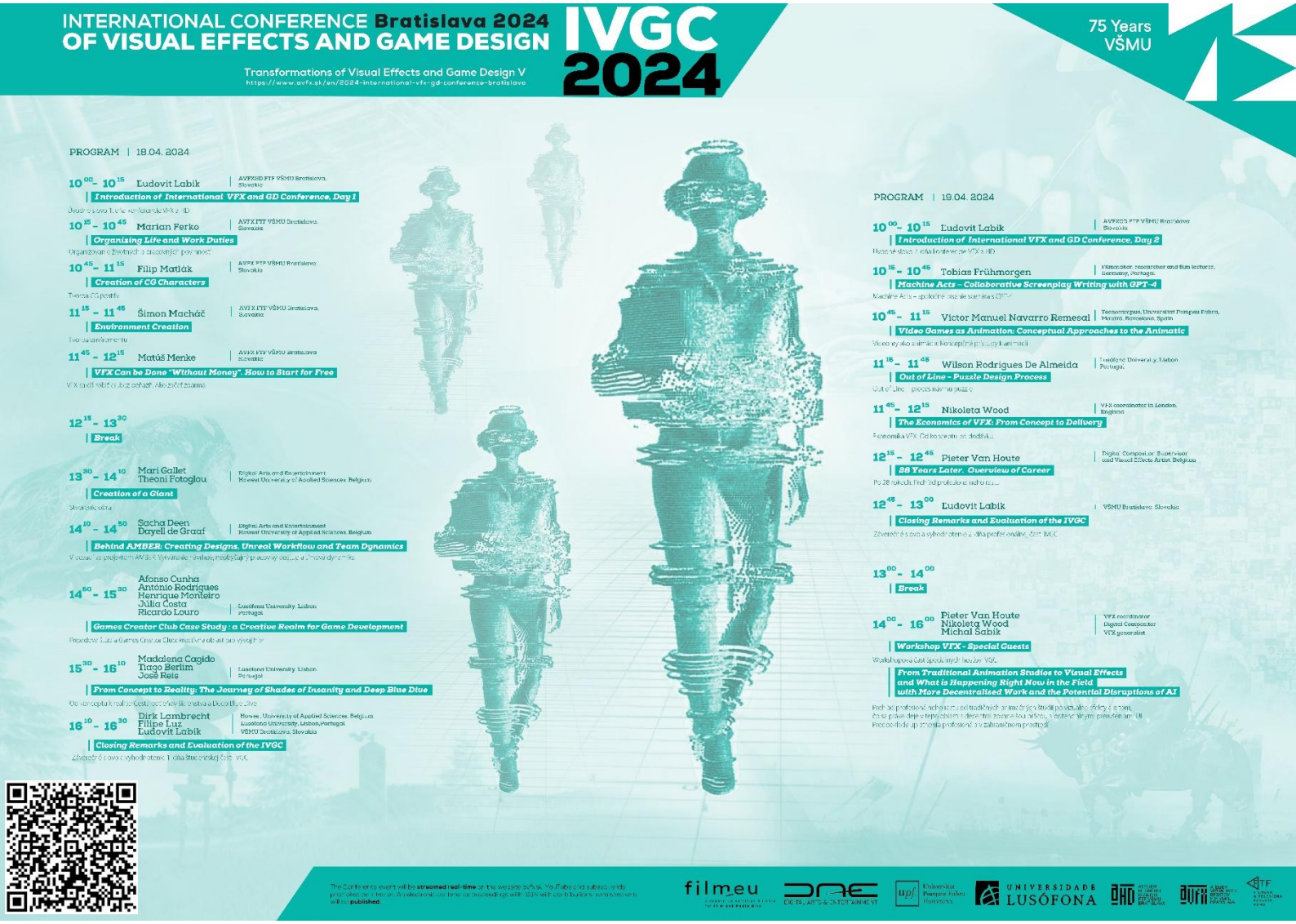
IVGC 2024 – PREMENY VIZUÁLNYCH EFEKTOV V
IVGC 2024 – TRANSFORMATIONS OF VISUAL EFFECTS V

Proceedings of conference papers of the International Conference VFX and GD in Bratislava 18-19.4.2024



18-19.4.2024, 10.00-17.00 took place:
IVGC 2024 – INTERNATIONAL VISUAL EFFECTS AND GAME DESIGN CONFERENCE BRATISLAVA 2024
organized by the Department of Visual Effects and Game Design, FTF VSMU Bratislava, Slovakia.

The IVGC 2024 event was streamed live on the websites of www.avfx.sk and YouTube and subsequently promoted on the Internet.

https://www.avfx.sk/en/2024-international-vfx-and-gd-conference-bratislava-day-1
https://www.avfx.sk/en/2024-international-vfx-and-hd-conference-bratislava-day-2

PROGRAM of the 1st day:

10,00 – 10,15	ĽUDOVÍT LABÍK – INTRODUCTION OF THE 1st DAY OF INTERNATIONAL VFX AND GD CONFERENCE Head of Department of Visual Effects and Game Design FTF VŠMU, Bratislava, **SLOVAKIA.**	
10,15 – 10,45	MARIÁN FERKO – ORGANIZING LIFE AND WORK DUTIES Student of the 1st master's year in AVFXGD FTF VŠMU Bratislava. Teacher at the Department of Game Design at the FTF VŠMU in Bratislava, **SLOVAKIA.**	
10,45 – 11,15	FILIP MATLÁK - CREATION OF CG CHARACTERS Student of the 1st master's year in AVFXGD FTF VŠMU Bratislava. **SLOVAKIA.**	
11,15 – 11,45	ŠIMON MACHÁČ - CREATING ENVIRONMENTS FOR GAMES AND MOVIES Student of the 1st master's year in AVFXGD FTF VŠMU Bratislava. **SLOVAKIA.**	
11,45 – 12,15	MATÚŠ MENKE - VFX CAN BE DONE "WITHOUT MONEY" HOW TO START FOR FREE Student of the 1st master's year in AVFXGD FTF VŠMU Bratislava. **SLOVAKIA.**	
12,15 – 14,00	BREAK	
14,00 – 14,45	MARI GALLET, THEONI FOTOGLOU - CREATION OF A GIANT Students of the 1st master's year in Howest University of Applied Sciences - Digital Arts and Entertainment, **BELGIUM.**	
14,45 – 15,30	SACHA DEEN, DAYELL DE GRAAF - BEHIND AMBER: CREATING DESIGNS, UNREAL WORKFLOW AND TEAM DYNAMICS Students of the 1st master's year in Howest University of Applied Sciences - Digital Arts and Entertainment, **BELGIUM**.	
15,30 – 16,00	AFONSO CUNHA, ANTÓNIO RODRIGUES, HENRIQUE MONTEIRO, JÚLIA COSTA, RICARDO LOURO - GAMES CREATOR CLUB CASE STUDY: A CREATIVE REALM FOR GAME DEVELOPMENT Students of the 3rd bachelor's year in Lusófona University, Lisbon, **PORTUGAL.**	
16,00 – 16,30	TIAGO BERLIM, MADALENA CAGIDO, JOSÉ REIS - FROM CONCEPT TO REALITY: THE JOURNEY OF SHADES OF INSANITY AND DEEP BLUE DIVE Students of the 3rd bachelor's year in Lusófona University, Lisbon, **PORTUGAL.**	
	PHILOSOPHY OF VFX AND GD DEPARTMENTS OF THREE SCHOOLS	
16,30 – 16,40	DIRK LAMBRECHT – CLOSING REMARKS AND EVALUATION OF THE 1st day of IVGC 2024 Teacher Howest University of Applied Sciences - Digital Arts and Entertainment, **BELGIUM**.	
16,40 – 16,50	FILIPE LUZ – CLOSING REMARKS AND EVALUATION OF THE 1st day of IVGC 2024 Teacher Lusófona University, Lisbon, **PORTUGAL.**	
16,50 – 17,00	ĽUDOVÍT LABÍK – CLOSING REMARKS AND EVALUATION OF THE 1st day of IVGC 2024 Teacher of Department of Visual Effects and Game Design FTF VŠMU, Bratislava, **SLOVAKIA.**	
17,00	ENDING	

PROGRAM of the 2nd day:

10,00 – 10,15	ĽUDOVÍT LABÍK – INTRODUCTION OF THE 2nd DAY OF INTERNATIONAL VFX AND GD CONFERENCE Head of Department of Visual Effects and Game Design FTF VŠMU, Bratislava, **SLOVAKIA.**
10,15 – 10,45	TOBIAS FRÜHMORGEN – MACHINE ACTS - COLLABORATIVE SCREENPLAY WRITING WITH GPT-4 Filmmaker, researcher and film lecturer, Lusófona University, Lisbon/FilmEU European University/Filmuniversity Babelsberg. **GERMANY/PORTUGAL.**
10,45 – 11,15	VICTOR MANUEL NAVARRO REMESAL – VIDEO GAMES AS ANIMATION: CONCEPTUAL APPROACHES TO THE ANIMATIC Professor of Philosophy at Colegio Nuestra Señora de Lourdes Universidad Isabel Valladolid, Castilla and Leon, **SPAIN.**
11,15 – 11,45	WILSON RODRIGUES DE ALMEIDA – OUT OF LINE-PUZZLE DESIGN PROCESS Teacher at the University of Lusófona, Lisbon, **PORTUGAL.**
11,45 – 12,15	NIKOLETA WOOD – THE ECONOMICS OF VFX: FROM CONCEPT TO DELIVERY VFX coordinator in London, **ENGLAND.**
12,15 – 12,45	PIETER VAN HOUTE – 28 YEARS LATER. OVERVIEW OF CAREER, FROM TRADITIONAL ANIMATION STUDIOS TO VISUAL EFFECTS AND WHAT IS HAPPENING RIGHT NOW IN THE FIELD WITH MORE DECENTRALISED WORK AND THE POTENTIAL DISRUPTIONS OF AI Digital Compositor, Supervisor and Visual Effects Artist. **BELGIUM/CANADA.**
12,45 – 14,00	BREAK
14,00 – 16,50	PIETER VAN and NIKOLETA WOOD – ART VFX DISCUSSION Digital Compositor, Supervisor and Visual Effects Artist. **BELGIUM/CANADA.** VFX coordinator in London, **ENGLAND.**
16,50 – 17,00	ĽUDOVÍT LABÍK – CLOSING REMARKS AND EVALUATION OF THE 2nd day of IVGC 2024 Teacher of Department of VFX and GD FTF VŠMU, Bratislava, **SLOVAKIA.**
17,00	ENDING
	ANTON SZOMOLÁNYI – BASICS FOR IMAGE COMPOSITION IN SPHERICAL PROJECTION Conference appendix 1. University teacher, head of the Institute of Media Design, Faculty of Mass Media PEVŠ, Bratislava, **SLOVAKIA.**
	ĽUDOVÍT LABÍK – TENDENTIOUS CREATOR VERSUS DIGITAL SOFTWARE Conference appendix 2. Teacher of Department of VFX and GD FTF VŠMU, Bratislava, **SLOVAKIA.**

Content

FOREWORD

PROF. MGR. ĽUDOVÍT LABÍK, ARTD.
Head of the Department of Visual Effects and Game Design, FTF VSMU, Bratislava.

