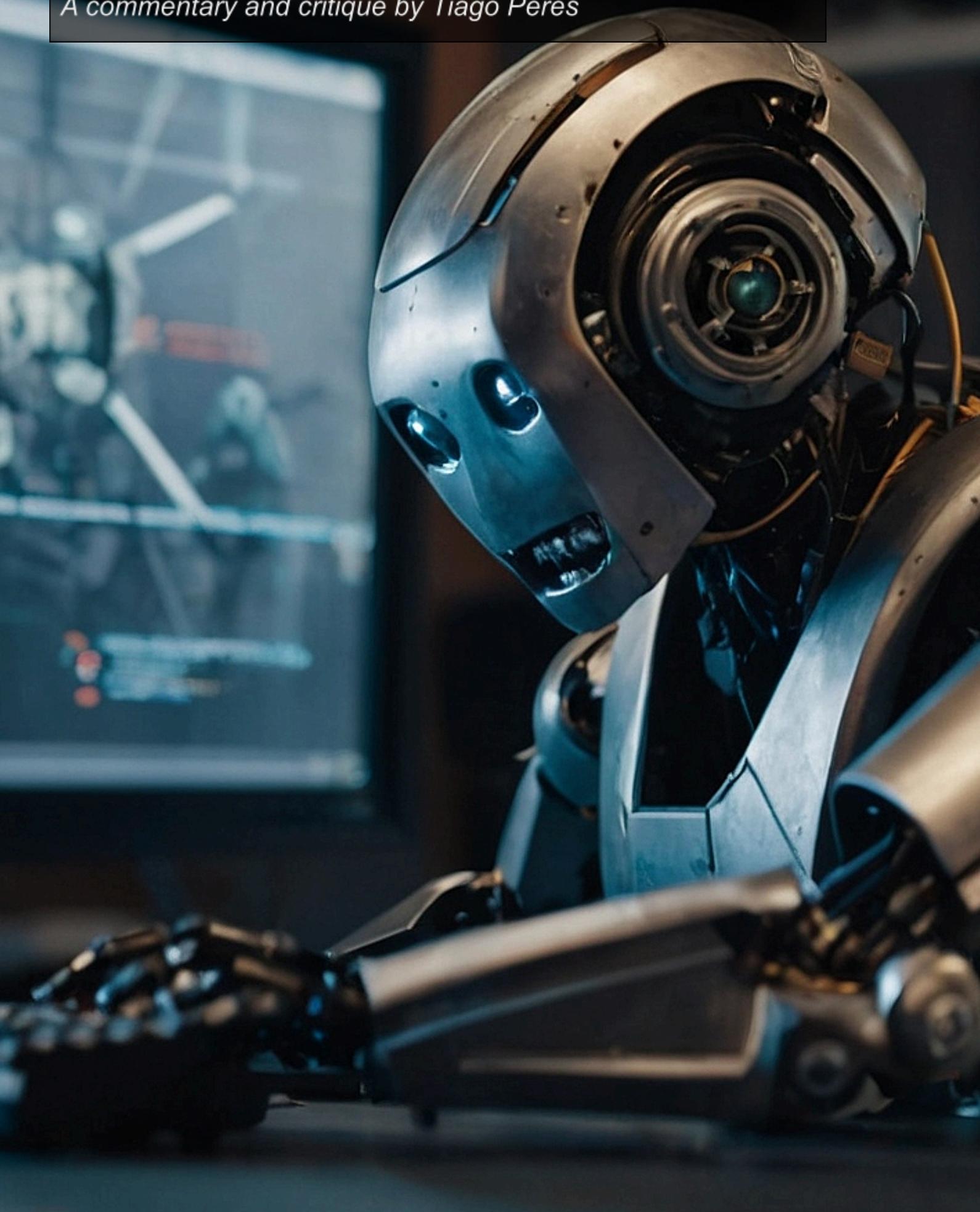


# *The Ethics of Generative AI In Games*

*A commentary and critique by Tiago Peres*



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# Introduction

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The integration of generative AI technologies within the gaming industry represents a significant leap forward, offering unprecedented opportunities for creativity and innovation. However, alongside its transformative potential come profound ethical considerations. I aim to explore the ethical landscape surrounding generative AI in gaming, addressing issues of fairness, accountability, player autonomy, and societal impact. Through analysis of case studies and industry practices, we seek to elucidate the ethical challenges and opportunities inherent in the deployment of generative AI, advocating for a balanced approach that prioritises player welfare and aligns with ethical imperatives.

