

Now I Can See!

The *Enrichment* of Early Cinema Images with Artificial Intelligence

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Introduction

In recent years, artificial intelligence (AI) and the related concepts such as algorithms, machine learning, neural networks and generated images increasingly more often appear on social networks. Due to technological development, the time between the moment of generation and the moment of publication is gradually becoming shorter; today, new images,¹ artificially generated continuations of pop songs, original screenplays that do not make much sense and similar works created² by AI appear on the internet almost instantaneously.

A particularly interesting phenomenon is the connection between AI and amateur “restoration”³ of older films, which on YouTube (YT) record millions of views and numerous, mostly enthusiastic responses in the comment section. With the help of neural networks, the “restorers” (artificially) increase the resolution (usually to the now trendy 4K) of low-quality film prints, increase the frame rate (from 20, for example, to the now trendy 60 fps), colour the frames, draw details on the faces of human figures etc.

- 1 In the period of writing this paper (May and June 2022), there was a significant rise in the number of images that can be generated by the DALL·E mini model based on any text prompt.
- 2 I ascribe agency to AI somewhat provocatively with the awareness that ascribing authorship to AI raises many questions.
- 3 I use quotation marks due to the comparison with the usual restoration later in the paper, which seems crucial for understanding the implications of the “restoration” under discussion.

There are several YT channels that publish “restored” images from the previous century: Denis Shiryayev, Nineteenth century videos. Back to life., NASS, Rick88888888... The most prominent ones have between a hundred thousand and almost six hundred thousand subscribers, while their individual posts record several million views, with the most viewed one reaching almost twenty million. Their reach can be assessed as substantial and significant, even more so if we take into account that similar “restored” images appear on other networks too.

The purpose of this paper is to define “restoration”, examine why it cannot be understood as a form comparable to the usual procedures of film restoration and, by pointing out the impression of authenticity that the viewers describe in the comment section, trace the danger that such processes present.

As a study case, I will discuss the works of Denis Shiryayev, who gets the most views among the mentioned channels and also stands out because he sometimes accompanies the “restored” films with an explanation of the process and special disclaimers with which he distances himself from the comparisons between his work and professional restoration and denies that the colour reproduction in his “restored” films is historically accurate. Some of his posts are accompanied by several tens of thousands of comments offering an insight into the experiencing of “restored” images.

Like other YT channels, Shiryayev mostly publishes “restored” images of early cinema, but some are also of a later date and other media forms – television, painting etc. In thinking about the implications of “restoring”, I will use two concepts – Hito Steyerl’s *poor image* and Laura U. Marks’s *haptic visibility* – and then, based on them, discuss the impression of authenticity described in the responses of YT users. With the help of Steyerl’s concept, I will suggest “*enriched image*” as a term that captures the status of a “restored” image.

Restoration, “restoration”, poor image, haptic visibility

The work of Denis Shiryayev and similar YT channels has to be defined as accurately as possible. Existing concepts do not seem to enable a precise definition which is why we will be able to analyse the phenomenon only when we accurately define it. I will begin with a presentation of the concepts used in the paper.

In film studies, restoration is most often understood as a return of the material to a condition that is as close as possible to the initial condition of the original upon its premiere. Leo Enticknap in his *Film Restoration: The Technology and Culture of Audiovisual Heritage* and Paolo Cherchi Usai in his “The Conservation of Motion Images” thus write that restoration means the restoration of the original or the best accessible print (if a perfect print does not exist, then the closest surviving generation to the original,)⁴ of the film into the original condition in which it was upon

4 Enticknap, Leo. 2013: *Film Restoration: The Technology and Culture of Audiovisual Heritage*. London: Palgrave Macmillan, p. 28. The process of searching for the best possible print and

the premiere.⁵ The process includes the erasure of the traces of use and the traces of deterioration that are a consequence of storing prints in unsuitable conditions (humidity, temperature etc.).⁶ The more a film print was screened and the longer it was kept in unsuitable conditions in a film archive, the more demanding is the restoration process (as organic matter, film gradually decomposes even if the conditions are ideal; its lifespan can thus be twenty or a hundred years).⁷

Shiryaev himself says that his work should not be understood as restoration.⁸ Even if he did not point that out, the comparison of both processes quickly shows big differences. The first difference is that Shiryaev does not work with the original film or the best *possible* print, but with the best digital version *accessible online*. In his post of the “restored” *Roundhay Garden Scene* (1888) by Louis Le Prince, he sheds light on the process of selecting the source material that he used in his “restoration”. He says that he chose the best source available online, in this case, a scan of the glass copy negative with all the frames that he found on the website of the UK Science Museum, and adds that if any of the viewers have a better scan, they should contact him directly.⁹ In both restoring and “restoring”, we can detect a tendency towards working with the best possible print, but in the case of the latter, one does wonder why Shiryaev used only online sources and did not contact the Museum (but only downloaded the file). We could surmise that Shiryaev’s use of the processes that are mostly freely accessible, just as his work is freely accessible too, is a sign of the democratisation of the medium and AI and a moving away from institutional procedures, perhaps even a gesture of resistance against authorities, the official bearers of knowledge.