One could already consider the conference's fifth organization to be a little jubilee. In the future, the event should become a recurring standard for comparing the professional and theoretical scientific knowledge of VFX and GD amongst prominent professors, doctoral students, postdoctoral students, and highly qualified professionals from practice. It has become a tradition.

Although the two studied fields of VFX and GD are linked by their shared technology, they now have two distinct functions. The game sector is the main client of GD, while VFX assists movies and other media contexts. Through its technological advancements, GD is setting the standard for upcoming film post-production technology. The capacity to alter the emotional values in post-production after filming the acting activity in a studio or outdoors with a chosen philosophical backdrop is a commendable technological boon for filmmakers. "Doesn't daylight suit me?" "How about trying lunch, evening or even night light while you wait." "Don't we like the second plan of the mise-en-scène, or should there be another developing story in the second plan?" "I hope everything is fine and there are no issues."

Figure. *Karel Zeman: Baron Prášil (1961).*

Artificial intelligence-prepared miracles. We all adore Jules Verne and his enigma of depicting a voyage to the moon or the ocean's depths. The photographs of Karel Zeman depicting fantasy worlds and the potential of new technologies during the inception of the steam engine, airships, and moon fantasies were so amazing and memorable. Now, we feel that same about the introduction and development of artificial intelligence. The speed at which AI is developing and the occasional new discovery it makes are astounding. Another bridge of the gap between truth and fantasy is brought about by artificial intelligence. It makes possible things that were previously impossible.

Artificial intelligence will drastically, unapologetically, and without request alter GD and VFX. It can only be tolerated and regulations given here cannot be outlawed. Because they view AI as an enemy rather than a challenge, everyone who objects and obstinately defends their acquired advantages or methods of operation is at a severe disadvantage. It is impossible for them to adjust.

Diverse opinions on AI, as well as the function and aesthetics of GD, were discussed at this year's conference. Though there were views on caution and more control of AI, most of the sentiments expressed were supportive. Additionally, some believed that AI would never be able to write screenplays as well as humans, that cinematography had no place in the gaming industry, and that game design was the most powerful and capable of employing animation alone. Although animation is presently the primary stylistic medium of GD, this does not mean that, as is the case in filmmaking, aspects of realism and dramatic performance will not replace it in the next fifteen years. The expression of disputed statements also develops a creative technological-artistic discussion, and based on the negation of judgments, a pragmatic creative opinion is strengthened. This is also one of the important features of the *democratic view* of the future of VFX and HD at the IVGC 2024 conference.

ORGANIZING LIFE AND WORK DUTIES

MARIÁN FERKO, *1st master's year in AVFXGD FTF VŠMU Bratislava, SLOVAKIA.*

Abstract

Many members of the production crew must work together in today's digital creation of content-rich works. The secret to quick and efficient production is frequently meticulous planning and work coordination. Production procedures are closely coordinated, particularly when creating digital games. Many thousands of interrelated assets are included in the final product. Careful preparation goes into both their production process and the functionality that follows. Utilizing suitable planning tools that are applicable to one's daily life is essential while dealing with many chores. We'll give a quick rundown of open-source, professional non-standard utilities.

Keywords

Task, Schedule, Time, Team, Software solution, Project management, Tasks and time.

A creator's entire work life is made up of tasks that must be completed. It is a good idea to write down all the important duties so that you don't have to recall them. Almost any software solution can be used for smaller tasks. It's a different matter for hundreds to thousands of planned chores. Let's now examine potential software fixes.

Ancient History

One of the first numerical records of modern man is most likely the bone from the African site of Ishango. Professor Jean de Heinzelin de Braucourt, a Belgian geologist, discovered it in 1950 in the Belgian Congo territory, close to the Semliki River. It is estimated that the bone is almost 20,000 years old.

Figure 1. *Render of a bone from Ishango. Royal Belgian Institute of Natural Sciences in Brussels.*

It is a baboon's femur. The hunter, our progenitor, needed to document a specific numerical procedure. In some groups on the sides of the bone, there are a significant number of notches. With retroactive verification, the notches can represent the counting of a particular process. Consequently, a note-taking and note-checking tool.

Software solutions

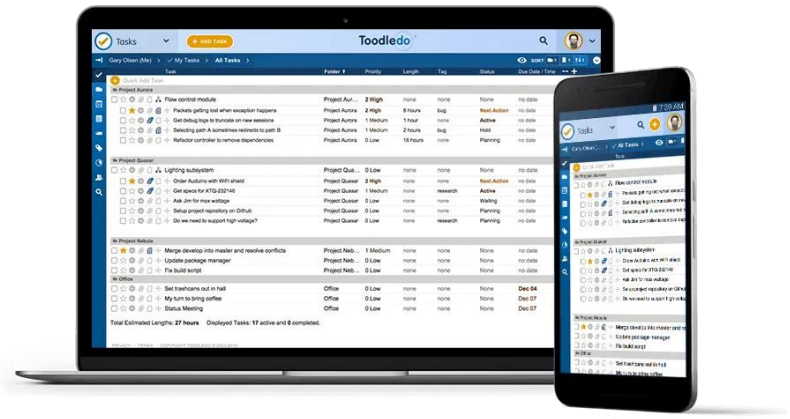
To save time and money, tasks should be scheduled and tracked. Not to mention the reality that some jobs are just simply forgotten over time.

These days, we can schedule tasks using a variety of software programs. Let's examine a few of the easier and quicker programs that are mostly intended for people or small enterprises. The speed and usefulness of a solution are crucial considerations when selecting one. It should be as quick as putting a note on paper or crossing off a task (or notch to

the bone), since working on chores is generally a quick procedure. A user will feel frustrated and quit using a software program if a particular job takes longer than expected. Two important aspects of the choosing process are speed and clarity.

ToodleDoo

It is an older, reliable web solution that began as a software business side project. It has developed into a sophisticated software ecosystem over time. Third-party developers can use the system's open and free API. As a result, the community has developed over 50 more tools that are based on ToodleDo. These tools are made for a range of platforms, including online interfaces, desktop programs, and mobile devices.

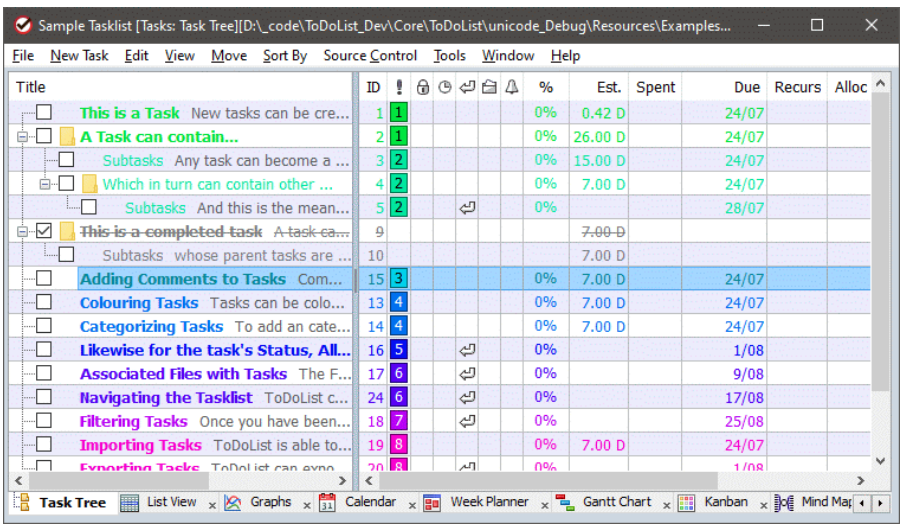


This tool was developed with the help of several helpful modules, so it is more than just a list of activities; it also includes notes, goals, and other data. The immutability of the system is its greatest advantage, even though it is more than 20 years old. Theoretically, the developers could have gradually included a lot more multimedia function, but they aren't. A solid solution with excellent support that doesn't include dozens of extra features that people wouldn't use anyhow is product philosophy.

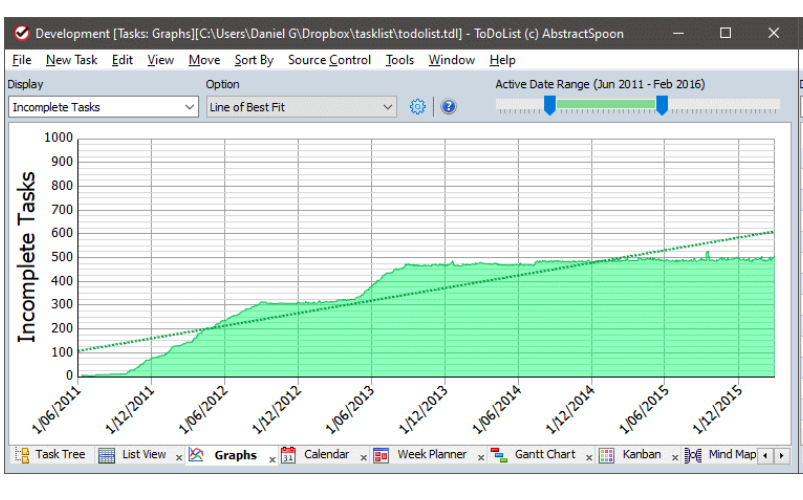
After registering, all fundamental functions are free. Note that most consumers will be OK with just the most basic features. A user would need to use a paid account if they were already thinking about creating subtasks or team-based complex shared tasks, for instance. The assignment of work based on geolocation is an intriguing feature. As a result, the user can only view tasks associated with a specific geolocation on the mobile device.