Speaking of AI, could you tell the above paragraph was written entirely by (ChatGPT) AI? Could you also tell the cover page of this essay was created by (Leonardo) AI? Would you mark down this essay for using a paragraph of generated text or a few reference images? At what point do we start getting worried about AI replacing human input and thought? These are all important questions to consider in our rapidly changing world. The creation of new generative AI creates many ethical questions and problems which need to be discussed and solved before it leads to a problem which can't be solved.

The gaming industry has always been inseparable from AI. While the general public may only be hearing the term fairly recently, gamers have been referring to AI for as long as single player gaming has existed with the release of Speed Race in 1974. However, although AI has always been linked to gaming, the concept of generative AI is a bit different. Generative AI can generate text, images and other material. The AI can use user feedback and human created material to learn and train themselves to improve the material they create. In terms of gaming, this can be used to create characters, items, stories etc. which will be completely unique to any one player as it has been generated entirely by AI. Despite the opportunities generative AI can give the gaming industry, there are several ethical issues to be brought up. Some of these issues will be discussed in this essay which will be divided into 3 possible uses of generative AI in games:

- Generative gameplay content
- Character creation and animation
- Voice acting and sound

# 1. Gameplay Content

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Modern computer games often consist of content in the form of collectible items, quests, environments to explore ect. Content can also come in the form of images shown to players on a menu or start up screen; video cutscenes to convey a story or UI icons to give the player information. All these things are important for players to become engrossed in a game's world and are carefully crafted by developers and artists over long and difficult stretches of time.

## 1.1 Usage and benefits of AI

In the modern gaming environment, gamers are always looking for something new and exciting. Being asked by a game character to travel far and wide only to collect some items and travel all the way back (known as a "fetch quest") can be extremely boring. Having to escort a character from one place to another while only being able to slowly walk (known as an "escort mission") can be tiresome (Clark, 2017). These quests exist mostly to make the game longer or to control its pacing. Although this content can be needed, such repetition is dull and can be improved with the assistance of generative AI. Generative AI can analyse your gameplay and develop an engaging storyline or reasoning behind a usually boring fetch quest or escort mission. The AI model can also create corresponding, realistic dialogue between characters to improve the storyline of the quest. Entire sub-stories and quests can be entirely generated by AI to create a unique, engaging player experience which can continue for hundreds of hours if needed. The game Baldur's Gate 3 by Larian Studios released in 2023 uses this exact concept to generate stories that adapt to your every choice (How Was AI Used in Baldur's Gate 3?, n.d.). AI algorithms and language models generate NPCs (non player characters) dialogue and actions that differ entirely depending on every action you make. This generation of content ensures every player has an engaging and dynamically changing experience tailor made to them, keeping them playing endlessly.

Another popular use of gameplay content using generative AI is the visuals. Game artists can take years to create their ideal vision of characters and vistas that are so otherworldly they are difficult to imagine. Artificial intelligence is now at a level in which convincing art can be easily created of any scene in any art style by anyone in the world. No matter their ability to draw or paint, any developer can see their vision come to life with the use of generative AI. The AI uses user created material from around the internet to train itself on creating the most realistic artwork possible. Although there are some flaws in some AI art such as hands drawn with warped/missing fingers (Chayka, 2023), generative AI is constantly improving itself to overcome these issues. Even big AAA gaming companies such as Square Enix are using AI art which shows the potential and uses of generative AI (Square Enix Confirms Foamstars Contains Some AI Generated Art, 2024). An entirely AI generated game was created and posted onto the online game store Steam. Everything from art, story and music were generated by AI which cut down development time drastically and created unique imagery fairly easily (AI-Generated Games Are Starting To Appear On Steam (And It's

Not Going Well), 2022). However, reviews for the game are mostly negative with many players and commenters criticising the use of AI and giving their ethical concerns.



Figure 1. (Lauren Walsh → ECCC AA I-08 [@LaurenWalshArt], 2022)

One can see from this tweet on generative AI creating cover art for a game that despite all its amazing uses, the ethics of generative AI have to be addressed.

