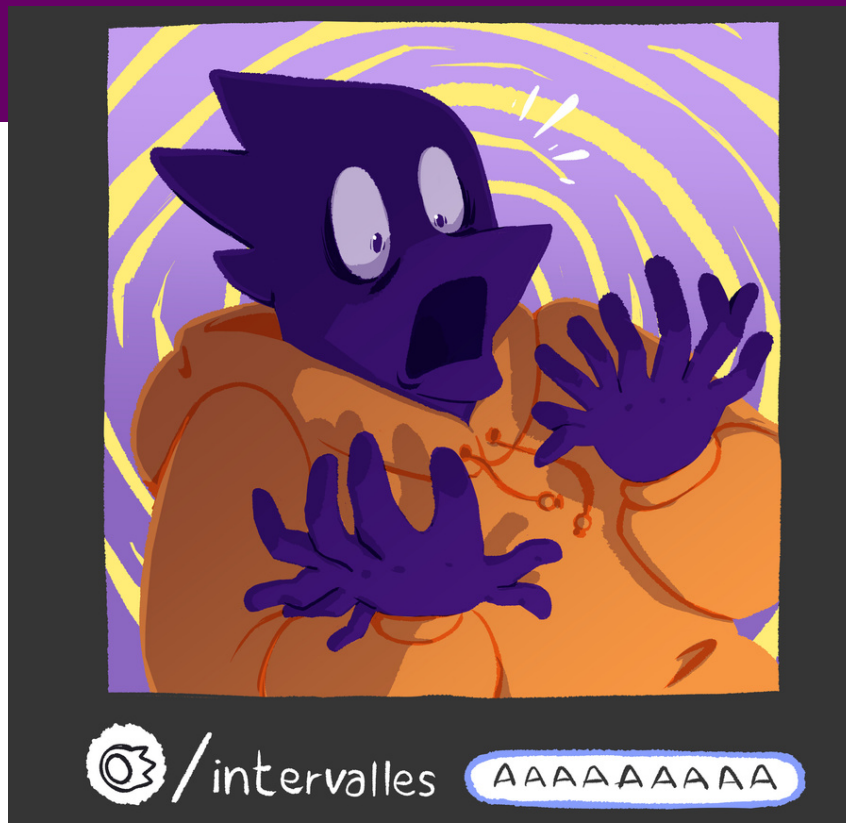# GENERATIVE AI AND ANIMATION: A BUSINESS MODEL IN NEED OF REGULATION

Since October 2022, we have noticed an increase of AI software used in professional visual works. It started with talks of new Generative AI programs such as Midjourney, Stable Diffusion, Dall.e, ChatGPT, etc., and shortly after, both generative texts and images were everywhere. It even got to the point where the latter was featured in art competitions, such as in the Mauritshuis Museum's winning reinterpretation of "La jeune fille avec la perle". This new technology is also now found in short films on platforms Netflix and Youtube: all the sets of "The Dog and the Boy" are AI-generated, and band Linkin Park's latest music video is entirely animated using AI. We are even starting to see voice generators used to complement pre-existing deep fakes.

Recently, during the biggest Hollywood strike since the 1960s, screenwriters, quickly followed by actors and actresses, demanded greater protection and governance framework for this new technology, fearing it would endanger their work. At the same time, many entertainment companies are currently extolling the virtues of these technologies, which they see as a democratization of art and a necessary evolution of creative labor. Amidst all of this, many people are still struggling to understand the extremely rapid evolution of AI. What is generative AI? Can it really replace a human? How does it work? In this article, we hope to shed some light on these questions, reassure you, but also warn you and give you a few keys to mastering the subject.

deep fake: reproduction of a person's face on video, frequently used in pornography, but also more recently in shows, such as "Hotel du Temps", to reanimate deceased celebrities.

How does machine learning work?

To understand the challenges of AI, it is important to define what is talked about here. "Artificial intelligence" is a misleading title: science-fiction tends to make us imagine a Hal persona like in 2001 Space Odyssey, with a personality, desires and ambitions, and the ability to paint and write scripts. In reality, we are still a long way from this, nor is it the aim of these programs.