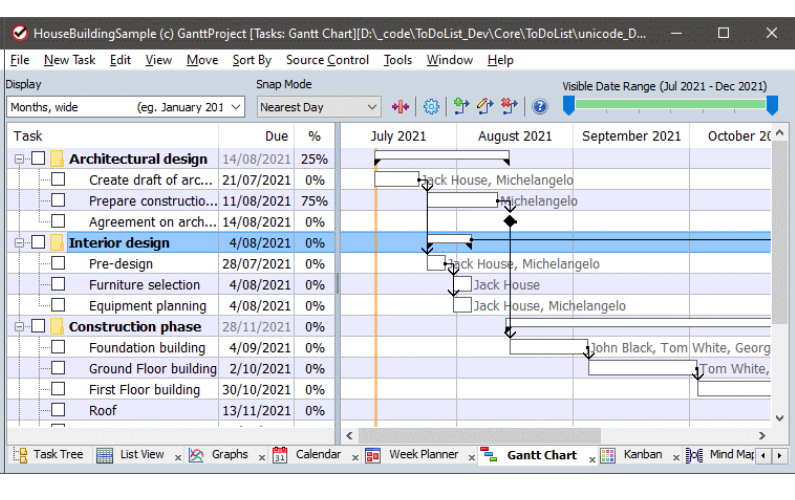
ToDoList

ToDoList is a standalone application designed for the Windows platform. It is completely free and contains absolutely everything an individual needs for scheduling. There is probably no better free open-source solution. The app has been created for over 20 years by just one developer living in Australia. Since the source code is open source, the whole world can follow progressive development, and all the statistics are associated with it.



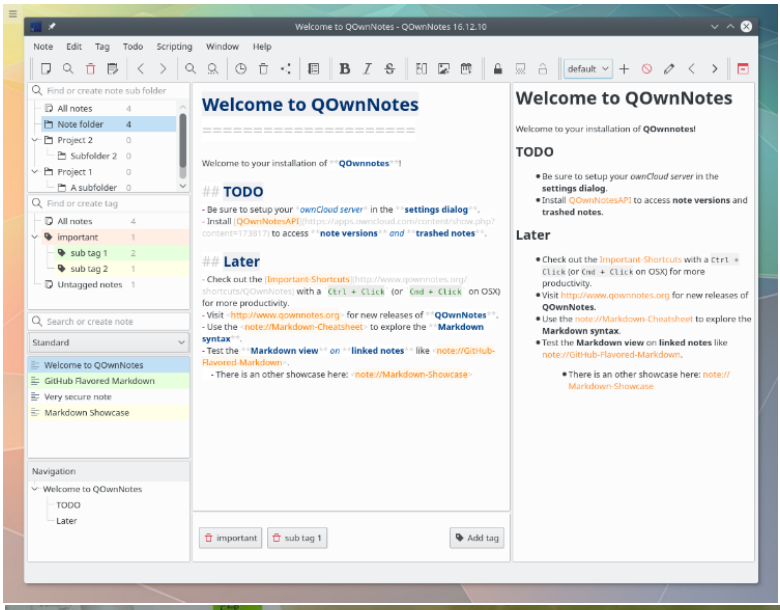
The given software solution provided includes a comprehensive view of all tasks, a calendar, a Gantt chart, a task completion rate chart, and a kanban chart, mind maps, comprehensive notes, a task tree, a weekly planner, a view of a





person's task overload or a word cloud. All modules are logically interconnected with each other. Thus, this tool offers a planning solution even for more complex projects. The program does not have a large installation and is very data efficient overall.

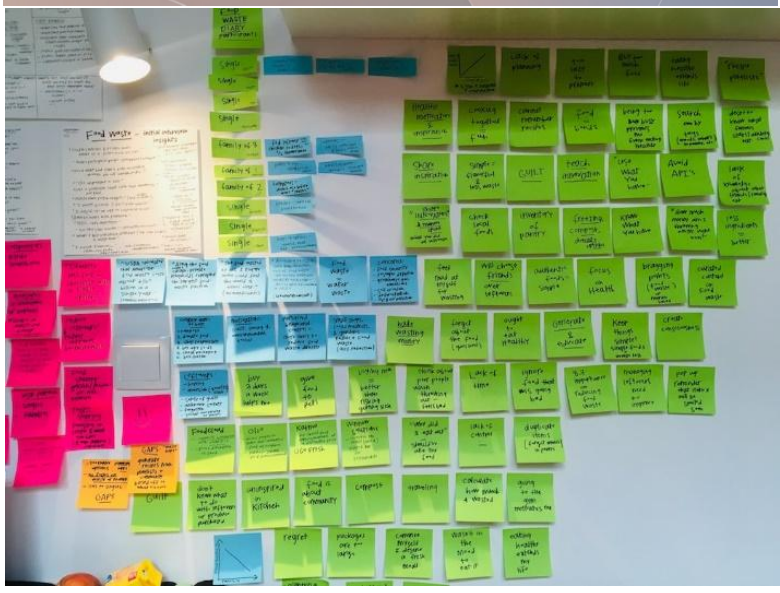
The disadvantages of this solution are the focus on Windows OS only, the lack of comprehensive group scheduling, cloud data storage and mobile version. Since the project is already quite complex and only one developer is still working on it, the community is unlikely to see a solution for other operating systems. On Linux there is the possibility of using the Wine interface, but the software becomes unstable when working for longer periods of time. Therefore, we cannot consider a fully-fledged solution in this respect. A cloud solution is only possible using a dedicated third-party application, as all data is stored in a single local file. Which on the other hand does not burden the developer with possible security issues. The mobile app that is in the stores is not from the original developer and therefore not well maintained with the new changes in the main program. If the developer also implemented the mobile app, it would be an unbeatable solution.



QOwnNotes

QOwnNotes is a free open-source notepad with extremely extensive functionality. It is multiplatform and adapted to cloud storage solutions even with third-party applications. Sometimes it is ideal at speed to just write down shorter tasks in a text list and execute sequentially without deeper planning. In any case, the program includes a comprehensive scripting language for easily graphically distinguishable notes. The program is created by a wider community and is under constant development. The philosophy in this case is speed and clarity. The program is memory-light and does not have a large installation, overall, it is very data-efficient.

Sticky Notes



Sticky Notes software looks more like a joke than a solid solution, but they're perfectly sufficient for simple quick writing tasks. It's always better to use sticky notes than nothing at all. Every better operating system includes them by default. Their downside is the need for permanent visibility on the desktop. As it goes with humans, when it goes out of sight, it goes out of mind.

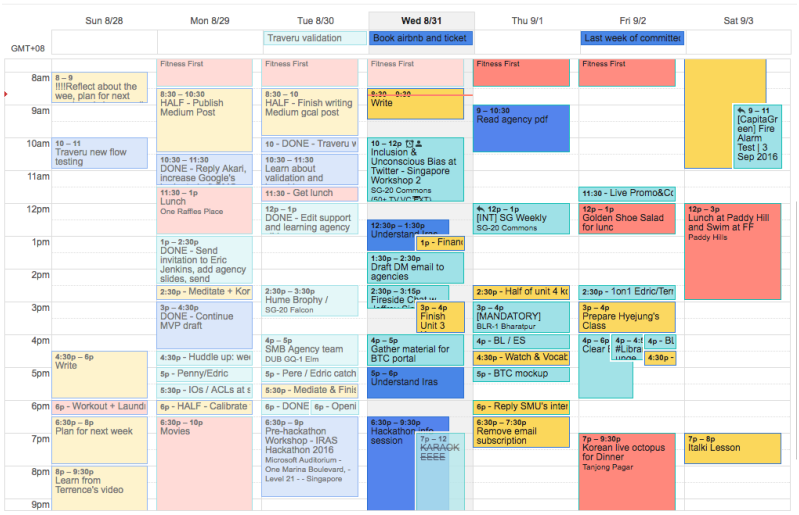
Sticky notes can of course also be used as classic paper solutions. These are not children's toys even for more extensive planning. In the past, we have worked with Activision Minneapolis at the company. Managers there tried using the various software solutions available to keep track of the status of multiple projects. They ended up with a lot of papers on the wall, as everyone in the office could see the status instantly. This can be compared to a clock on the office wall, many times it is more practical than a clock on a monitor in the desktop bar.

A notepad at the keyboard may also sound like an unfashionable solution, but it's still the fastest way to take notes. The advantage of paper is that it is not dependent on electricity and notes can be used even when the screen is full. Taking notes on paper helps you to focus only on the important tasks. For paper-based tasks, it is advisable to plan a minimum of 3 tasks for the day that must be completed. This practice helps to gradually work through even tasks that may not be attractive to complete. The problem is, if most of the tasks are completed when there are multiple papers, then it is necessary to rewrite the uncompleted tasks on new clean papers.

A tablet using electronic ink and pen can solve this dilemma. For example, the "reMarkable" device can fully replace a paper notepad. The conversion of written text into digital form works superbly. The downside is the end price of the device, but once a person tries the device, he or she will never want to go back to paper notes. All digitally created notes can be transferred to other work devices using the built-in cloud solution. The basic features are free for the first 100 days, after that they are at a paid rate, but it is possible to work and exchange data without the cloud solution. Remarkable 2 basically does not include any sophisticated software solution for notes or tasks. It's „just“ electronic black and white paper.
Tablets with electronic paper and the ability to take notes with a pen are becoming more and more numerous on the market, and some models also have very good software features. It is very likely that soon similar technology will be available to people in a wider segment.

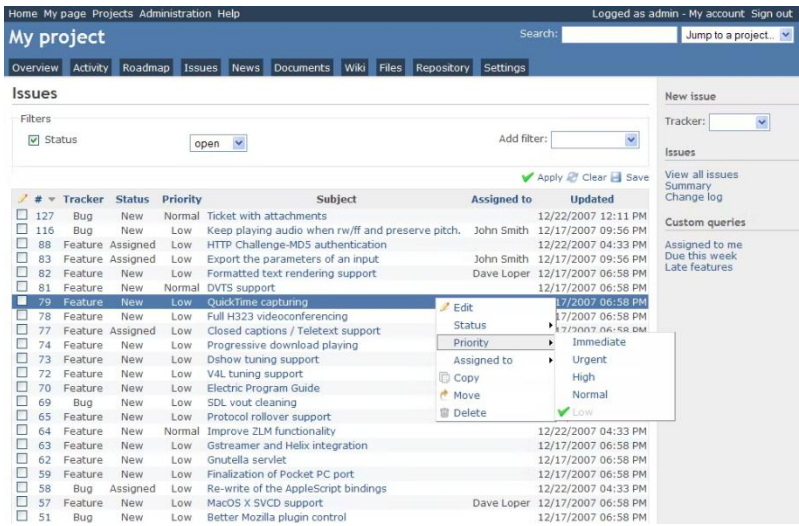
Google Calendar

Google Calendar is a classic among users. It is probably the most widely used scheduling system on the planet. The benefits are undeniable given the interconnectivity with other Google services. The interconnection of calendars between multiple people makes Calendar a standard among users. Since it is a standard part of Android, virtually every user with this phone OS will eventually discover at least the basic capabilities of scheduling using a calendar.