## 1.2 Ethics of generative AI

With generative AI creating gameplay content such as text and art, amazing things can be created but before they are used freely, the ethics of this content should be analysed. There are several issues, some of which include:

**Intellectual Property Rights:** Intellectual property laws grant ownership of content to people depending on their originality. Artists are able to monetize their works through these laws to get the recognition and payment they deserve whenever their work is used by others. Generative AI is trained by inputting human created art or text to generate art/text derivative to the original works. Artists are not asked for their permission to use their work as input data and the generated content can often end up looking very similar to the artist's original work. An original, unique artstyle can quickly be copied by generative AI and sold off as original (*When AI Stole and Finished Your Drawing Then Calls You a Thief – Superpixel*, n.d.). This is a big ethical problem as artists can lose credit for their work due to the ownership of content generated by AI being very questionable. Ownership of generated content is highly debatable between the original artists the AI used to train itself; the person who generated the content or the AI itself. Below can be seen an artist's original digital painting (right) and AI generated art (right) using the original as input data. If this issue is not brought up, many artists could lose credit for their work and see it being "stolen" for use in big gaming titles.



Figure 2. (*When AI Stole and Finished Your Drawing Then Calls You a Thief -- Superpixel, n.d.*)

**Diversity, non-discrimination and fairness:** When generative AI is trained, a large amount of human created input data is used to ensure the highest quality of output. Unfortunately, that data can contain biases and harmful stereotypes which can be hurtful to some people. If special care is not taken, the AI could perpetuate these biases in the gameplay and cause more harm than good. The European Commission has set up Ethics Guidelines for trustworthy AI in which it details the importance of diversity and the principle of fairness (*AI High Level Expert Group\_Ethics Guidelines for Trustworthy AI.Pdf*, n.d., p. 18). This framework details that discriminatory bias must be eliminated when data is being collected and input. This shows the importance of human involvement in the training and development of generative AI. The guideline also suggests hiring developers from diverse backgrounds to ensure a variety of opinions on the data being generated by the AI. Unfortunately there are already cases of generative AI being created without these principles being taken into account. A Chinese generative AI generated images misrepresenting people of colour, perpetuating racism and discrimination (VK, 2022). The image below is a real but horrible example of the AI being trained on biased data.



Figure 3. (*Ramen\_up\_my\_ass*, 2022)

**Job displacement:** An important and perhaps the most talked about ethical concern is the loss of job opportunities due to AI. If an indie game developer is working with a limited budget, they may decide to purely use generative AI rather than hire artists to create gameplay content. As part of the European Parliamentary Research Service, the Panel for the Future of Science and Technology (STOA) created a study on the ethics of AI (European Parliament. Directorate General for Parliamentary Research Services., 2020). The study details that many researchers and experts believe AI will force many jobs to become obsolete as workers struggle to keep up with the rapid advancement of technology. A survey given to AI experts shows some hope as a majority of AI experts believe more jobs will be created than lost as a result of AI (European Parliament. Directorate General for Parliamentary Research Services., 2020, p. 6). This is still worrying however, as gaming companies have to reassess the way employees are trained and AI is used in order to uphold fairness.

## 2. Character Creation and Animation

One of the most important things about games are their characters and how they interact with the player and the world around them. If their behaviour is strange and unrealistic, a player's immersion can be totally broken. Making realistic behaviour for characters and other creatures includes noise/speech and animation to make them feel real and alive.

### 2.1. Usage and benefits of AI

Although game developers try their best to create the best characters they can, there's only so many voice lines that can be written and recorded until the character starts repeating themselves. It takes great effort and skill to make engaging with these characters interesting and even if that goal is achieved, there is a limit to how many convincing characters that can be created. Creating a thriving world like our own where each person is unique is a seemingly impossible task for game developers without generative AI. AI can train itself on the way people speak, move and act to constantly improve and create a character that evolves with the world around them. A character using generative AI can have realistic conversations that are always different and engaging if developed thoroughly. Inworld AI is a product like this which can generate realistic characters that can adapt and react to the player and the world around them (Inworld Engine, n.d.).