A generative AI is a program that feeds on data to reproduce something that it considers to be equivalent to it. We can distinguish between two types of AI: image generators and language models.

Image generators are found in great numbers on the market. For example, Midjourney and Stable Diffusion both transform prompts (requests) into images. The majority of these generators are based on what is known as a diffusion model. You first give it an image and its noisy version, and the program is then trained to de-noisify the image in order to re-obtain the original. A description is then added to the original, for example "rabbit", "white", "acrylic". When the program is asked for "a white rabbit in acrylic", it will search its database for all images tagged rabbit, white and acrylic, and generate an image using these characteristics. Creating consistent results is complex, so the AI will need a very large number of images to perfect itself.
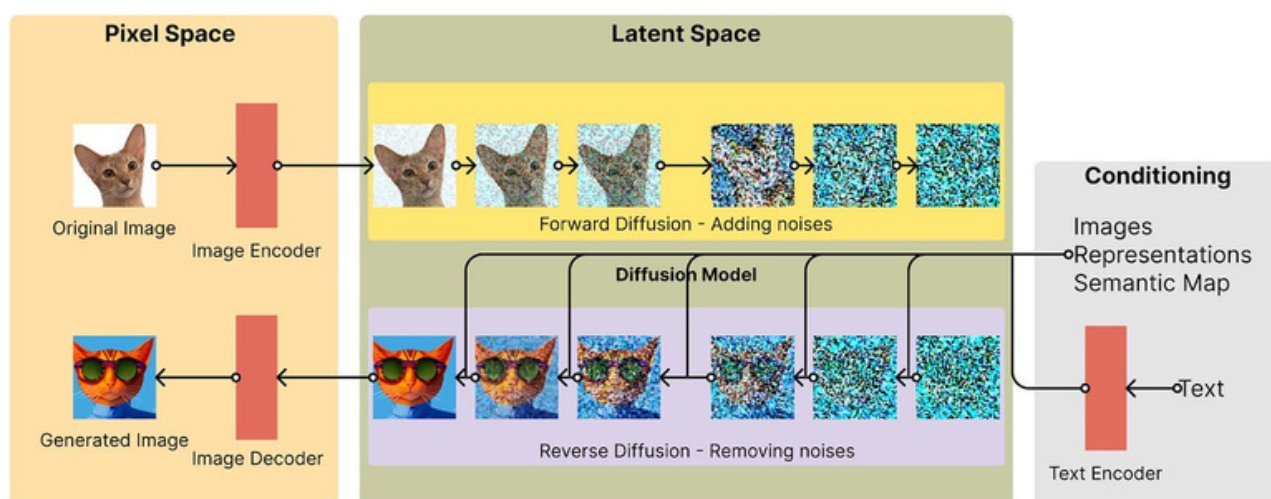
Chat GPT language models work in a similar way. They can calculate a logical sequence to the initial prompt, or complete a supplied text. Learning takes place in a contradictory way where AI and humans can correct proposals until a satisfactory result is achieved. But, the basis of this learning process is the acquisition of a large database. As with the other model, it is refined with each new use, regardless of its origin.

But where do all this data, images and text, come from?

 * noisy: blurred by pixel clouds of random color and brightness. It could be seen by turning on a cathode-ray TV.

Stolen databases

The website have i been trained, which lists all the images in the LAION database used by Open AI (also owner of ChatGPT and Dalle.e) to train Stable Diffusion, gives an idea of the quantity of images retrieved. The databases are created via a practice called scraping, consisting of massively collecting images or text from a website, and so without permission from the host site and/or the rights holder of the images or text. This includes millions of Amazon e-books, the whole of Wikipedia, your Facebook or Airbnb pictures, and of course, all of the drawings, 3D models and animations you may have posted on Artstation, Instagram, Pinterest, Twitter etc.

These databases are not made up of files saved on a huge server as you might imagine, but instead these are made of links to images hosted on the Internet. To simplify AI training, scrapping also retrieves hashtags associated with images on websites. Therefore, we can use the words "trending on Artstation" in a prompt to create an image in a style similar to the currently popular works on said platforms. In prompts, the names of certain artists or studios are sometimes used directly to create a result identical to their work. For this purpose, Midjourney users have created a list of all the artists whose works have been used to train the program by reproducing their style.