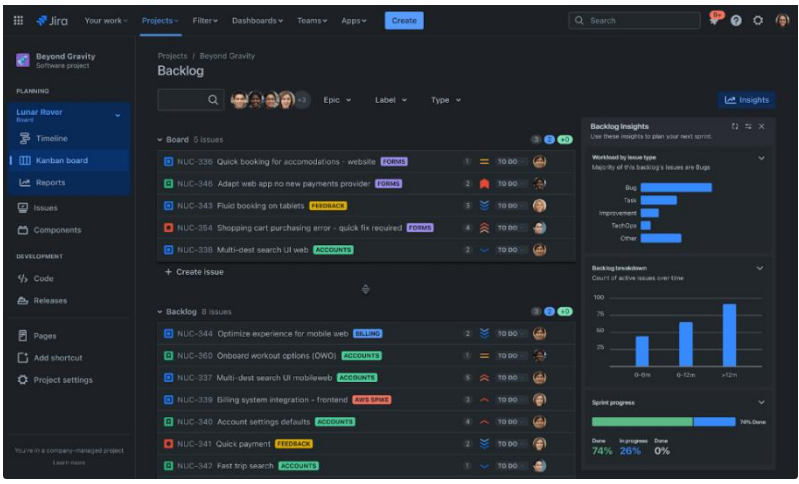


Redmine

Redmine is the Swiss Army knife of planning. It is a robust solution that requires installation on your own server. For the average experienced Linux user, however, installation is no big deal. Redmine is a free open-source solution that contains absolutely everything that every developer will use when planning. The many plugins extend its possibilities to an area where one can already talk about professional use. The system is built to work for hundreds of users. The user interface is quite ugly, but very fast and flexible.



Atlassian Jira



Atlassian Jira is a rocket in the planning department. It contains virtually anything one can think of when planning. It is a paid solution, which is also quite expensive with more people in the development team. Unfortunately, it no longer works as an installation on your own server, due to the extended security. This also makes it slightly slower than Redmine. Jira can encompass hundreds of thousands of different tasks with thousands of users. It is a standard working tool for larger companies and studios. The system is free for small teams and is also currently easily connected to Microsoft Teams. As it is a commercial solution that is massively used worldwide, there is a plethora of add-ons and interfaces available with other software solutions. In this case there are no limitations, only (financial) possibilities of the user.

Alternative alternatives do exist, but they become unusable, slow, and impractical when there are too many jobs involved. Solutions like Asana, ToDoList, Trello, Google Tasks, Microsoft Project, and fTrack are noteworthy. Although solutions that combine several systems into a single application are intriguing, security is already jeopardized in this case. because the user loses control over the passwords and allows a third party to gain credentials to sensitive information. The granularity of security features is still not well addressed in this instance.

How should a team be planned for? Which equipment ought to be utilized?
It should be mentioned that every management approaches planning differently and employs different systems. A universal solution does not exist. Therefore, if it's feasible, people ought to be questioned about the strategies and solutions they employ. The knowledge acquired in this manner is priceless.

In principle, when planning, one should always determine the goal and the basic milestones that lead to the successful completion of the project. It is necessary to provide more detailed descriptions of these milestones in specific activities so that everyone can understand the path that leads to their realization. This stage may reveal a potential time impossibility. Time estimation at this stage is therefore crucial. Estimates ought to be derived from comparable projects with comparable work content. For better time estimation, several test tasks are typically implemented if there is no work to base time estimates on.

Since the plan is largely irrelevant after a month, it should be adequately flexible. Therefore, it is best to arrange in detail about two weeks before the event. At regular periods, team members should review the plan. One choice is to modify the project design to accommodate the timeline if it turns out that the work is proceeding more slowly than anticipated. You should concentrate on only the most vital things. When there is a greater percentage of unfinished work, team members' work ethics need to be examined. Although there are several professional programs available for this purpose as well, utilizing Procrastitracker to examine one's own work is a very good answer.
Working hours typically increase as the deadline draws near. But in the long run, this solution is unsustainable.

Security of data

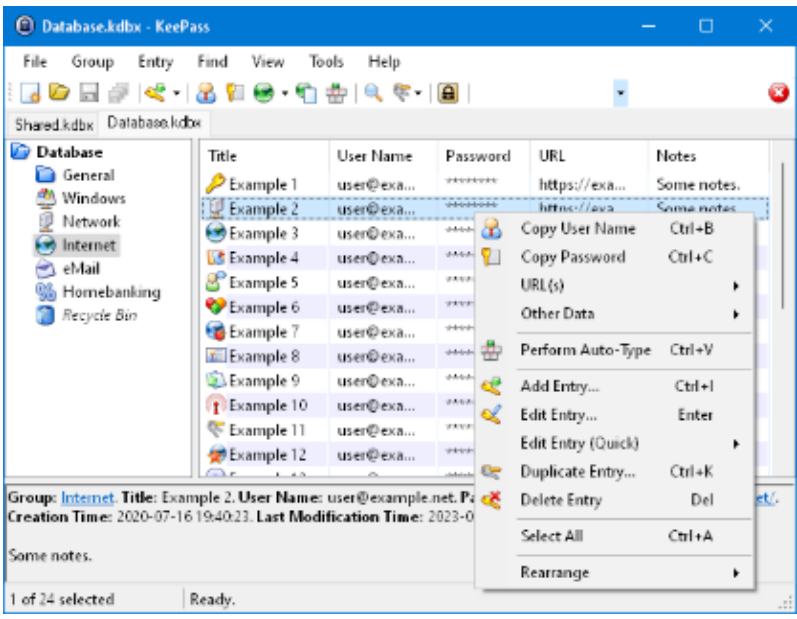
One type is safe password storing. As a result, it is quite easy for a user to lose a lot of previously completed work. Many people in my community have already lost crucial project data because of using Bitwarden and similar services.

The team faces the challenge of utilizing multiple Internet providers for tasks that require a greater amount of data. The storage of passwords that are not adequately secured may be a security vulnerability. Passwords are exposed to possible attackers when they are stored in the browser or when services like Bitwarden are used. Additionally, it's not a good idea to use the same password for several services. Every service for a particular account should have a password that is distinct and has many random characters. People frequently make the mistake of writing down their

passwords in a basic text document or Excel spreadsheet since it is hard to remember so many distinct ones. In this instance, if the operating system is not adequately secure, they can likewise be readily stolen.

KeePass

KeePass is a freely distributable open-source program aimed specifically at secure password storage. Passwords are protected in an encrypted file. If the user does not digitally write down the master password to open the file, all data will be safe. Thanks to its open architecture, the program has several third-party plugins. So far, there is no tool to break the master password protection.



The importance of resting in the creative process.

Sufficient time is always required for work. How to divide the time for work is also a matter of longer-term experience. Each person may have different time demands. In any case, we can say that work is like sleep. Imagine if someone disturbed you 10 times while you were sleeping. You wouldn't get much sleep. The same applies at work, creating a suitable work environment for focused work. Every interruption causes you to deviate from your working thoughts, and retrieving information about where you left off can take quite a lot of time and generally reduces the quality of work.

The importance of sleep and the danger of fatigue are also data that must be included in the planning.

A construction worker could protect his sight, hearing and body during heavy manual work. But how do you protect your mind during intellectual work? The only reasonable solution is a full-fledged sleep. Lack of sleep triggers many dangerous processes in the body.

Simply, if the brain is not sufficiently rested, the effects of a kind of drunkenness occur. The brain is poisoned by its own chemical byproducts. Therefore, when tired, a person can get into a state of euphoria or an excessively good mood. Especially in creative groups of people. Work is carried out more slowly when tired and frequent errors occur. So, in the end, a person spends more time on the same work than if he were rested. If a person is tired, he quickly loses the ability to learn.

It is currently believed that human labor will be replaced by artificial intelligence. I hold the exact opposite opinion. Thus far, every gadget designed to increase productivity and leisure time has actually made work more difficult for the user. As a result, even artificial intelligence has the potential to trap people. In complicated structures, artificial intelligence excels at identifying connections. It might be the core of RNA and DNA coding in our situation. Therefore, we could be able to create any organism with any capabilities in the future. Since we comprehend the fundamentals of electronics, we are now able to make them. Notwithstanding the possible risks associated with this concept, a tailored human-computer interface could exist in which a person could have all the extra capabilities of a computer. Theoretically, a human being is a working machine that no longer need sleep. Like a dolphin, probably. on this way, our great ancestor indirectly started the path that leads to our life's many (un)planned chores by making a few notches on a baboon's bone.

CREATION OF CG CHARACTERS

FILIP MATLÁK, *1st master's year in AVFXGD FTF VŠMU Bratislava, SLOVAKIA.*

Abstract

In modern filmmaking, the creation of computer-generated (CG) human figures has become crucial. But this process requires a certain amount of artistic practice and experience, which usually grows over time and gets better with every new project. A substantial technological component supports this work in addition to the artistic components; without this technical expertise, the production of computer-generated imagery characters would not be possible.