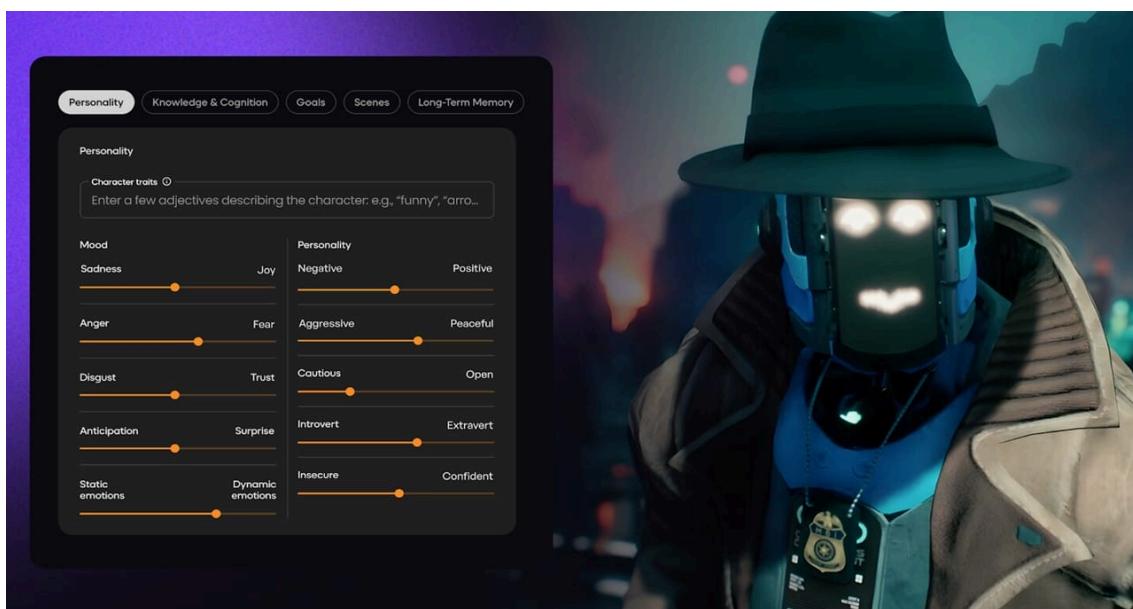


Figure 4. (Kim, 2023)

As you can see in the above image, various personality traits can be modified to create an initial character which will evolve with the player's actions or the storyline. The character's entire appearance can be generated along with realistic and expressive movements. This technology can create endless possibilities in storytelling and is already being used by big game developers such as Niantic (creators of Pokemon GO) and NetEase (big Chinese games and media company) to create convincing characters (Case Studies, n.d.).

Another use of AI in character creation (which is not often thought of) is animals. It is difficult and time consuming for artists and animators to manually animate the way an animal might move. Especially when they are dealing with wild animals which are difficult to obtain reference material for. Therefore, Ubisoft has developed an AI tool known as ZooBuilder which can take data from videos and images of animals and learn from them to create realistic animations (Ubisoft [@Ubisoft], 2022). The AI uses the videos of the animals in the wild to understand how that animal would move in a 3D space and generates joints and bone data that animators can transfer onto 3D models to bring the animation to life. In this way, actual animal movement can be shown and played with in-game, bringing the game world to a whole new level of realism. This also allows for a much safer and easier development experience as wild, dangerous animals do not have to be physically dealt with or motion-captured. However, while this technology may seem great for developers, there are several underlying ethical issues which have to be brought up.