One of the key differences between “restoration” and restoration – in addition to the essential ones related to the technical equipment, the staff, the workflow, funding etc. – is the motivation behind it. As I understand it, actual restoration means getting as close as possible to the original, flawless condition, which also amounts to the best approximation of the filmmaker’s intention, vision. To help us get as close as possible to the filmmaker’s vision in the framework of classical restoration,

the many challenges that accompany it are described by Paolo Cherchi Usai in *Silent Cinema: An Introduction*. Cherchi Usai, Paolo. 2000: “The Ethics of Film Preservation”. In: Cherchi Usai, Paolo. *Silent Cinema: An Introduction*. London: Palgrave Macmillan.

- 5 Cherchi Usai, Paolo. 2010: “The Conservation of Moving Images”. *Studies in Conservation*, vol. 55, no. 4, p. 252.
- 6 Enticknap 2013., pp. 24–36.
- 7 *Ibid.*, pp. 24–25.
- 8 Shiryaev, Denis. 2021: “[AI stuff] Interview enhanced by neural networks. Yuri Gagarin, first cosmonaut, London, 1961.” Available at: <https://www.youtube.com/watch?v=4DN5WjU8km0>; accessed 16 June 2022.
- 9 Shiryaev, Denis. 2021: “[60 fps] The oldest recorded video, ‘Roundhay Garden Scene’, England, 1888”. Available at: https://www.youtube.com/watch?v=Fxd8XJ_J0Gc&t; accessed 16 June 2022.

we could use documents describing the historical context at the time or the film’s creative process, but we can probably get the closest if the artist (film director, but *especially* the director of photography etc.) is still alive and can participate in the restoration process. On the other hand, Shiryaev’s work has no similar goal. “Restoration” is much closer to interpretation than approximating the original and the filmmaker’s original vision. As he himself says in a special notice under the posts or in their description, the “restored” colours do not represent the historically accurate colour representation of reality.¹⁰ We can surmise that, in the case of colouring, Shiryaev did not do the work of a historian who would choose the colours of the clothes, for example, based on historical writings on the way people at the time dressed. In Shiryaev’s work, colour reproduction is sooner a matter of coincidence than deliberation – which is also a result of the two neural networks process in which the image generates the probable colours, but not in the sense of the clothes *perhaps* truly looking like that, but in the sense of the colours in the generated image *only* giving the impression of probability, authenticity. The two neural networks process, which is essential in “restoration”, will be described later in the paper.

The term “restoration” is thus not the most suitable signifier for Shiryaev’s processes. The alternatives such as “processing”, “renewal”, “embellishment” and the like are also unsuitable. “Processing” is most often related to processes accompanying editing or post-editing post-production process such as image and sound processing, “renewal” is too close to restoration, “embellishment” does not capture completely the extent of the changes that happen in the process of “restoration”. Due to the lack of suitable concepts, I will try to come up with a new one in this paper. In doing this, I will draw on the conceptions developed by Steyerl when she writes about the so-called *poor* and *rich image*, foregrounding the contemporary modes of image distribution. In the Conclusion, I will thus describe in more detail my suggestion of “*enriched image*”, which lies somewhere between the *poor* and the *rich image*. We should add that, in English, due to the closer connection with Steyerl’s concepts, *enriched image* seems a more suitable solution than *enhanced image*, which otherwise seems an obvious choice.