Library of Midjourney artists styles

Data regulation laws in Europe make it illegal to collect so much personal data for commercial purposes. However, Open AI, which is relatively transparent about its practices, has found a way around these laws. In an attempt to avoid legal liability, Open AI has split into two entities: on the one hand, Open AI Inc. an organization that collects data for research to "develop risk-free artificial intelligence that would benefit all mankind" according to their website, and on the other hand, Open AI LP, a for-profit organization that resells the technologies driven by its non-profit arm, thus playing on a legal limbo to exist.

Looking at Stable Diffusion's release note or interviews with Midjourney developer David Holtz, nowhere is it mentioned that this technology is a tool created to help and support (aspiring) artists. It's not a tool for creating mood boards or elements to be used in a larger art project. What these companies are selling is the ability to make "beautiful, finished images, without artistic talent or knowledge, in seconds".

That said, how do these technologies interact with our little world of French animation?

*LAION: German non-profit organization that shares open-source AI models (Large-scale Artificial Intelligence Intelligence Open Network)

Generative AI in the French animation industry

In animated film productions, Generative AI must be differentiated from the many technological evolutions that have already considerably changed our profession in recent years. The advent of digital technology and 3D has transformed the practice of animation at every level, with tools such as motion capture and 2D puppet rigging finding their place and creating new jobs. The digital era has also seen certain tasks evolve –particularly those considered entry-level in the industry, such as scanning and gouache painting– to the point of obsolescence. Some technologies, however, have shown the limits of the infatuation around new products pushed by tech companies, from stereoscopic 3D to the Metaverse and NFTs.

What uses are we talking about?

Currently, Generative AI tools are mainly pushed by software development companies: by encouraging mass adoption, they aim to legitimize their entrepreneurial project. In France, Kinetix raised 11 million euros in 2022 to develop deep learning technologies (Generative AI) to automate the creation of 3D models for the Metaverse and combine it with NFTs to market their models. Here, the aim is to replace the work of 3D artists with that of engineers and Generative AI. One example is Hugging Face, a Franco-American company that has raised 235 million in funding to sell AI and database models to companies. However, these developments are too little criticized within our professional sector, up to the point where Generative AI is presented and praised without sufficient counter-perspectives at major events such as the RADI-RAF (Rencontres Animation Développement Innovation et Rencontres Animation Formation) or the Carrefour de l'animation. For example, Mediawan praised Generative AI during a round-table discussion at the Carrefour de l'animation 2023, to a less cheerful, yet not opposed, representative from animation studio Blue Spirit. We can legitimately wonder here if such events are presentations, debates, or hidden lobbying.

In order to sell Generative AI software to animation companies, the main selling argument is productivity. Market communication is directed at company managers and executives, and focuses on reducing production costs by replacing artistic and technical positions with Generative AI. While the rhetoric used claims to offer nothing more than assistance to relieve creative positions, the software is clearly focused on replacing writing, concept art, storyboarding, character design, voice and music: creative labor that is, for the most, subjected to copyright in France. This logic also overlooks the many jobs that these tools are bound to make precarious or replace. The laborious technical solutions to which Generative AI would be of real use, such as denoising, colorization, image restoration or deblurring are rarely addressed, as these are less marketable.

What are we seeing from French companies?

With this promise of radical technical changes and significant cost savings, companies are already developing their own in-house tools, when they are not already openly using them to signify they are up-to-date with technology. Mac Guff Ligne, a major VFX and animation company in France, used Generative AI to recreate deceased celebrities in Hôtel du temps for France Télévision, and Dada! Animation is showing close interest as it can be seen in the studio's LinkedIn reposts; however, channel Arte has prohibited the use of Generative AI in the documentary Ils étaient des millions they are producing with Dada! Animation.

If looking into professional creation online is any indicator of the future, then such observation is quite alarming. Plagiarism and intellectual property infringements are everywhere online, as are fake images manufactured for virality. On the web, a precarization and devalorization of the creative and technician labor is ongoing, as workers see their art replaced by an AI available 24/7, with infinite revisions at virtually no cost. Creators are now competing AI generated images on crowdfunding platforms, social media and image-based search tools.