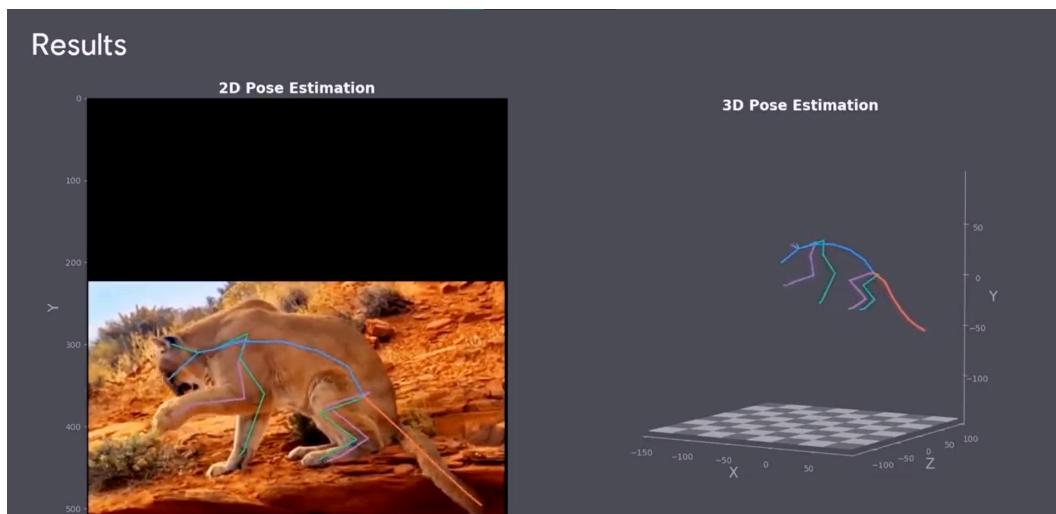


Figure 5. (Ubisoft [@Ubisoft], 2022)

## 2.2 Ethics of generative AI

The ethics of generative AI in character creation shares many of the same concerns as those in gameplay content creation. Character creation involves using real human input data to train the AI to generate speech and emotion. This calls into question whether the person being used as reference material for the AI has given their permission for this. This also can perpetuate harmful bias/stereotypes if the data the AI uses to learn and improve themselves contains harmful content. Character creation normally requires skilled coders and writers whereas AI can do all these jobs by itself. It's important to make sure human involvement still occurs when working with AI and new jobs are created that cannot be replaced and work in harmony with AI.

**Informed consent and transparency:** When working with character creation, in-game generative AI could improve greatly if it used the interactions with players to learn. However, this means that the AI and the company/developers who own it must take players data as input. This brings into question whether a player has consented to their data being used by

someone else. Often the only way players are informed of their data being used is through an End User Licence Agreement (EULA). This document is often extremely long and uses difficult jargon and vocabulary for the common person. This causes most players to skip through the EULA and simply agree to it without knowing exactly what they are agreeing to. This is a big concern as companies can rely on users not having the patience to read through hundreds of pages of the EULA to use whatever data they want (Koebler, 2017). Without knowing, players can give away their rights to anything they do and say in-game which can be used by developers in any way. It is extremely important to uphold the principles of consent and transparency to make gamers aware how their data is being used to improve AI NPCs in a game. Ironically, a company LexCheck has created an AI to improve writing EULAs and other contracts to increase transparency to users (*AI Is Key To Avoiding Pitfalls Writing End-User License Agreements*, n.d.). In this way, AI can also be used for ethical means if monitored carefully.

## 3. Voice Acting and Sound

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An often overlooked area of videogames are their voice acting, with some games having voiceless characters with only text to represent their dialogue. For the vast majority of people, sound and speech are what makes them understood and conveys emotion. A bad voice acting performance can break a player's immersion in the game entirely while a convincing performance can evoke a myriad of genuine emotions from players. Therefore, for a convincing game character, the way they sound should be taken into consideration.

### 3.1. Usage and benefits of AI

Although there are many great voice actors, many game development studios do not have the access to voice actors or the funds required to hire a good one. This is where AI can be of assistance. Generative AI can create realistic speech and even singing either by giving the AI a written prompt or by inputting audio which the AI will transform. Developers can create a whole cast of characters, each with different voices to accurately reflect their appearance. This AI can be combined with character speech AI to generate new, unique speech in real time that players can hear. A developer's ideal vision can be brought to life by tweaking the AI and making it learn from voice data of the developer's wanted voice style. A common downfall of voice acting AI is how fake and robotic it sounds as shown by its terrible usage in games such as Gene Rain (with awful reviews and being removed from the Steam store). However, AI voice technology is evolving rapidly as the AI learns and improves.

Replica is a generative AI voice acting library containing many voices that developers can use and modify to fit their characters (*About Replica Studios*, n.d.). By simply inputting text into the program, Replica converts it into convincing, realistic speech. The easy to use nature of it allows anyone to add voice acting into their games for hardly any cost. Another big gaming company Mihoyo also used a similar generative voice AI to input voice data of a real voice actor and generate new speech which sounded almost exactly like the voice actor (Schwartz, 2022). In this case, the actual voice actor was not able to record his lines for an in-game event so the AI was extremely useful in making sure the voiced character was still able to be involved in the event. In this case, the voice actor gave explicit permission for the company to use his voice data. However, this is not always the case and can lead to big ethical concerns.