The solution is closely related to the concept that Hito Steyerl presented in 2009 – *poor image*. The *poor image* is a copy (usually of lower quality and resolution) of an image that travels and circulates on the internet and whose quality gradually decreases with every download, publication, sharing and the like; in its compression, it loses pixels, information on colour shades... In addition to the appearance of the *poor image*, Steyerl is interested in its involvement in the economy, society and culture. She thus also describes it as a “popular image” that can be made and seen

10 For example, in the description under Shiryaev, Denis. 2020: “[4k, 60 fps] San Francisco, a Trip down Market Street, April 14, 1906”. Available at: https://www.youtube.com/watch?v=VO_1AdYRGW8; accessed 16 June 2022.

by the many.¹¹ The *poor image* expresses the contradictions of its audiences: on the one hand, their opportunism, narcissism etc. and, on the other, the care and love of the people who copied and downloaded the images innumerable times. By traveling around the world, it builds alliances and creates “anonymous global networks”.¹² Through this process, it gains a new aura that originates not in the permanence of the “original,” but in the transience of the copy. The opposite of the *poor image* is the *rich image* (which Steyerl does not really write about), which is supposed to be represented by high technical (and other) standards of big-budget (Hollywood) productions. She is interested in what the concept says about the mode of image distribution. She illustrates her findings by mentioning experimental cinema of the 1980s and 1990s, which became almost entirely inaccessible at the time. The *poor image* is therefore a response to the inaccessibility, a consequence of the democratisation of the medium (which is an argument *in defence* of the poor image).¹³

Oskar Ban Brejc wrote comprehensively about the counterpole of the *poor image*, the so-called “*rich image*”.¹⁴ An example of the *rich image* that he provides is *Dune* (2022), which, in the aesthetical sense, he places on the diametrically opposite pole to *poor images*: if *poor images* are quick, last a short time and can be connected with everyday experience of AV images/stimuli, *Dune* is marked by opposite qualities: slowness, duration and solemnity.¹⁵ According to him, *Dune* also functions as a commercial for itself, an advertisement for its own film experience, which it achieves by staging its richness. Ban Brejc considers this staging to be the essence of the *rich image*, which today responds to the dangerous spreading of the *poor image*. In addition to depicting and narrating, *rich images* ultimately primarily talk about their own richness. Through his definition of the *rich image* and his complementation of Steyerl’s formula, Ban Brejc thus delineates a new form of immersion into film, which is additionally curved and bent so that, at a certain point, it alienates the viewers from the narrative itself and keeps them in the zone between engrossment (contemplation) and attention disturbance (distraction), which could sooner be ascribed to the practice of watching films at home.¹⁶ In this, we could recognise a special mechanism for keeping the viewers unsatisfied – it seems that, for today’s commercial production, the ideal viewer is the one that, for half a decade, eagerly waits for a new sequel of a franchise or a remake of a classic, devours mini promotional materials, teasers

11 Steyerl, Hito. 2009: “In Defense of the Poor Image”. Available at: <https://www.e-flux.com/journal/10/61362/in-defense-of-the-poor-image/>; accessed 16 June 2022.

12 *Ibid.*

13 According to Steyerl 2009.

14 Ban Brejc, Oskar. 2022: “Revna in bogata podoba”. Available at: <https://radiostudent.si/kultura/temna-zvezda/revna-in-bogata-podoba>; accessed 16 June 2022.

15 *Ibid.*

16 ...as a mode of experiencing a film accompanied by breaks in playing the film, imperfect technical conditions (darkness, silence) etc.

and hints about this or that death of a character on Reddit forums and when the film finally comes out, they merely relive, continue their expectation: in the cinema, they watch an advertisement for the same film they are (supposed to be) watching (and its sequel). Such a mode of watching also makes it harder for them to actively attend the film, which is why it is more difficult for them to pay attention to the possible ideological dubious messages, flaws in craftsmanship, inconsistencies etc. On the other hand, the *poor image* enables rewinding and the dissemination of photographs, which, for example, depict the forgotten Starbucks cup in the image field of a historical-fantasy TV series etc.

The second concept that I will use in relation to the *poor image* is Laura U. Marks's haptic visuality. In her resounding monograph *The Skin of the Film*, she describes two kinds of visuality – *optic* and *haptic*.¹⁷ The first encompasses the sense of sight and can be understood as the domain of primarily Western, let us call it privileged production. She identifies the *haptic* in intercultural artists, who live in a diaspora, for example, and express or visually represent their experience by using a different film language, one that places the sense of touch in the foreground of filmic experience. *Haptic* images are characterised by vagueness, blurriness, dimness. In them, the figuration of human bodies and objects vanishes, the images draw attention to their materiality, the 3D space of reality is reduced down to the 2D surface of the image field, the viewer's gaze rebounds in an interesting way – instead of penetrating through the image field as a transparent window glass, it walks across and strokes its surface.

With the help of the starting points taken from Steyerl and Marks, I will try to explain what Shiryaev's modified images mean from the viewpoint of production procedures, involvement in distribution networks, reception and aesthetics.