The main obstacles to increasing systemic incorporations by companies are partly legal: most AI technologies are fed by images stolen online, and their use could be penalized once legislation is established, potentially by loss of copyright as we can see happening in the U.S. The other obstacle is technical: AI is better at generating human images than other visual elements (animals, fluids, etc.), 3D is currently less affected than 2D, and while still images can give an illusion depending on the context, animated images using AI are immediately recognizable. Nevertheless, a number of short films have taken advantage of the popularity of AI to use it under the guise of avant-gardism, such as those currently shown at the PLSTC festival (Autour de minuit and Arte).

While generative AIs are often sold as a means to democratize creative labor, making it more accessible, this is however not the case. The Guide Écoprod sur l'animation (for eco-friendly animated productions) states: "R&D on AI generates a lot of GPU-intensive calculations, […] and therefore emits a lot of CO_2, but also consumes a lot of water through the large data centers in which the calculations are performed." Freelancers will have to use public tools based on stolen images (potentially on their own work). Only established companies will have the digital power and the image catalog to feed in-house AI, as Disney and Mac Guff Line are currently doing. Furthemore, the use of these tools will have ecological consequences at a time of climate emergency, when degrowth should be on the agenda. The accessibility of artistic professions is an important subject, and deserves its own article, however it is clear that the companies developing generative AI do not really care about a potential democratization of creation.

Of course, we can speculate that the French industry will seek to maintain its high quality standards for luxury productions (certain services for the USA, feature films and premium series). But considering that companies already do not hesitate (as much as allowed by public funding) in relocating to countries with lower wages and less labor regulation for mainstream productions (series, feature films), we can assume that if the AI solution proves to be cheaper and legal, it will certainly be adopted to the detriment of employees, both abroad or local.

*à différencier d'Illumination Studios Paris depuis la séparation des deux entités lors du rachat de la partie animation par Universal Pictures

What are the immediate impacts and opinions on (future) workers?

Some animation schools, such as Les Gobelins, have already started to offer courses on how to use Generative AI tools, as part of a technical and artistic program sold as useful for companies. This can only be seen as a pedagogical failure, devaluing the expertise of artist-technicians and paying staff with unclear qualifications to sell bad practices, including software with questionable legality and ethics. Other schools can also be mentioned: the communications department of the Pivaut school, via the Icônes group to which it belongs, used an AI-generated image in an Instagram post applauding itself on its ranking in The Rookies. Some students are concerned that these uses will ultimately devalue their diploma, and were keen to refute that they were learning AI at the school, particularly in the wake of strong reactions on social media platforms. It is an understandable panic response to a precarious tool that is evolving faster than students, and an additional burden for them due to poor communication from their school.

As of now, AI is only marginally used for independent projects, justified by increase in productivity, lack of budget or expertise. Using AI instead of workers has and will inevitably have an impact on the job market: young graduates will find it harder to find jobs as they are more easily replaceable, working hours will be reduced or the workload increased in a sector that is already precarious and subject to many abuses, and certain skills will disappear in favor of even more industrialized tools. While some justify the use of AI tools for lack of means or opportunity, the majority of workers condemn it and its consequences: plagiarism and job insecurity. Finally, it's important to remember that while automation in an industrial setting for jobs that are dangerous, repetitive and precarious, can be beneficial as long as workers are helped in their professional transition, this is not the case for creative and artistic jobs.

On the trade unions side

As of now, even if the concern of employees is palpable, the unions have not yet taken any public stance or negotiated with employers' organizations on AI uses. The absence of legal texts or targeted layoffs caused by AI have not yet provoked social movements. The sector's main trade unions – SNTPCT, CNT and SPIAC– have only recently begun to look into the issue, but they recognize that it is first and foremost a question of legal issues relating to copyright and intellectual property rights, and that actions will need to be aligned with trade union proposals in the North American market. As for the CFDT, also represented at the negotiating table, we have no sources confirming that these issues are taken into account in their union activities.