### 3.2 Ethics of generative AI

As with the other uses of generative AI, AI voice acting can also go against the ethical frameworks of consent, intellectual property rights, harmful bias etc. Unfortunately harmful stereotypes exist even in speech. If generative AI is trained using this media it will create voices that perpetuate these biases and exclude character voices based on their cultural accent/dialect.

**Informed consent and Ownership and attribution:** As with image and speech generation, consent is also important when using existing human voices as input data to generate AI voices. Although it is often forgotten, a person's voice is also their intellectual property and should be regarded as such. If a voice actor's voice is used without consent by generative AI to create voice acting which sounds like a copy of them, this is a big ethical violation. Although I have discussed the potential uses and benefits of the voice acting library Replica, it was recently involved in an ethically problematic agreement. The agreement was struck with SAG-AFTRA, a union which represents voice actors and allows the company to use actors' performances to create AI clones of their voices (Murray, n.d.). This was done without the voice actors permission and violates the trust they have in the union which is supposed to represent them fairly. This agreement can take away opportunities for lesser known actors as every developer can now exclusively use the most popular actors for every game. It is important for developers and players to stand against ethical violations like these to prevent a disastrous future.



Figure 6. (Twitter et al., 2024)

## 4. AI in practice

As explained in this essay, generative AI is extremely useful if developers do not have access to a good artist. My friends and I encountered this exact issue when we needed to make a menu screen and trailer for our small online game. The visual theme of our game was synthwave, futuristic Wild West which is an extremely niche style. Therefore we could find no online, free assets and we did not have the budget for hiring an artist. We used AI to generate some images for our title screen using Leonardo AI which we found to be the best option to get the results we wanted.

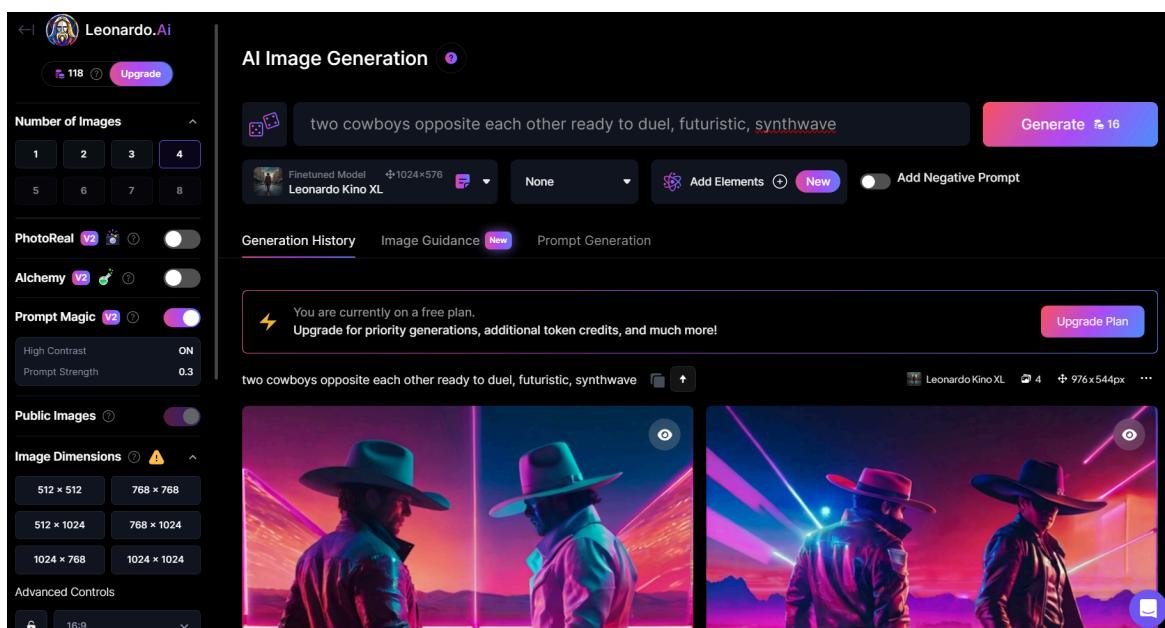


Figure 7. (AI Art Generator - Create Art, Images & More | Leonardo AI, n.d.)