AI, neural networks

The concept of AI encompasses attempts at connecting *the computational with the human* to make computers do what human minds can do.¹⁸ As philosopher Olga Markič writes in reference to Margaret A. Boden's definition in her *AI: Its Nature and Future*, what we have in mind here are psychological skills such as thinking, perception, planning, prediction, motor control etc.¹⁹ According to Boden, AI is supposed to have two key aims: a technological one (using computers to get things done) and a scientific one (using AI concepts and models to help answer questions about human beings and other living things).²⁰ The influence of AI is quite diverse; for example,

17 Marks, Laura U. 2000: *The Skin of the Film: Intercultural Cinema, Embodiment, and the Senses*. Durham and London: Duke University Press.

18 Po Boden, Margaret A. 2016: *AI: Its Nature and Future*. Oxford: Oxford University Press, p. 1.

19 Markič, Olga. 2019: "Prvi in drugi val umetne intelligence". In: Malec, Maja and Markič, Olga ed. *Mišli svetlobe in senc: razprave o filozofskem delu Marka Uršiča*. Ljubljana: Znanstvena založba Filozofske fakultete Univerze v Ljubljani, p. 202.

20 Boden 2016, p. 2.

it has enabled psychologists and neuroscientists to develop new theories about the human brain – not only about *how* it works, but also about *what* it even does.²¹ It has similarly given rise to many philosophical questions, such as whether an AI system can possess a form of intelligence, creativity or life.²²

The history of AI is generally marked by two waves.²³ The forms of AI I discuss in this paper are part of the so-called second wave, which includes the latest forms of AI based on inductive logic and machine learning.²⁴ The key concept for second-wave AI is artificial neural network.²⁵ It consists of collections of computational units, the so-called artificial neurons (an imitation of neurons in the brain).²⁶ What primarily contributed to the development of neural networks, which “became practically useful only after 2009”,²⁷ was mainly the development of graphic processing units and the accessibility of data on the internet.²⁸ “They thus enabled the machine recognition of objects in images, speech recognition and machine translation. Some of these tasks are already performed by computers equally well or better than they are by humans, but nevertheless AI’s successful functioning is still limited to individual tasks and particular areas.”²⁹

In their papers, both Markič and the researchers Pretnar and Robnik-Šikonja, who I drew on (more precisely, their paper “Analiza slik in besedil s pristopi umetne inteligence: Priložnosti in dileme”) in defining neural networks, emphasise that when considering new forms of AI, we have to include knowledge from different fields, also social sciences. The use of AI opens a space for many potentially ethically problematic modes of use, which can be overlooked in a narrower, for example, purely technical viewpoint. “*By all means, the development of second-wave smart tools opens many epistemological, social and ethical questions.*”³⁰ In their paper, Pretnar and Robnik-Šikonja discuss two uses of AI (image analysis with the technique of deep learning) that raise different ethical questions: (1) diagnostics of tumours from medical images and (2) detection of sexual orientation from facial images.³¹ Ethical dilemmas, as they conclude, can be avoided with a comprehensive, interdisciplinary approach:

21 *Ibid.*

22 *Ibid.*, p. 3.

23 Markič 2019, p. 201.

24 *Ibid.*, p. 206.

25 *Ibid.*

26 According to Hornik, Kurt. 1991: “Approximation Capabilities of Multilayer Feedforward Networks”. *Neural Networks*, vol. 2, no. 4, pp. 251–257; as quoted by researchers Pretnar, Ajda and Robnik-Šikonja, Marko. 2018: “Analiza slik in besedil s pristopi umetne inteligence: priložnosti in dileme”. *Glasnik Slovenskega etnološkega društva*, vol. 59, no. 1, p. 50.

27 Pretnar and Robnik-Šikonja, p. 51.

28 *Ibid.*

29 *Ibid.*, p. 51.