In the U.S, workers are organizing. American screenwriters represented by the WGA have succeeded in limiting the use of AI in their work: a right to transparency, to refuse to use WGA script material to feed AI, and a ban on forcing screenwriters to use it. SAG AFTRA actors have subsequently obtained similar rights to counter abusive contracts for the use of their images.

For the time being, American law does not recognize intellectual property on AI generated images, making them much less attractive for companies that wish to use them for cultural products. The Animation Guild, unable to strike in 2023 because of agreements made in advance, will make its voice heard in 2024 during contract renegotiations, to ensure that animation jobs are not impacted by the AI and to negotiate the framework of its use.

In France, the SACD (Société des Auteurs et Compositeurs Dramatiques), responsible for the copyright of French films, proposes five prerogatives to be enforced:

- A general obligation of transparency if AI is used in works
- Identification of works assisted or created by artificial intelligence
- Recognition of an effective opt-out for authors
- Guaranteed respect for authors' moral and economic rights
- The need to regulate the use of works by AIs

Opting out means actively requesting that works are protected from being used by companies to train their AI with massive image collections, and so despite copyright laws.
In groups such as Adami (performers) or Les Voix (dubbing), the demands are similar, leading to a statement for regulation in favor of artists, co-signed by Anim France and the SPI, which represent the heads of French animation studios.

And what about the law?

In the end, the impacts of AI on animation artists-technicians and artists will probably be defined by state regulations.

Protection could come from Europe, with the AI Act due to be published in early 2024, that will frame the use of AI in the European Union. France, with its moral and patrimonial rights to artistic works, should also create legislation on the use of Generative AI in business and culture. Inter-professional agreements will have to be reached between trade unions to regulate its use in the workplace.

One last thing could protect French productions: the conditionality of subsidies. The CNC and regional subsidies are the main source of funding from many productions, and could add clauses limiting the use of Generative AI in supported works. As for grants, residencies and scholarships, we are not in a position to specify if at the moment the use of Generative AI is taken into account, or if it is excluded from the selection process. If some AI-based works may have received support from the CNC, it is currently impossible to know whether AI use has been taken into account in the evaluation.

The inertia on AI media governance is significant because the industrial stakes of these tools are massive. If a country does not legislate it, it is likely that foreign projects will seek to relocate part of their production to save money. At the moment, many European and American projects are manufactured in lower-cost Southeast Asian countries. Similarly, American production made in France could be impacted if the latter aligns itself with the current U.S legislation relating to AI.

It is likely that various jobs in the animation industry will be affected unevenly. And in the absence of precise and enforced legislation, some practices will be popularized without any framework, to the detriment of workers. Some techniques, such as digital rotoscoping, collage, pixilation, motion capture or volumetric capture, already have a vague legal status and are sometimes used for budgetary reasons. If partial human retouching of an AI-generated image were to be legally qualified as a work of authorship, as it has been attempted several times in the U.S, it could lead to the spread of mixed uses of AI. Therefore, even with stricter lawS on the AI subject, such cases should be expected to multiply.

The risks of representation

The risk of Generative AI not only lies in its economic and ecological impacts, but also in its social impact. Because it feeds on pre-existing works available on the Internet, it is therefore biased by the human creations copied. Types of representation that are trivialized and popularized will be exacerbated by AI. For example, in recent months, we saw the emergence of AI-generated anthropomorphic versions of diverse countries, reproducing stereotypes associated with them. Beyond deep fakes, it also generates portraits with increasingly unrealistic and reductive beauty standards.

On social media platforms, AI-generated accounts have posted racist and sexist content. In 2016, Microsoft's chatbot Tay, a conversational AI, became a Nazi in just one day on Twitter. To prevent this from happening again, its successor Zo has had its capabilities restricted to prevent it from addressing political issues. As a result, both have been influenced not only by their creators, but also by the online words and elements they came across.

The databases used by Generative AI retrieve the worst of the Internet: dehumanizing pornography, hateful and violent images and texts, etc. The results produced by the machine can be moderated by the developers themselves. However, according to statistics published by Standford, because developers are 75% male and 80% white, this inevitably leads to biased results. AI will therefore repeat dangerous stereotypes: hypersexualized women, exoticized and fetishized non-white people, and minimally conservative representations. It may even be possible that, with time, AI will feed on itself to solely produce increasingly smooth and similar plagiarized images, unable to determine the human origin of the visual or text it wishes to collect and reproduce.