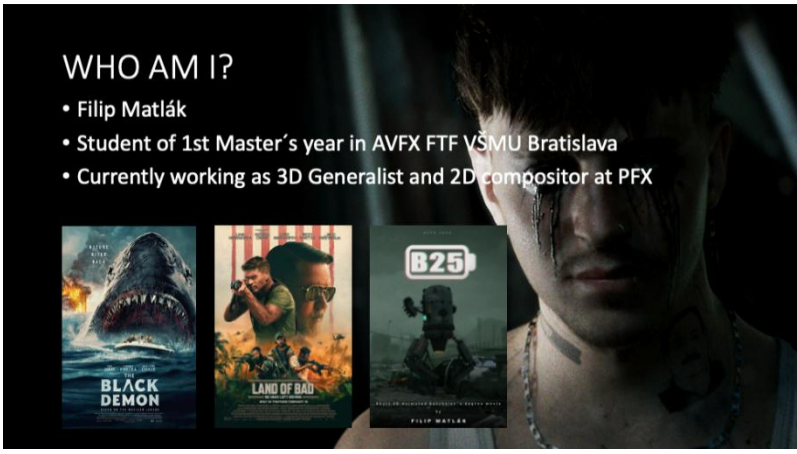
Thankfully, technological developments have made it feasible for anyone with an interest in this sector to improve their knowledge and abilities through easily accessible processes and approaches. Targeting individuals with little to no expertise, this lecture covers a variety of 3D computer-generated imagery character creation techniques. It lists all the information and tools that are accessible to aid in this process.

The presentation also discusses the subsequent phases of the workflow, including post-production, emphasizing how to apply last-minute improvements to the 2D output. For the computer-generated characters to successfully fit into the overall visual story of the movie, these finishing touches are essential to making the finished product as realistic and believable as possible.

Keywords

VFX, Industry standard, pipeline, software and hardware, thinking in design, Experiment and Create.

Introduction



In this presentation, I will discuss the process of creating computer-generated (CG) characters for films. As many are aware, CG characters play a significant role in the visual effects (VFX) industry. These digital creations are produced using computer graphics techniques and can vary widely, from simple geometric shapes to intricately detailed and lifelike humanoids, animals, mythical creatures, and even abstract forms.

My motivation for choosing this project stems from my long-standing passion for character design and modeling, which began during my high school studies in animation. It is particularly relevant today, as advancements in technology have made powerful hardware and software accessible to a broader audience, enabling individuals to create their own characters from home with the right knowledge and experience. This stands in stark contrast to the early days of VFX, when entire teams were required to produce a single character, often leading to simplified designs. An example of this historical context is the "Glass Knight" from the film *Sherlock Holmes*, which was the first computer-generated character created. This character was composed of mosaic pieces of glass and required an extensive amount of time to produce for just a few shots, highlighting the complexities involved in early CG character creation.

CG characters are utilized across various domains, including Film and Television, Video Games, Virtual Reality, Advertising and Marketing.

Future CG characters will only be constrained by artists' creativity and the capabilities of the tools available to them as technology develops. In the past, developing such visuals was much more difficult due to hardware and software, and entire teams had to work on these projects. However, in the present day, anyone can create stunning 3D characters at home with basic equipment, appropriate skills, and knowledge of techniques. Keep in mind that developing the ability to create 3D humans requires practice and patience. As I did with my project, don't be scared to try new things and learn from your mistakes as well as your accomplishments.

The Importance of reference in character design starting

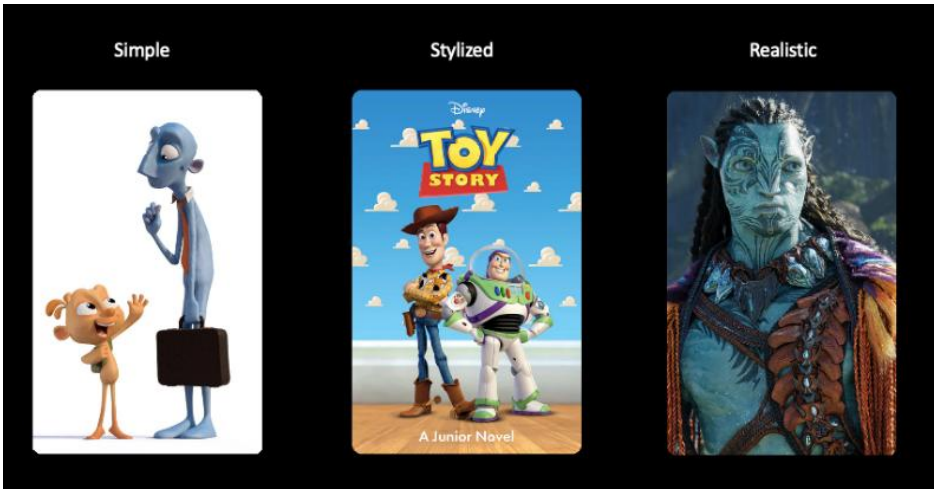
It is crucial to have a clear vision at the beginning of a design project. Character ideas first emerge in the creator's head, necessitating extensive study and reference collection prior to concepting and sketching. Although it is typical for the designer to alter their strategy and update references during the creative process, conducting thorough research is crucial for determining the intended style.

To facilitate the character design, I categorize my references into three distinct segments:

1.Anatomy reference: This category includes visual materials that depict basic anatomical structures. These references serve as a guide to ensure accurate proportions and forms, providing clarity when uncertainties arise during the design process.

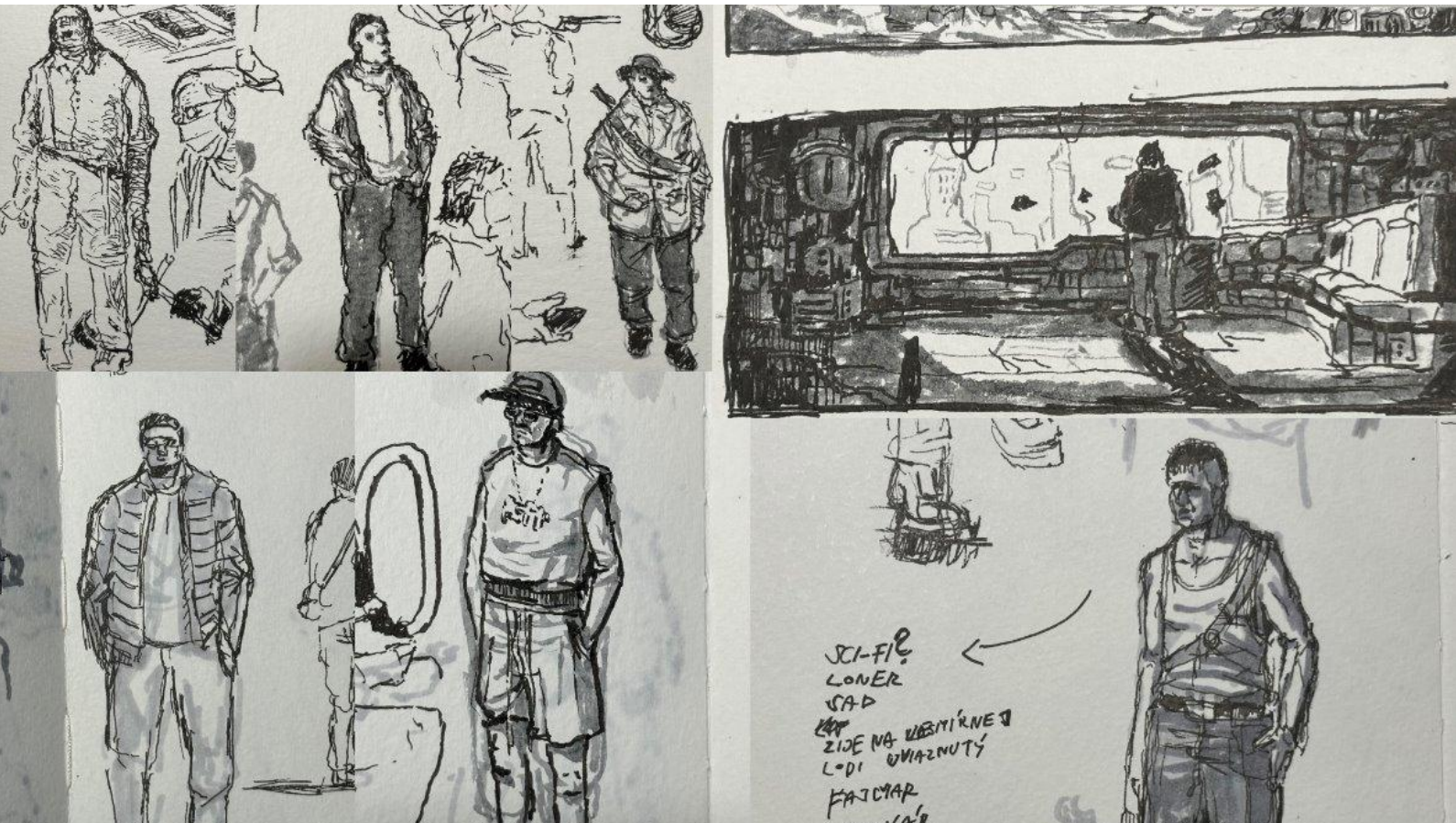
2.Visual reference: This encompasses a wide array of materials related to the character's appearance, including skin types, makeup, clothing, and other visual elements that contribute to the character's overall design. It serves as inspiration for integrating various aspects of character aesthetics.