30 Markič 2019, p. 210.

31 Pretnar and Robnik-Šikonja, p. 48–55.

For a quality interpretation of the results, especially in modelling social phenomena, the findings of machine learning will have to be enriched with sociological and anthropological knowledge. A condition for this is technologically skilled social scientists who understand the operation of algorithms or a close cooperation of experts in the fields of AI and social sciences. It seems self-evident, for example, that the results of AI use in medicine will be interpreted by doctors. Why would it be different in the field of social studies? With a comprehensive and interdisciplinary approach, we can avoid the sensationalisation of AI and interpret trained models in a way that takes into account the context of the data and the possibility of a practical use of models, while drawing attention to the ethical component of every research that deals with social phenomena.³²

Denis Shiryaev's processes

Denis Shiryaev manages a YT channel on which he posts his transformations of images of early cinema and also later periods, television clips, painting portraits etc. So far (he started posting in July 2019 and his last post was in October 2021), he has published twenty³³ videos, half of which are “restored” films from the beginning of the previous century. He modifies them by colouring them, increasing the number of frames, increasing the resolution, adding some texture and details to the faces and adding sound if they are silent. He carries out the process with the help of AI, with which he computes and paints the extra frames, the missing pixels etc.

In his work, Denis Shiryaev used several commercial, publically accessible programme models: Topaz Labs' Gigapixel, Google's DAIN (Depth-Aware Video Frame Interpolation), DeOldify (colour addition) etc. With the help of Topaz Labs' Gigapixel, he increased the original resolution to 4K, with DAIN, he added extra frames, increasing the frame rate from 24 fps, for example, to 60 fps.³⁴

The process takes place based on the GAN (Generative Adversarial Network) principle consisting of two models – Generator and Critic.³⁵ The Generator creates new variants of the image(s) and sends them to the Critic, which assesses whether the image seems probable, authentic. The Critic can reject the image (the Generator then tries

32 *Ibid.*, p. 55.

33 He did publish at least one more, but it is no longer available – he had to remove the *enriched L'Arrivée d'un train en gare de La Ciotat* (1895) because Lumière Institute threatened to sue him. (He did not obtain their permission for the publication.)

34 Cade, DL. 2020: “Using AI to Colorize and Upscale a 109-Year-Old Video of New York City to 4K and 60fps”. Available at: <https://petapixel.com/2020/02/24/using-ai-to-colorize-and-upscale-a-109-year-old-video-of-new-york-city-to-4k-and-60fps/>; accessed 16 June 2022; Cooke, Alex. 2020: “See How Neural Networks Turned a Film From 1896 Into 4K and Added Color”. Available at: <https://fstoppers.com/science/see-how-neural-networks-turned-film-1896-4k-and-added-color-453086>; accessed 16 June 2022.

35 Jason Antic in an interview: Harrington, Charlie. 2018: “DeOldify: Colorizing and Restoring Old Images and Videos with Deep Learning”. Available at: <https://blog.floydhub.com/colorizing-and-restoring-old-images-with-deep-learning/>; accessed 16 June 2022.

with a new image) or accepts it and thereby finishes the process and offers the generated image to the user. The process is successful “when a person looks at the resulting image and either can’t tell that the image was processed in the first place, or if they experience pleasure just looking at it”.³⁶ It thus gradually learns and becomes more precise. It creates the variants based on an extensive base of examples, which it analyses to find out, for example, how and where information is usually lost. The process of adding data where they lacked before can most easily be carried out by starting with an example, say a high-resolution image, and then decreasing the resolution – the network then knows which answer is the correct one and can more easily get closer to it in its attempts. It is similar in the case of colouring: we show it colour photos and then the same photos again only in black-and-white and set it the task of converting the back-and-white photos back to the colour originals, as Kamal Chouhbi describes the process.³⁷

As Jason Antic, an engineer and the creator of DeOldify, points out, the result is more convincing if the Critic’s work is branched into several value questions: (1) Does the image have the characteristics of the original *grayscale* image? (2) Does the image look realistic?³⁸ The latter can be illustrated with Shiryaev’s description of the use of DeOldify for colourisation. The Generator applies colours to the clothes of the people in the film, for example. The Critic then poses several questions and thereby filters out the images it does not believe. It rejects an image based on the colours that seem improbable for the clothes of the time. It also rejects it if all the clothes in the image field are of very similar colours. The Generator then tries using a more diverse colour palette.³⁹ It thus gradually creates the *impression* of plausibility, authenticity, which emerges solely within the image itself and not the represented reality, which would dictate its own, different, actual impression of authenticity (to which we would arrive with a thorough research about the clothing at the time, for example). Instead of a reality *out there*, the reference of the process is the image – that is, everything inside the image field – which is reflected in adding extra frames that are “missing” between the rates of 24, for example, and 60 fps. The DAIN network analyses individual frames and inserts extra ones for every second – the process is similar to the function of *motion smoothing* of newer 4K TV sets.⁴⁰ For every 24

³⁶ *Ibid.*

³⁷ According to Chouhbi, Kamal. 2020: “Neural Networks Help Upscale Conversion of Famous 1896 Video to 4K Quality”. Available at: <https://towardsdatascience.com/neural-networks-help-upscale-conversion-of-famous-1896-video-to-4k-quality-d2c3617310fe>; accessed 16 June 2022; and Lee, Timothy B. 2020: “Someone used neural networks to upscale a famous 1896 video to 4k quality (Updated)”. Available at: <https://arstechnica.com/science/2020/02/someone-used-neural-networks-to-upscale-a-famous-1896-video-to-4k-quality/>; accessed 16 June 2022.