As this is a freemium tool, users are allocated a certain amount of credits which regenerate slowly over time. Each time a prompt is entered and images are generated, users have to spend their credits and pay for more if they run out. On the sidebar you can adjust the AI model being used along with the number and size of images. Choosing higher quality AI models cost more credits. With this AI we generated many images and chose 2 for the menus.

As seen below, the images are not very well generated with many details faded and smeared such as the faces and backgrounds. Some objects such as the guns and coats are created illogically and unrealistic. Most publicly available image AI is not very good quality and costs a premium subscription to improve. Therefore even low budget developers are forced to spend some money to generate decent assets.



After generating these assets, we used Leia AI to animate them. As seen below, this AI is customisable with quite a few animations and options to change. Sadly, another limitation of the generative AI is that the animation does not loop well which is noticeably bad.

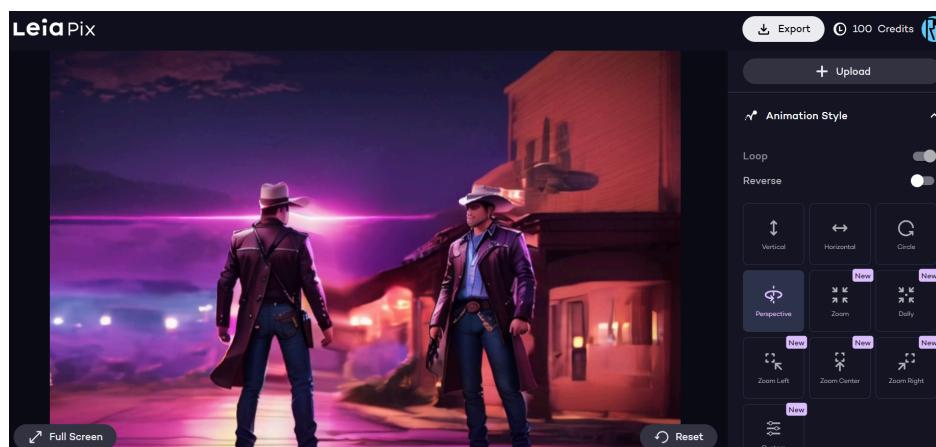


Figure 8. (LeiaPix | Depth Animations, n.d.)

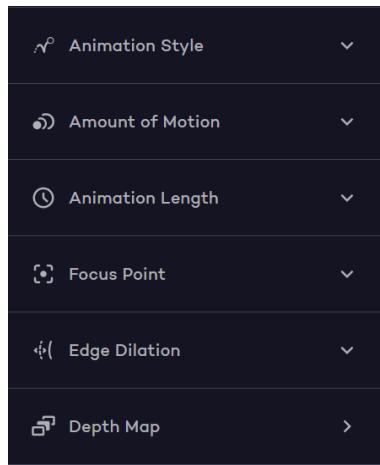


Figure 9. (LeiaPix | Depth Animations, n.d.)

After creating these animations, we wanted to make a trailer with cool voice acting which we could not do ourselves. We used Elevenlabs which allowed us to write the script for the trailer and choose a voice to read it out. There are many settings as seen below and users can even use the AI to create their own voice actor by inputting audio files and modifying them. There are also many languages the AI can generate voices for.