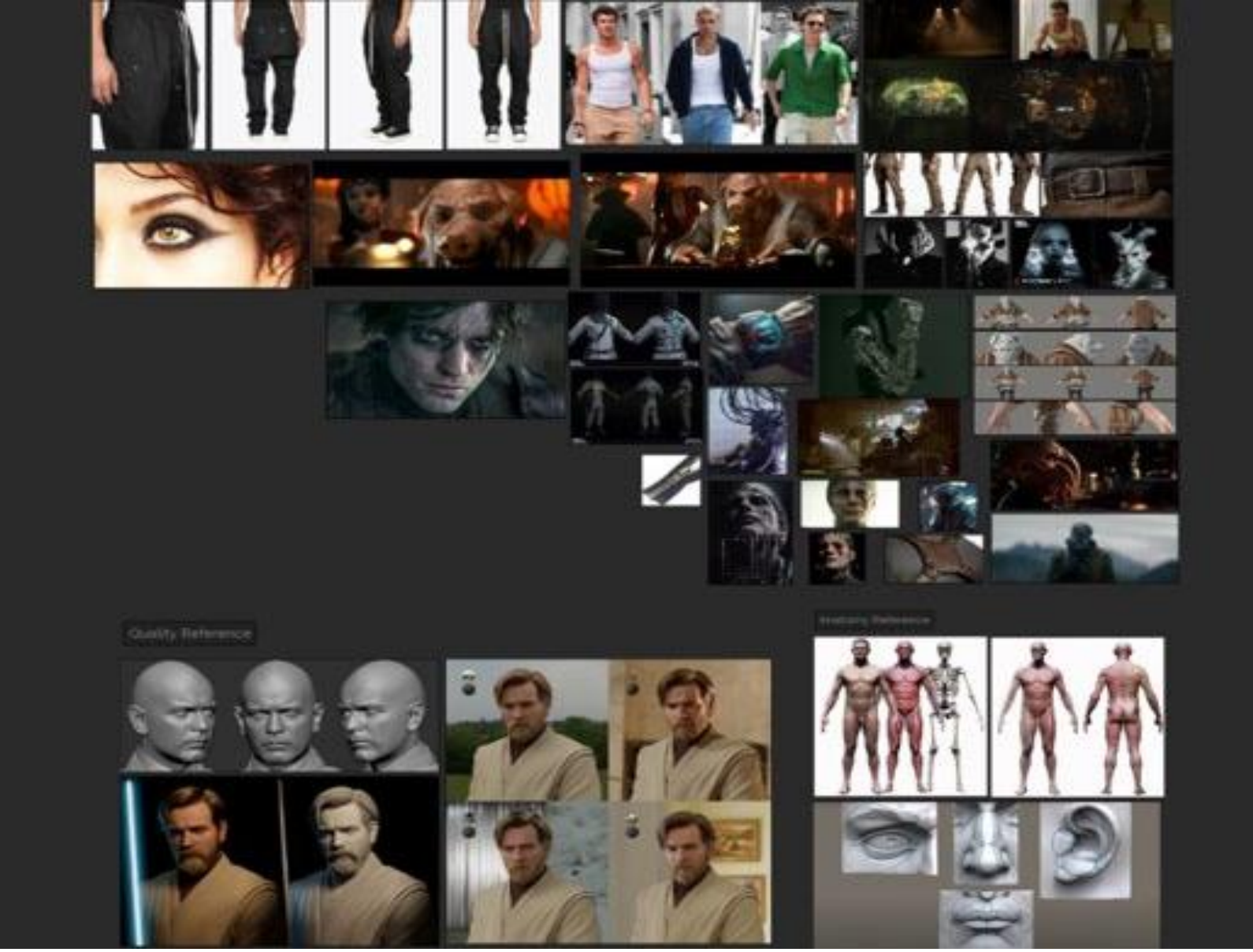
3.Quality Reference: Here, I examine the works of other artists within the same genre for comparative purposes. This helps in assessing the quality of my own work and encourages me to elevate my designs to a similar standard. Quality references may vary depending on the stage of creation, including sketching, sculpting, or rendering.



Concept development

I make fast sketches to record preliminary thoughts during the concept development stage. Because I had a clear direction from the start, I was able to streamline the process and avoid wasting time, which is why I only created a few sketches in this case. I urge all artists, regardless of drawing ability or background, to use this method. Sharing these sketches with others is not required; the main objective is to make the character concept clear and to address any issues early in the project. This proactive approach to problem-solving is especially important when creating new aspects, like fantasy creatures or sci-fi characters. In these situations, thorough conceptualization is practically necessary to guarantee a favorable result.





3D Modeling process for character creation

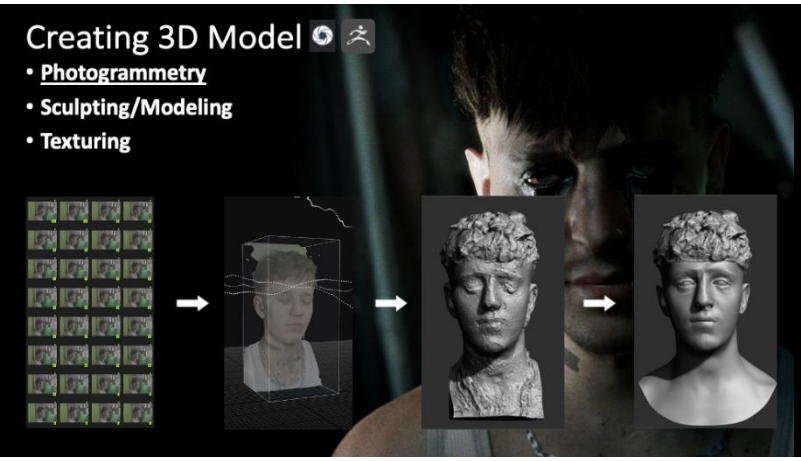
The technique of employing specialist software to create digital representations of characters or things in three dimensions is known as 3D modeling. I started my modeling career by creating a digital face using photogrammetry. To create 3D mesh, I requested a friend to record a video of them rotating around my head. Even if the outcomes weren't flawless, they gave me a solid basis for comprehending the fundamental structure and general form of my head, including my hair, so I could start sculpting.

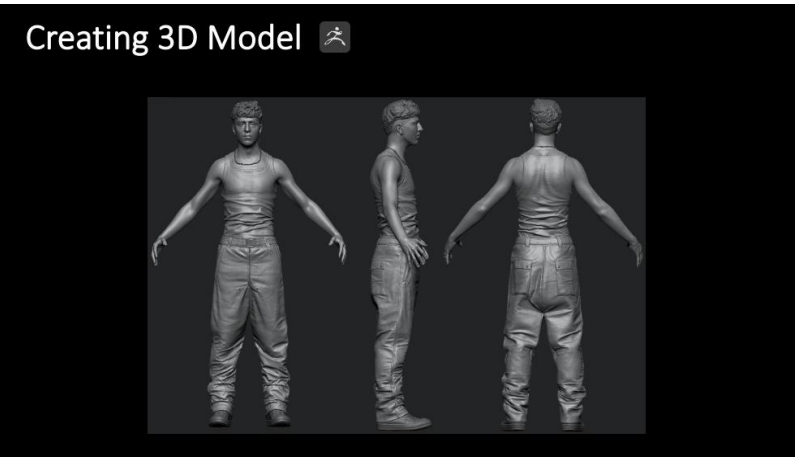
I mostly use ZBrush for sculpting because I think its many capabilities make it the best program for this kind of work. Although other programs, such as Blender, can also be used for sculpting, ZBrush is the best for this kind of work. I made an initial sculpting pass after importing my photogrammetry scan into ZBrush to fine-tune anatomical elements where the photogrammetry did not match my reference materials. I chose to obtain a scan of the body from a website called 3DSK, which has several scans, rather than making or scanning a model myself. I chose a body type similar to mine. To construct a foundation mesh appropriate for detailed work, I imported this model into ZBrush and used tools like Dynamesh, ZRemesher, projection techniques, and some sculpting to integrate the facial and body meshes.

For detailing, I utilized additional scans from websites like 3D Scan Store and Texturing XYZ. I projected these details onto my base mesh using a plugin called ZWrap, which was particularly beneficial. This plugin not only allowed me to obtain bump details of the skin but also provided texture maps included in the scan by wrapping one mesh over another with proper UV mapping. This method significantly accelerated the process and added a high degree of realism to the model. I performed two wraps: one for the body using the 3D Scan Store mesh and another for the head utilizing Texturing XYZ's VFace to enhance facial details.

Additionally, I used a 3D modeling program called Maya to build hard surface pieces like necklaces, rings, and piercings. However, ZBrush or any other 3D modeling program may be used to achieve this.

After I was happy with my base mesh, I moved it to Marvelous Designer, a program known for its ability to model and simulate garments. I like to use Marvelous Designer since it allows for a more efficient process, even though you can sculpt clothes directly in ZBrush. I imported my clothes back into ZBrush for additional sculpting and detailing after manufacturing and retopologizing them, which is a necessary step to guarantee clean geometry.
The workflow's texturing and rendering phases can now begin with the finished sculpts that have produced satisfactory results.





Texturing process for character creation

Texturing in 3D modeling

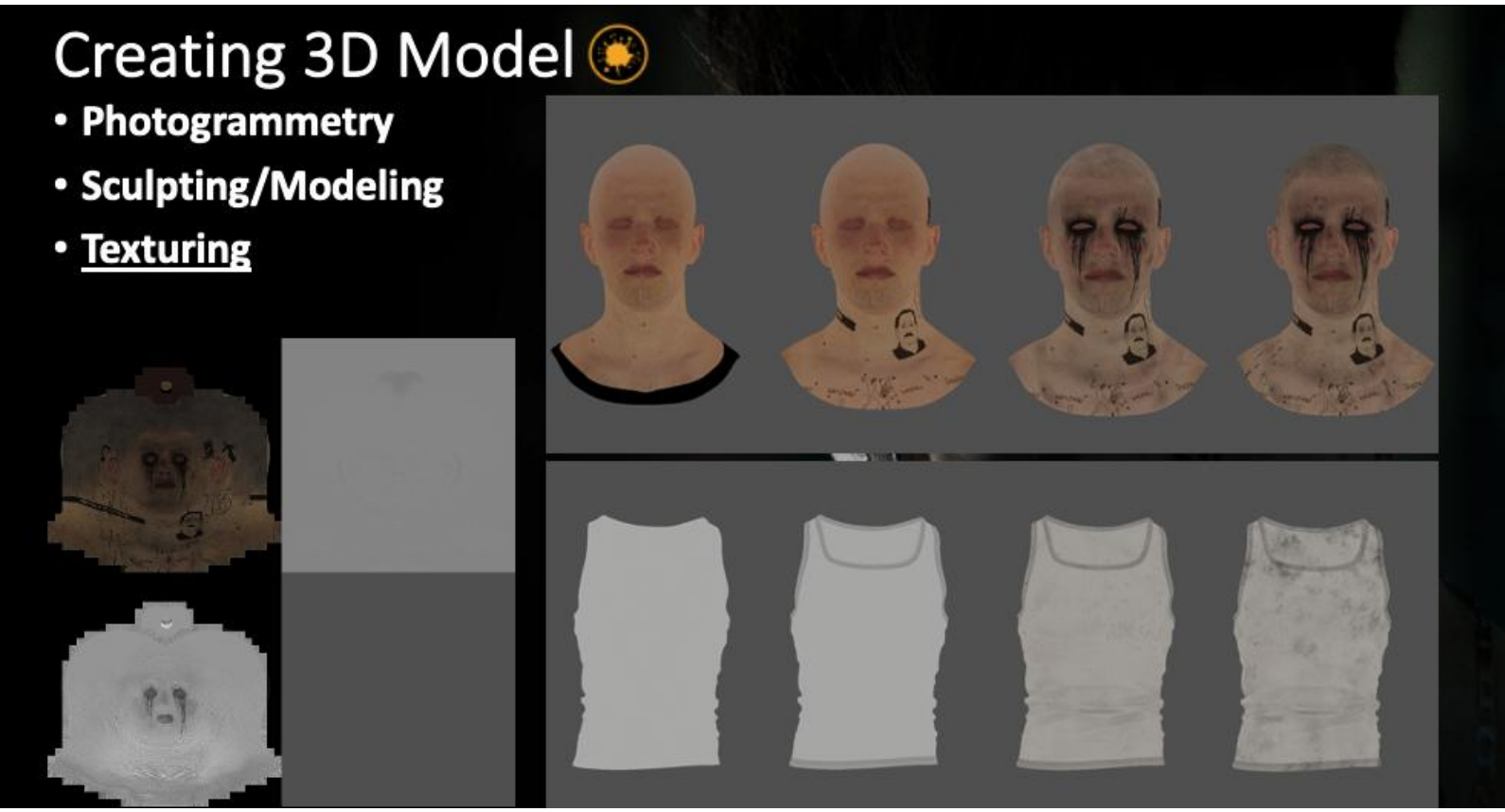
Applying surface features, color, and texture to 3D models is a crucial step in the modeling process that improves the models' overall realism and aesthetic appeal. This stage is essential to the 3D modeling and rendering workflow and greatly improves the quality of the finished product; it is not just an optional addition. Artists can give their works life by skillfully texturing them to create depth and dimensions that a simple 3D model would lack. Making ensuring UV mapping is set up correctly is crucial before using specialized texturing tools. Textures can be precisely placed on the model's surface with proper UV mapping. I've used UDIMs (U-Dimension) in my own projects to optimize texture resolution, which is especially useful when working with intricate items that demand a lot of fine detail.

