, who will take responsibility for large-scale accidents?

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https://mp.weixin.qq.com/s/pKv2moq17Y-rQWbLvJO43w?fbclid=IwAR01zhKH_NXUjYxTO0YRayRYsl-myynAw5uL1JIKW0tiKYcCQyZg9Msrsq0

Synopsis: Recently, the fifty-cent special effects of face-swapping in the fantasy web drama “Love of Thousand Years” (三千鸦杀) invited a wave of attention from the peanut gallery. The character in the show after going through the process of face-swapping — distorted faces, stiff expressions, divergent shades for neck and head. Why did AI face-swapping — once so popular all over the country — perform so unsatisfactorily in the show?

Excerpted beginning paragraphs about how the deepfake app Zao became an overnight sensation in China last year; “in February 2019 a video grafting the face of one of China’s best-known actors, Yang Mi, into a 25-year-old Hong Kong television drama, The Legend Of The Condor Heroes, went viral, picking up an estimated 240m views before it was removed by Chinese authorities.”

The broadcast of “Love of Thousand Years” means that AI face-swapping tech has landed in mainstream film and television works for the first time, bringing actual commercial value. However, the results of this first landing were not satisfactory, and the effects were ridiculed as like those for a horror movie.

How does AI face-swapping work? Why is this technology, which is becoming more and more mature, still so unripened when used in a TV series? With controversy and expectations intertwined, where will the future of AI face-swapping lead?

1. “First Appearance” of AI Face-Swapping in Film and TV - Frightening Effects Raise Controversy

After the online drama "Love of Thousand Years" aired, what caught people's attention first — before the show itself — was the face-swapping of Qingqing, a character on the show. The face of the original actress Liu Lu was replaced with another actress Zhang Dingding.



On the left is Liu Lu, who originally played the role, and on the right is the AI face-swapped Zhang Dingding.

Excerpted paragraphs behind why Liu Lu needed to be swapped. Apparently, she was carrying more than the allowable amount of flammable compressed gas cans, which led to a kerfuffle with the authorities. Mango TV issued a public statement that terminated their contract with her. She was reportedly blacklisted -- a “bad artists list” [劣迹艺人]. In order to avoid the new drama from being suppressed, the producer swapped Liu Lu’s face with another actress.

Section concludes by noting that Qingqing was just a small character in the drama, but the poor quality of the face-swap attracted broader attention -- some netizens viewed the show just to see the face swap.

2. AI Face-swap Tech Applications have Long Been Used to Trade Privacy for Profit in the Black Market

Excerpted paragraphs that trace history of DeepFakes back to 2017 when a Reddit user face-swapped Gal Gadot's face onto a mature film -- reviews the Legend of the Condor case again.

Subsequently, ZAO, a face-changing technology software, is also emerging in China. Users only need to upload a photo in the app to replace their face with the faces of "Sheldon," "Chow Yun Fat," and "Bai Zantang" in the video, essentially passing fake imitation for genuine.

When the face-changing of AI just appeared, it was more about changing the face of the main character of a TV series or movie to the face of your favorite star or someone else's face you wanted to see. But alongside the continuous development of AI face-swap tech, and the lowering of the technical threshold, many ordinary computer users have learned how to perform AI face-swaps.

This lowered threshold has muddled the waters ("jumbled up dragons and fishes together"), and many people have identified "business opportunities." They have done face-swaps for erotic films and then sold them, gradually forming an AI black (market) industry. According to a survey conducted by a reporter from "zhidongxi," in China in 2019, AI face-swapping has already formed a black market industrial chain. Software and technology are provided upstream, video and photo customization is supplied midstream, and finished video is sold downstream. Some also do business across the whole industrial chain.

Relevant products are available for sale in Tieba, QQ groups, and other places, including erotic videos as finished products, customized videos, software, and tutorials. The prices of finished erotic videos range from 2 yuan for 1; to 30 yuan for 46; 100 yuan for 150; and 100 yuan for 200, etc. Generally, they are sold in packages, and the videos mainly feature domestic first- and second-tier female stars.