³⁸ Harrington 2018.

³⁹ According to Antic 2018.

⁴⁰ According to Chouhbi 2020.

actual, original frames, 36 newly generated, which the camera did not record in reality, are added (for example, in the “restoration” of *Roundhay Garden Scene*, 20 frames were complemented by 230 frames). We should mention that Shiryaev adapts the frame rate so that walking appears plausible and not sped up.

Haptic visuality of Shiryaev’s images

The haptic nature of Shiryaev’s images lies primarily in the traces, the smudges that emerge as a by-product of the process. For example, in “[60 fps] Laborers in Victorian England, 1901”,⁴¹ the colour shades of the clothes, the headgear, the walls and the objects in the background constantly change – from brownish to reddish or bluish – and sometimes even spill over the contours. The processes of increasing the frame rate and adding details to faces also leave traces, which is why, every so often, a movement, a step or a change in facial expression seems unnatural or distorted (for example, a leg takes on an unusual shape). Due to such and similar traces, *mistakes*, the figuration of people, objects and the impression of the depth of space are somewhat diminished. Thus, the surface of the images comes to the fore and so, despite the increase in the resolution and the frame rate, the images appear dimmed, blurred, haptic.

It seems that Shiryaev’s images represent a synthesis of both – the *poor* and the *rich image*. Shiryaev’s images are first *poor* images that conceal their *poverty* in order to enter the order of the *rich image*. With the help of AI and algorithms, they get rid of the markers of *poverty* – low resolution, a lack of sharpness, traces of use... They appear to the viewer as a *rich image*. Here, we might also take into account that the algorithmic process of AI is carried out by an expensive computer. The technological sophistication that is required for image generation and due to which Shiryaev’s images seem almost as a child of the future, too advanced for our current reality, is precisely what at least partially conceals the imperfection of the process – an imperfection that will be visible only retrospectively, just like video games seem perfected in their own time, but after ten years appear (especially in terms of the “graphics” as gamers would say) quite flawed and rough.

This gives rise to the question of why Shiryaev’s images cover their *poverty* – which can be answered in relation to Laura U. Marks’s concept of *haptic visuality*. The parallel between the *poor image* and *haptic visuality* is quite obvious already in the descriptions of the two terms by both authors. With its gradual degradation and lower resolution, the *poor image* gains a *haptic* quality – and loses its *optical* one. There are two directions in which low-quality *poor images* can be examined: (1) low quality is related to the everyday, accessibility, perhaps even a lower social status and echoes a certain form of deprivation; (2) for a Western viewer, accustomed to *optic*

41 Shiryaev, Denis. 2020: “[60 fps] Laborers in Victorian England, 1901”. Available at: <https://www.youtube.com/watch?v=5HbEIEqm1TQ&t>; accessed 16 June 2022.

visuality, *haptic* and therefore *non-optic poor images* are harder or even impossible to watch. The latter is confirmed by the response of the (presumably mainly laic) audience of Shiryaev's modified images: in the comments, we can recognise a common sentiment – the response along the lines of “now I can actually see [how people lived at the time, for example]”.⁴² The “now-I-can-actually-see” reaction therefore means that, *through* the low-quality images (copies) of early cinema films, it was not possible to (clearly) see and that many conditions of their creation, from the lower frame rate to the signs of wear and tear etc., actually prevented such a *seeing*. It was possible to *see* only when the film took on the form of (Shiryaev's) modified image. We can thus conclude that, by eliminating *haptic* and assuming *optic* qualities, Shiryaev's images testify to ocularcentrism, a viewer to whom only the highest quality (*rich*) images appeal; perhaps they can watch and actually *see* only (through) them.