The tech world is a socio-cultural world, where the same creatures reproduce in large numbers: the "tech bros", as they're known in the USA, to whom we owe AI and other modern tools such as facial recognition and Instagram filters. The vast majority are white cisgender men from privileged backgrounds. They reproduce the environment in which they evolve in the tools they create, leading to malfunctions, shortcuts and biases. From movement recognizers that are not able to detect darker skins to misogynistic feminizing filters, they design their gadgets without taking into account the diversity of their users. The same goes for Generative AI: designed to reproduce the most common data collected, regardless of it making the rest invisible.

Disability consultant Jeremy Andrew Davis conducted an experiment in which he asked Midjourney to generate 148 portraits of people with autism (so beyond the scope of animation). The results showed that all the portraits were of white men, most of them with red hair, all of them sad, and some using the symbol of the autistic association "Autism Speaks". Unlike an artist who can explain their artistic approach, the AI gives no source or reasoning for its result. We can imagine that in the French animation landscape, which already lacks diversity, using AI without hindsight could lead to the persistence of stereotypes in texts and designs.

In an industry where artists from minority backgrounds already find it hard to break into, we can imagine that an AI allowed to bypass the human factor would contribute to dispossessing them of these representations. Therefore, if the Internet, our main search tool, becomes polluted with false and ultra-biased information and creations, it could be possible that an acculturation will take place in education and learning. Generative AI productions are interchangeable and indistinguishable from one another, further impoverishing the artistic field.

What can we do to protect ourselves?

While the findings of this article may seem disastrous, it's not too late to act. These technologies are still emerging, so we are at a crucial moment to define our rights and our relationship with them.

Organizations are fighting back

Organizations are already fighting to defend artists' rights against these new technologies. In Europe, the EGAIR association has protested to the European Parliament and as a result, the EU reconsidered its draft law on the regulation of AI, which until then had not included Generative AI. The European AI law plans for regulations based on the level of danger posed by these programs to civil society: here, EGAIR pushed Europe to consider Generative AIs as presenting a potential danger. Europe's draft law now provides for AI producers to be held accountable for violation of privacy and copyright, as it now requires transparency on the databases' content. The organization is still fighting for this project to be approved by the European Parliament. Meanwhile, in the U.S, the Concept Artist Association is the voice of artists' rights in entertainment, and they have been heard by the U.S Parliament on the impact of AI technologies in the industry. Both organizations are fighting for the rights of artist-technicians, and both have Gofundme to collect donations and continue their actions.

Individual steps to take

In terms of work protection, the opt-out option, or the possibility of removing one's personal work from a database so that it is not used during "prompting", is not a viable solution. To remove an image from a database yourself, you need to track it all over the Internet and remove it from all the websites hosting it. Because of how images circulate online, it is not realistic to expect artists to track their work across all existing platforms. Stable Diffusion has recently launched an opt-out service, whereby users provide their images so they cannot be used in image generation. For this option to be truly effective, all Generative AI technologies would have to offer this service. Because developers have a responsibility not to steal and commercialize this data, the opt-out system is an attempt on their part to shift the responsibility onto Internet users and artists, in the hope that most will simply not act on it.

There are, however, tools that attempt to protect images, such as Glaze and its future extension Nightshade. These programs add a filter almost invisible to humans, but which distorts AI's subject recognition. It will, for example, recognize a dog in an image when there is not one. Widespread use of this technology could have the effect of poisoning databases to the point of rendering them unusable.