Software choices

Mari is the program I use most often for texturing characters and organic models. For many 3D projects, Substance Painter is a good substitute, but I think Mari is particularly useful for situations where even the smallest details are important. Artists may produce realistic depictions that capture the subtleties of real-world materials because of Mari's accuracy when working with complex textures. It's crucial to remember, too, that Mari's intricacy and seeming lack of usability may initially intimidate some artists. However, with practice and commitment, its complex features become much more useful and accessible. Mari's node-based workflow, which streamlines the administration of several materials and makes complex shader setups easier to arrange, is one of its most notable features. It can be difficult to go across several layers in other software applications, but this function gives you exact control over a variety of shader parameters.

I take a deliberate approach to texturing in my workflow, moving from big features to finer details. To lay a strong basis for the textures, I start by defining the object's general look and main color variations. I gradually add little, more detailed elements that give the model depth and interest after the foundation textures are set. Using utility textures, particularly Ambient Occlusion and Curvature maps, is a significant part of my texturing process. Because they make it easier to create masks, these maps are essential for expediting the texturing process. This enables increased efficiency, greatly cutting down on the amount of time needed on manual tweaks while also improving the models' realism.

Getting reference materials is still a crucial step in the texturing process. It is impossible to overestimate the significance of gathering a diverse range of photographs since they offer important insights about the behavior of different materials in the real world. Artists can enhance the texturing process by learning more about texture characteristics, lighting effects, and color changes by examining these sources. In addition to helping to improve the textures applied to the model, this extensive visual library also adds authenticity to the finished 3D product, making it more convincing and captivating for viewers. A polished 3D model that is notable for its quality and realism is the result of careful texturing processes, efficient software use, and an abundance of reference materials.



Rendering process for character creation

Rendering in 3D modeling

The intricate and resource-intensive process of rendering necessitates a harmonic fusion of technical expertise, artistic talent, and creative vision. Artists could produce breathtaking visual artwork that enthralls and fascinates their audience by skillfully navigating the complexities of the rendering process. Digital models are turned into aesthetically stunning scenes through this procedure, which frequently gives them depth, texture, and realistic features.

I always start with the scene's basic look development (lookdev) when rendering. This first step is essential because it entails precisely adjusting shaders to produce the intended visual effects. Using numerous lookdev setups is the recommended approach at this point. By enabling you to fully configure your models and shaders, these rigs make it easier to test and display your work in a range of lighting conditions. This technique helps determine how various lighting scenarios impact the model's appearance, which is crucial for producing realistic results. Before moving on to more complex lighting configurations, the proper lookdev creates a strong basis. Characters that are lit by bespoke light sources without sufficient lookdev run the risk of the shader setup

I give the eyes priority while I'm putting up shaders since I think they're the most crucial aspect of any character, be it human, animal, or mythical. Achieving a realistic appearance for the eyes is essential since it provides a solid basis for the other elements of the character. I start by applying shaders to displacement maps before moving on to other areas of the model when the eyes are properly shaded. The texture and realism of the model are improved by the surface detail provided by displacement maps. I linked other maps, such albedo, roughness, and metalness, after determining the displacement. Every one of these maps is essential to establishing the surface's aesthetic qualities.

The procedure frequently resembles a feedback loop between programs after the initial output has been rendered. The intended outcome is rarely obtained on the first try. In theory, it may only be necessary to change textures, but this is rarely the case. More often, changes necessitate going back and making the required changes to the sculpted 3D model. In my instance, I created roughly four texture iterations and made further sculpture changes in areas where I thought the model lacked enough detail. Since one cannot concentrate on every detail during the creation process, this back-and-forth is a normal element of the 3D modeling workflow. Frequently, especially for inexperienced artists, elements may appear differently when seen in the context of the final render. Although expertise and knowledge aid in predicting how certain features look, it is typical to find elements that don't feel quite right when rendering.

I eventually reached a final version that I was happy with after going through a number of revisions and iterations. Several renders displaying both the lookdev and the finished composited versions were the result of this. Every render demonstrates the value of perseverance and ongoing improvement in the rendering process, emphasizing how careful preparation, testing, and correction are frequently necessary to produce a good 3D model.

Conclusion

In conclusion, I believe the results I achieved are satisfactory; however, there are numerous aspects that could be further refined. The challenge in creating computer-generated (CG) characters lies in the pursuit of realism. It is my opinion that reaching approximately 90% realism can be accomplished relatively efficiently over time but achieving that final 10% of realism often proves to be significantly more challenging and time-consuming. This latter phase typically involves making subtle adjustments and fine-tuning that ultimately enhance the believability of the character. The process of refining these details requires a great deal of patience, and it is important not to be disheartened if the results do not initially meet expectations. Developing skills in creating 3D characters, particularly human forms, demands time and practice. As one continues to engage in this practice, skill levels improve, resulting in more lifelike and compelling characters. This concludes my presentation, and I appreciate your attention and interest in the subject matter.

CREATING ENVIROMENTS FOR GAMES AND MOVIES

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Abstract

One of the most important components of video games and movies is the creation of environments, which is frequently just as important as the plot. Without the use of words or clear navigational indications, the environment can establish mood, facilitate orientation, and lead the player or spectator to the intended location. This piece examines design concepts like pattern, color, and contrast, which are crucial for creating mood and dramatic effect in settings. It illustrates how these visual components produce captivating and dynamic environments that improve the storytelling experience using examples from the video game and movie industries. The usage of artificial intelligence, which is revolutionizing the process of creating environments and enabling more inventive and efficient design approaches, is covered in conclusion.

Keywords

Environment Design, Game Development, Visual Storytelling, AI, Design Principles, Emotional Impact.

Introduction

I'll be talking about the problem of generating environments in video games and movies today. In my opinion, settings in video games or movies are generally underappreciated and rarely given enough attention, despite being one of the most crucial elements that is frequently just as significant as the plot. In games, the environment around our characters and storylines can lead us to the author's intended location without the need for a single navigation point, and it frequently tells a story without the necessity for action. However, how is this feasible?

Introduction to Environment Creation

Interior design contains the foundations of the intricate area of environment design. There are numerous fundamental similarities between interior design and the settings we see in movies or video games. When we examine any of the basic interior design concepts, we find that they are used in video game and movie settings. Take the principles of contrast, for instance.

The key to creating visually appealing rooms with contrast is combining opposing elements. Oppositeness adds to our desired essence and harmony by breaking up the monotony and flatness of space. A variety of design components, including contrast in color, shape, scale, materials, textures, or style, can be used to create contrast by grouping items with opposing qualities together in space. It's crucial to keep in mind that excessive contrast might create an unruly environment for viewers or players, which is the exact opposite of what you want to showcase and pique their interest in. Since less is frequently more when it comes to contrast, it is crucial to strike the correct balance when applying it. Contrast helps define spaces and adds visual intrigue. When used properly, it can draw attention to important details in games where we wish to guide the player or give a room a dynamic, thrilling vibe.

Post-Impressionist art is another excellent illustration. like this Rembrandt artwork. The item of attention and its alleged dreamview are highlighted in the artwork using contrast. However, we can demonstrate the same use of contrast in "The Lord of the Rings," a film that most people are likely familiar with, to go beyond painting.

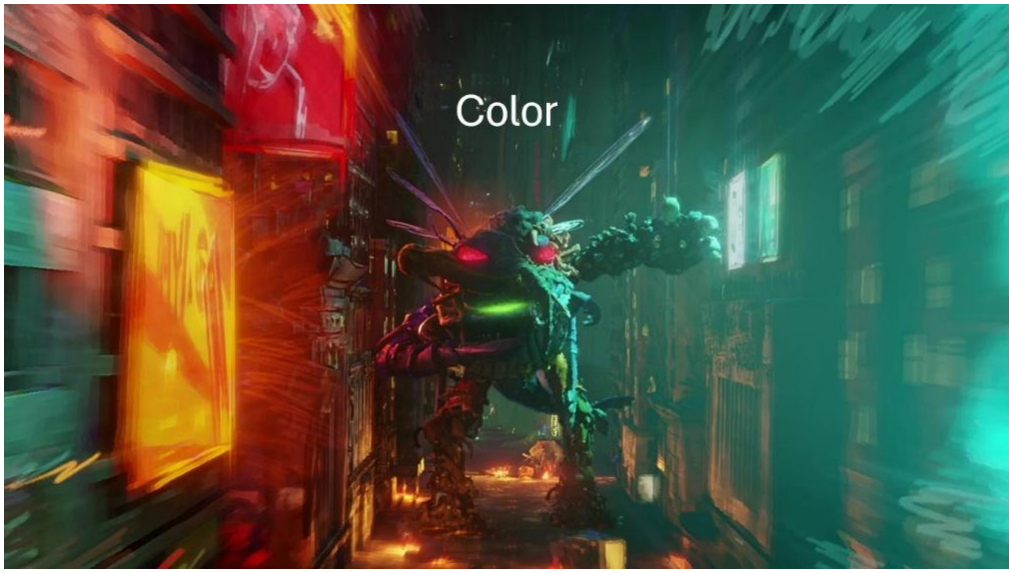
This scene from "The Lord of the Rings" is a superb illustration of how contrast is used in movies. Even in the absence of any action, this frame gives us an idea of the main idea of the scenario. As previously said, games frequently use contrasts to emphasize and create interest, making it even easier to see this principle of contrasts at different levels. In games, contrast has become a generally accepted norm, sometimes going too far. The fundamental purpose of contrast in games was to allow the player to easily navigate to their chosen destination without even realizing it.