The impression of authenticity

Shiryaev's images triggered a similar response as Peter Jackson's resounding project *They Shall Not Grow Old* (2018), in which similar processes were used to “revive” archival footage from World War One. A response that stands out and also captures one of the common denominators of most responses is: “When you see black and white, it is almost as if they are not real people but this really brought home the realities to you – the bodies, the death scenes, the injuries.”⁴³ Even if we read some of the most liked comments under Shiryaev's posts, we can find that most viewers describe a similar “now-I-can-actually-see” experience.⁴⁴ As if black-and-white images did not depict reality (or at least did not seem a convincing enough casting of reality) and seemed to the viewers that in their response to Shiryaev's images mention the impression of authenticity like an unconvincing record of shadows and light flashes in which one cannot really recognise any signs of life.

42 For example, under Shiryaev, Denis. 2020: “[60 fps] A Trip Through Paris, France in late 1890s / Un voyage à travers Paris, 1890”. Available at: https://www.youtube.com/watch?v=fo_eZuOTBNc&t; accessed 16 June 2022.

43 Sue Rhodes, quoted in Gribben, Paul. 2018: “They Shall Not Grow Old ‘brought the war to life for us”’. Available at: <https://www.bbc.com/news/uk-46194106>; accessed 16 June 2022.

44 If we quote only a few comments under “[60 fps] Views of Tokyo, Japan, 1913–1915”: “Every time I see a video like this I'm hit with a ‘wait, people actually lived during that time??’ for some reason. History feels like just a bunch of pictures and facts a lot of the time, so it's incredible to come this close to experiencing an actual moving world /...” by user csenge majoros; “This is so fascinating seriously. Everybody looking to the camera, like they're looking AT you. I feel like I'm there /...” by user Natashya Pramudita; “This is by far the closest we can get to a time traveling machine,” by user Damian Alvarez; “It's crazy how much they developed within just 100 years,” by user One Punch Man; “I felt such strong emotions by being able to see so far away in time. I'm truly speechless, this is incredible,” by user Lorenzo Kern; etc. Shiryaev, Denis. 2020: “[60 fps] Views of Tokyo, Japan, 1913–1915”. Available at: https://www.youtube.com/watch?v=MQAmZ_kR8S8&t; accessed 16 June 2022.

Such responses are especially interesting if we switch the emphases – after all, the black-and-white “original” is a high-resolution imprint of reality, while Shiryaev’s images are characterised by the technical imperfection of the process, changing colour shades, smudges, smoothed textures, deformation of the human face... The original is also a document of a past mode of filming and indirectly a mode of watching. So what does the observation that the viewers perceive the generated image as *real* tell us? It seems the reason lies in a wide-spread laic belief that older films mean a lower resolution that is more difficult to read, which characterises precisely the *poor image*, a form these films assumed due to their inaccessibility, the conditions of their marginalisation.

The “now-I-can-actually-see” responses are particularly unusual if we take into consideration that the process is not perfect: there are a lot of traces of *morphing*, smudges, deformed shapes, imprecise and inconsistent applications of colours... The modified images are thus imperfect, *dirty*. There are two directions of justifying the *smudges*: (1) they originate in technical limitations that suggest amateurism and at the same time claim that there would be no *smudges* if technical capabilities enabled that; (2) are not the smudges (that draw attention to the process itself) precisely that which enables the transparency of the image field, the lens? The latter is confirmed by the *history of dirty lenses*, the approaches whose purpose is to play with the viewer’s perception of reality/authenticity on the screen: for example, *surveillance* cameras are usually low-resolution and black-and-white or blue-and-white (this technique is imitated by the franchise *Paranormal* [2007–]); the principle of a hand-held camera in documentary films, which with its shaking directly intrudes in the intimate realities of fellow human beings; despite the increasingly higher capability of cameras, phone recordings of explosions in Lebanon, for example, or streamed events are characterised by artificial movement stabilisers, limitations in the computation of processors, shaking due to filming from hand, compression when (live) streaming... We could therefore even say that, despite avoiding “historical accuracy” or naming the process *restoration*, Shiryaev’s images are at least as *authentic* as the bad copies of the “originals”. But it seems that Shiryaev’s modified images are dirty in a different way – instead of a *dirty lens* they imply a *dirty showcase*.

Conclusion

Usually, an *image* is visually perfected where there are conditions for visual perfection – in a controlled, high-budget environment. On the one hand, there are processes of approaching reality, while, on the other, some big productions include processes of distancing, alienation. In case of the latter, I can mention the classical principles of lighting the characters: the three- or four- or multi-point lighting seems unnoticeable, but with a double twist – not only *as if it was real*, but also *as if it was really unreal*, real enough to sustain the fiction and enable us to *pretend* that it is real within the fictional world.