In addition to violating the privacy of celebrities and contributing to the proliferation of false flows of erotic information, face-swapping technology poses a risk of infringement to everyone who

uses it. In the ZAO App, since users cannot use celebrity portraits, they can only upload their own photos to change their faces, and in the software privacy agreement, the right to use the user's photos has been transferred to the software.

In addition, according to analysis from "The Beijing News" analysis, face-swapping technology may also lead to fraud. Criminals can use a person's photo to pretend to be kidnapped and ask that person's parents for money.

The next two paragraphs note that disputes and restrictions over face-swap tech have existed since the birth of the tech. Cites fake news and Scarlett Johansson's comments about her right to her image, as well as Facebook's Deepfake Detection Challenge.

In China, at the end of May 2019, the Cyberspace Administration of China and relevant departments issued the "Data Security Management Measures (Draft for Comment)", which requires that network operators who use big data, artificial intelligence and other technologies to automatically synthesize news, blog posts, forum posts, comments etc., to clearly mark such information as "synthesized"; they should not automatically synthesize information with the aim of seeking benefits or harming other people's interests.

3. How does face-swap tech, which "mixes the false with the true," actually work?

It's hard to differentiate whether the technology itself is good or bad. The key lies in how we use it. As far as the film and television industry is concerned, AI's face-swapping has a helpful effect to a certain degree. "Love of Thousand Years" originally should have been an example of a correct use of this technology, but compared to the "perfect" videos made by users, why were the results of "Love of Thousand Years" so rough?

Excerpted a couple paragraphs of summary of face-swapping process: 1. Collect data on images of original face and target face; 2. Capture images with different facial poses, angles, lighting and process it in a special way; 3. Drill down on key points of facial expression chains (e.g. eyes, nose, chin, etc.). Users who do their own face-swapping videos mainly use DeepFakes, Face2Face, and CycleGAN technology.

DeepFakes: the "classic" face-swap

Face2Face: focuses on "facial expression" manipulation -- examples include high-quality videos of a person (e.g. Obama) changing what he is really saying in a target video

CycleGAN: unpaired image-to-image translation using a generative adversarial network model architecture (e.g. translating a summer landscape to winter rather than translating X specific person's face to another Y specific person)

According to an entertainment self-media platform "娱哩", the more sophisticated face-swapping technology commonly used in film and television dramas is manual face-swaps, but the market price is a couple 100,000 RMB per minute, which is obviously not something a low-cost web drama can bear. The price of AI face-swapping is about 15,000 RMB per minute, a difference of about ten times. In the end, as one can see from the display, "Love of Thousand Years" did not choose to do manual face swaps, but instead used AI technology to automatically export the program.

However, the application of AI face-swapping tech in film and television is not mature and requires a certain specialized background.

The person who replaced Zhu Yin with Yang Mi (Jeff's note: The Legend of Condor Heroes case) mentioned in an earlier interview that it took him about a week to make that few minutes of video, and the entire operation process also requires a relatively high-quality PC, a very good graphics card, and even rental (overseas) server use. "Ordinary computers can't do it. This technology is still very difficult for civilian use."

A special effects producer said in an interview that the effect of "Love of Thousand Years" now looks inconsistent because of the lack of fit/consistency. "This technology is really difficult. At present, they have barely kept it together. They can't make a complete and perfect fit.

From film and television production to daily entertainment videos to black (market) industries, face-swap technology affects all aspects of the industry. Simple and easy-to-use technology allows users to generate content at will, but while enriching content creation tools and materials, it also magnifies personal privacy and black (market) industry issues. However, the use of technology can still bring positive effects, such as addressing this urgent case of a new drama's "problem" actress.

But from the current performance results, there is still a significant gap between AI face-swap technology for personal entertainment to real scale and commercial application.