Don't hesitate to make your voice heard on the subject and to write to institutions and government bodies at both national and European levels.
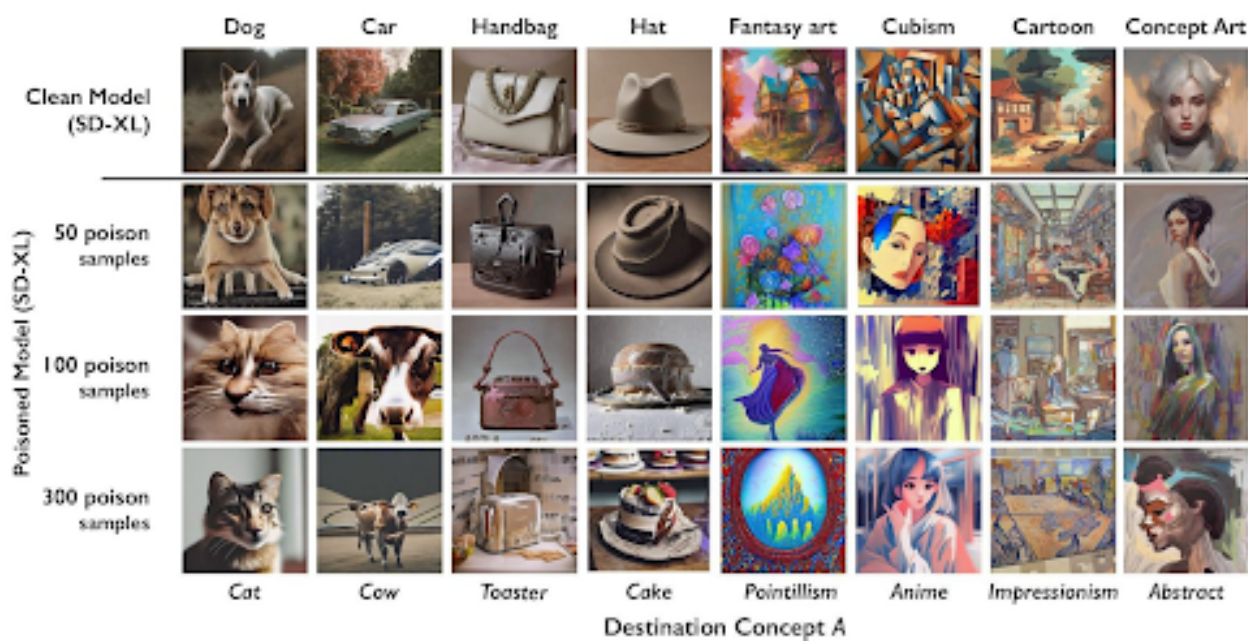
Conclusion

Fast developments in the use and management of Generative AI give us hope that the boom will not last long. AI, whether Generative or not, represents an immense threat to the automation of many jobs in all sectors. We need to remain vigilant, and make sure that governments, unions and companies deal with the subject, without waiting for jurisprudence on these issues. As we have shown, the problems are multiple: economic, ethical, ecological and social. It's important to know how to deconstruct arguments used by advocates of Generative AI and not allow ourselves to be swallowed in their guilt-inducing discourse. It is also a good idea to join a union and keep yourself informed on the labor law related to these issues. We can only encourage whistle-blowers to make themselves known and to denounce companies that are already abusing the use of Generative AI.

Glossary

OPT OUT: act of withdrawal, in this case from a database or from future collections
SCRAPING: massive, unregulated collection of data (images, text, video)
Machine learning: learning through the accumulation and comparison of data collected and generated by an AI
DENOIZING: reducing the digital noise of an image (multi-colored pixelation)
PROMPT: written request given to the software to frame its generative work

Videography

- Create Videos Instantly with Meta's Text to Video AI! - Text to Video Generator
- Nef Animation - Conférence : animation et intelligence artificielle
- Revolutionizing 3D with AI: A Game-Changer for Creatives !
- IA, le futur de l'animation ? [RADI-RAF 2022]
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- Pour Marvel, Method Studios adopte l'IA… Et relance la polémique sur leur usage
- IA et effets visuels : Wonder Studio sort de beta fermée
- Interview : IA et temps réel chez Dada ! Animation
- Quel est l'impact de l'intelligence artificielle sur la création artistique en 2023 ?
- Intelligence artificielle : « Construisons dès aujourd'hui une IA de rang mondial respectueuse de la propriété littéraire et artistique »
- De ChatGPT à Midjourney, les intelligences artificielles génératives s'installent dans les entreprises
- Un musée provoque un tollé en exposant une "Jeune fille à la perle" créée par une intelligence artificielle

LES INTERVALLES