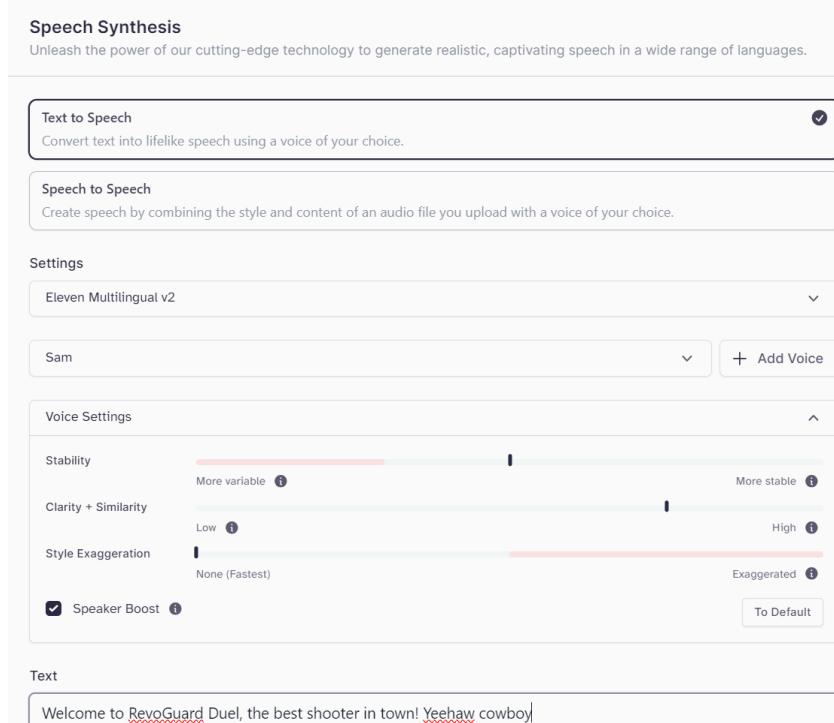


Figure 10. (AI Voice Generator & Text to Speech, n.d.)

There is also a voice library where users can upload a voice model they create of their own voice and get paid everytime someone uses it. The narration worked very well for our trailer even though there are some segments in which the pronunciation of words is a bit strange.

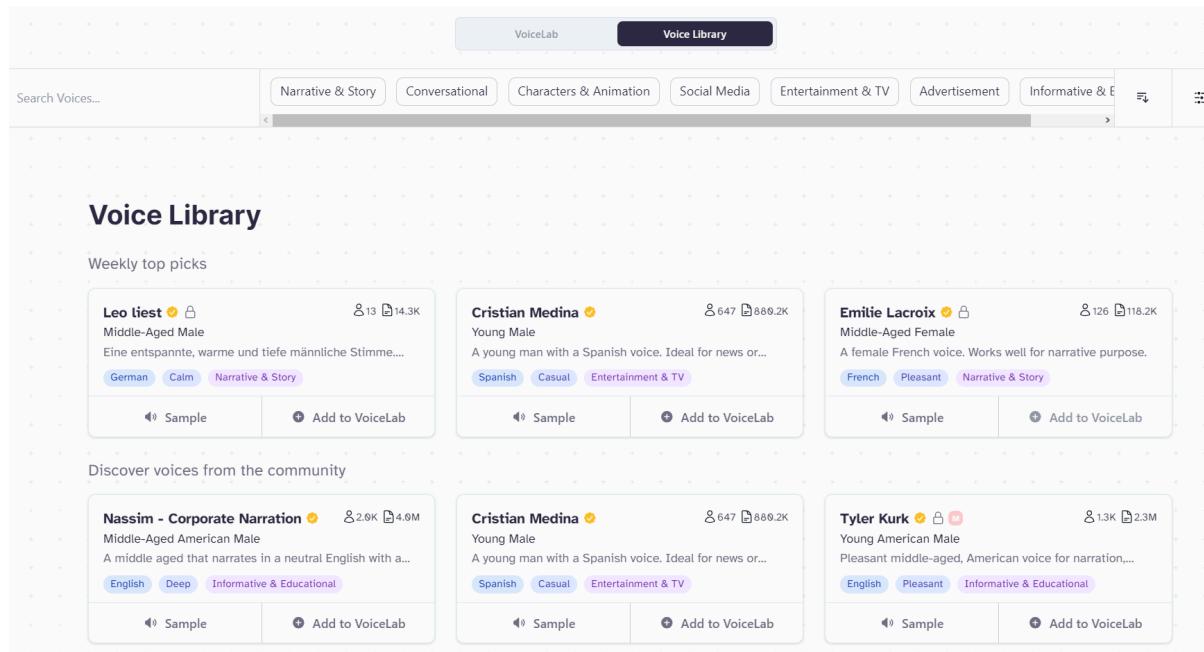


Figure 11. (Voice Library, n.d.)

All the animations we generated and the trailer can be viewed in action through this link:  
<https://drive.google.com/drive/folders/1ndtlvTHIUzgNDFpM2adSseXzA2SciYXW?usp=sharing>

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