If the *poor image* (and with it the haptic one) is the domain of the lack of privilege, then the *rich image* is the domain of privilege and the *optical gaze* is the one exercising power, dominance. The *optical gaze enchants* the viewers: their gaze is only seemingly free; they perceive their real non-freedom as freedom (as Slavoj Žižek often explains about the “most dangerous form of non-freedom”⁴⁵). On the other hand, with its indeterminacy, incompleteness, the *haptic gaze* hands the power or at least a part of it to the viewer and their experience – which it at the same time cannot control. The domain of the *optic gaze* is to control and limit the possible broadness of the readings, while the *haptic gaze* opens a space for reading beyond the imagined.

It seems that Shiryaev’s modified images are not primarily *poor images* that try to transform into *rich images*, but remain *poor* because they fail. They are *rich images* pretending to be poor, so they can stage the process of *enrichment* before the eyes of the viewers and thereby trick them. Drawing on Steyerl, I could name them *enriched images*, which, as a sort of a Trojan horse of the *rich image*, enter the internet. The *enriched image* means the *rich image* and thereby its concealed fusion with capital and “*statično konservativnost*”⁴⁶ based on the “systems of national culture, capitalist studio production, the cult of mostly male genius, and the original version /.../”⁴⁷.

With its increasing presence on social networks, the *enriched image* opens many ethical, social questions. Some researchers have already warned that, for a suitable inclusion of AI and the related processes in society and a reflection on them, an interdisciplinary approach connecting knowledge from several areas will be required.⁴⁸ In her text “Prvi in drugi val umetne inteligence”, philosopher Olga Markič pointed out something similar:

The operation of neural networks is not based on logical reasoning, so the way they reach the result is non-transparent and difficult to understand. The data – the training samples on which the network learns and the goals it is supposed to achieve reflect the views and beliefs of the developers and the clients and depend on the social context. /.../ As a society, we today face the challenges of how to use smart tools without jeopardising our fundamental values such as justice, respect of privacy and transparency of decision-making, if I name only some of the most prominent ones.⁴⁹

45 For example in 2014: “What is freedom today? Slavoj Žižek | Comment Is Free”. Available at: <https://www.youtube.com/watch?v=UpPuTaP68Dw>; accessed 16 June 2022.

46 Ban Brejc 2022.

47 *Ibid.*

48 See, for example, Pretnar and Robnik-Šikonja 2018.

49 Markič 2019, p. 210.

The *enriched image* has a status that is partially similar to the status of early cinema in that it in itself functions as an attraction; it draws special attention as a technological novelty. The motive of the creators is, as one might surmise, also akin to the pioneer one – to see something in a way we have not seen it before. Nevertheless, it generally seems that the *enriched image* responds less to the mentioned period of film history and more to the circumstances, the context accompanying audiovisual (AV) images today. The danger of the *enriched image* hides in the exceptional speed with which it can be rocketed to the internet and in its extremely deceptive appearance. For the *enriched image* seems a quite different phenomenon from, for example, the distorted Jesus (the famous restoration of *Ecce Homo* by Cecilia Giménez) and Ted Turner's colourisation of *Citizen Kane* (1944),⁵⁰ which already a layperson can quickly recognise as failed and even problematic restorations. With its appeal, described by the impressed viewers on YT, the *enriched image* comes across as a phenomenon that cannot easily be rejected as only a rare amateur act of restoring film heritage, but appears to be a much wider and more complex phenomenon that does not concern only a narrow professional audience, as evidenced by its reach on social networks.

Although this paper has focused on one YT channel, it seems that I have thereby captured the basic features of images modified by AI, which a more thorough research and conceptualisation could also connect to the phenomenon of the images that are entirely generated by AI and do not draw on film heritage or other *external* images. It seems that distinguishing between the established practices of (ordinary) restoration and Shiryayev's algorithmic *enriching of images*, which is, among other things, the purpose of this paper, does not suffice to completely capture all the implications of using AI and neural networks to transform (or generate) film images. In the future, the use of AI in films could affect the production processes and creative approaches (to an even larger degree, for it already plays a role in processing the images/visuals: for example, where it is possible, AI is used to erase an object from the image field, cut the file of a completed film into individual shots etc.). The question of "authorship" and the relation between the user-creator and AI, the models through which the process is conducted (does the user speak through them or does AI speak through the user?), remains open. What happens (changes?) when an *enriched image* enters dominant commercial productions? The connection with AI appears to be the key question of the future of film.

50 Enticknap 2013, pp. 151–153.

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