The Assassin's Creed series' parkour features in open areas, which can be difficult to understand in terms of player orientation regarding where they can and cannot leap, are a great example in video games. For this, they make use of every contrast conceivable. I gave the example of a mission in which we attempted to flee from the enemy. Players are unaware that the two white garments in the game's initial screenshot are actually taking us up the stairs.

After leaping onto the boxes in the second screenshot, we are led farther by the combination of the light contrast and the repetition of the familiar object.

The dramatic crimson carpet at the conclusion of this pattern, which encourages us to leap into its area, is less obvious but just as important. These nearly imperceptible components are essential for direction, and contrast must be considered since it has the power to improve our surroundings when used properly.

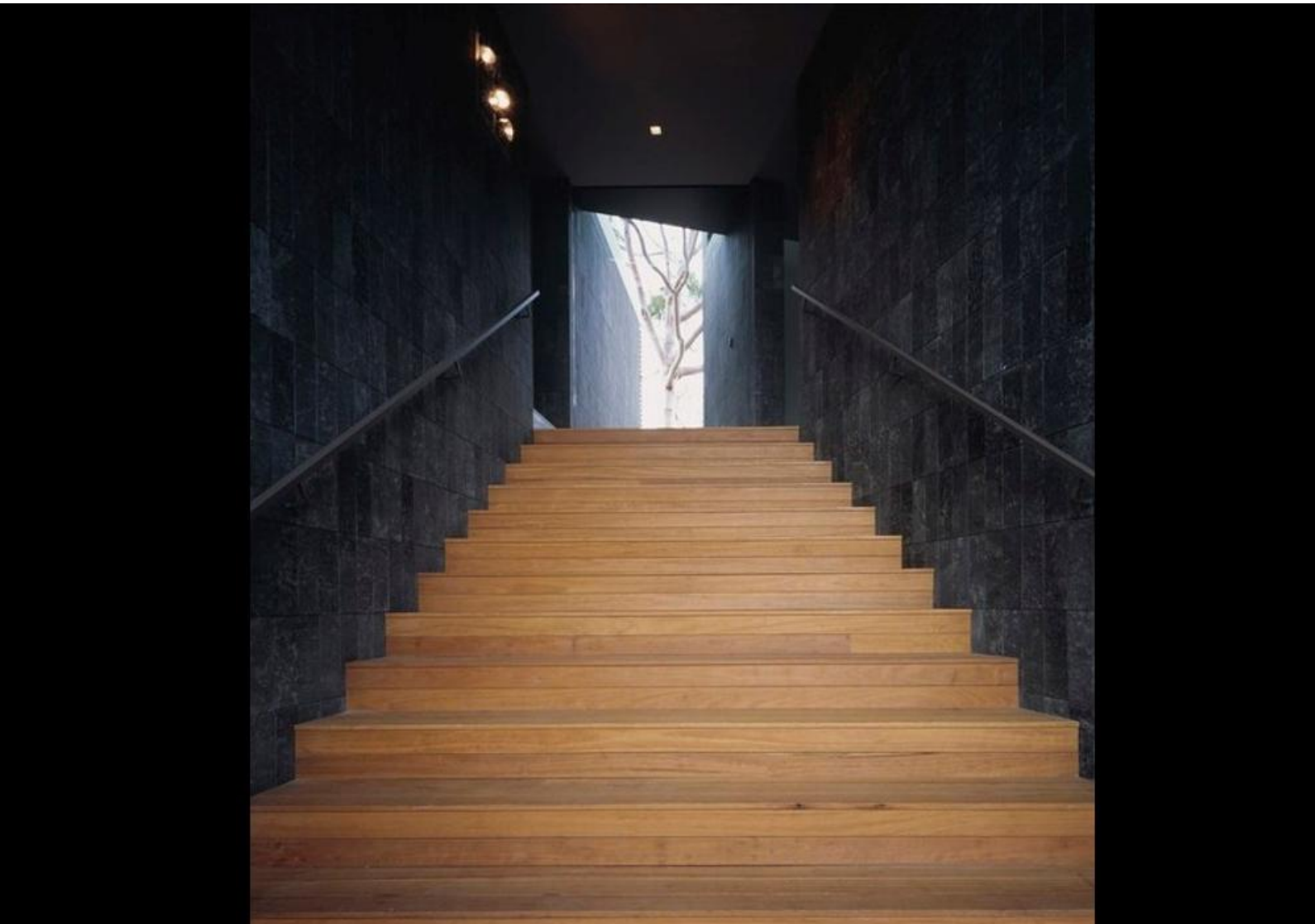
The Role of Color



The psychological effect on our players and spectators is largely attributed to the effective use of color. It is frequently combined with other essential components, which allows it to affect a variety of players' or spectators' perspectives. With only the use of color, we may quickly make clear the dynamics of our storytelling environment, such as indicating the location of our major opponent. Color can also transmit feelings and moods, which are frequently connected to a particular tale along with the involvement of other elements.

Color can also be employed in various ways; for instance, it can visually enlarge or contract areas in response to light. While darker hues tend to limit our area, brighter hues like white might optically widen them. Creating dramatic settings or visually more open areas in stories is one example of how this knowledge can be useful.

This phenomenon results from the fact that dark hues absorb light whereas bright colors inevitably reflect more light. However, there may be other ways in which these color concepts can be related to one another.

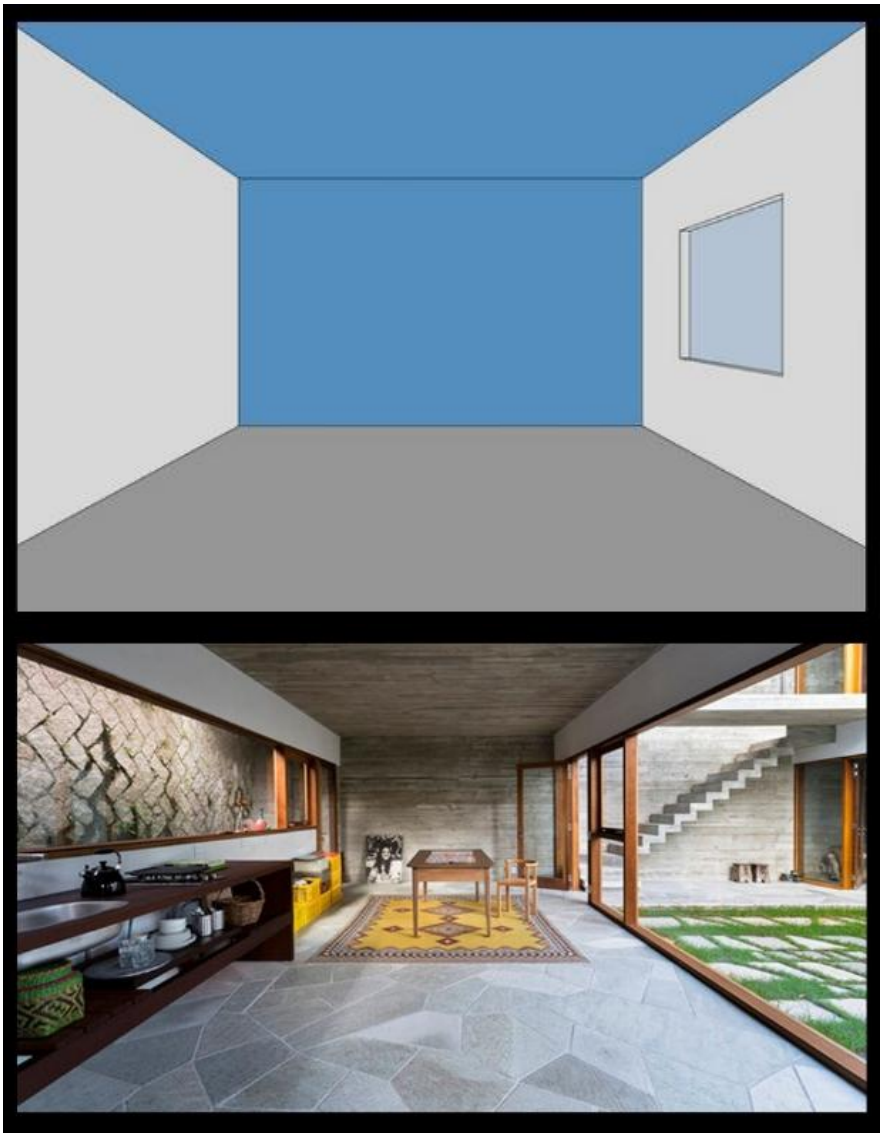


For instance, we can enlarge the room laterally by painting the back wall and ceiling darker while keeping the side walls bright.

This is a method that can be applied in tight corridors or hallways. There is a lot more to say about this subject, however if you want to read more about this idea, Eduardo Souza wrote an article on archdaily.com called "How Colors Change the Perception of Interior Spaces."

Additionally, colors can be used to express emotional mood, which engrosses the player in the current emotion and clarifies the viewer.

Cold hues, which are frequently connected to scenes that use blue or purple, convey feelings of loneliness and melancholy. The 2017 movie "Blade Runner 2049" provides a fantastic illustration of this application in surroundings, as it employed a mix of these hues for scenes that featured loneliness. This made those times much more emotionally impactful.



Additionally, color can be linked to time and narratives. This is frequently done in conjunction with repetition, which helps our players or viewers learn over time which color corresponds to which chronology or story. This often pertains to the narrative and should be considered in early stories.

Color is frequently used to distinguish between various sections, particularly in games. In "The Legend of Zelda: Breath of the Wild," for instance, colors play a crucial role in guiding players across the game's expansive open world. Every sector in the game has a distinctive hue that aids the player in differentiating between them.

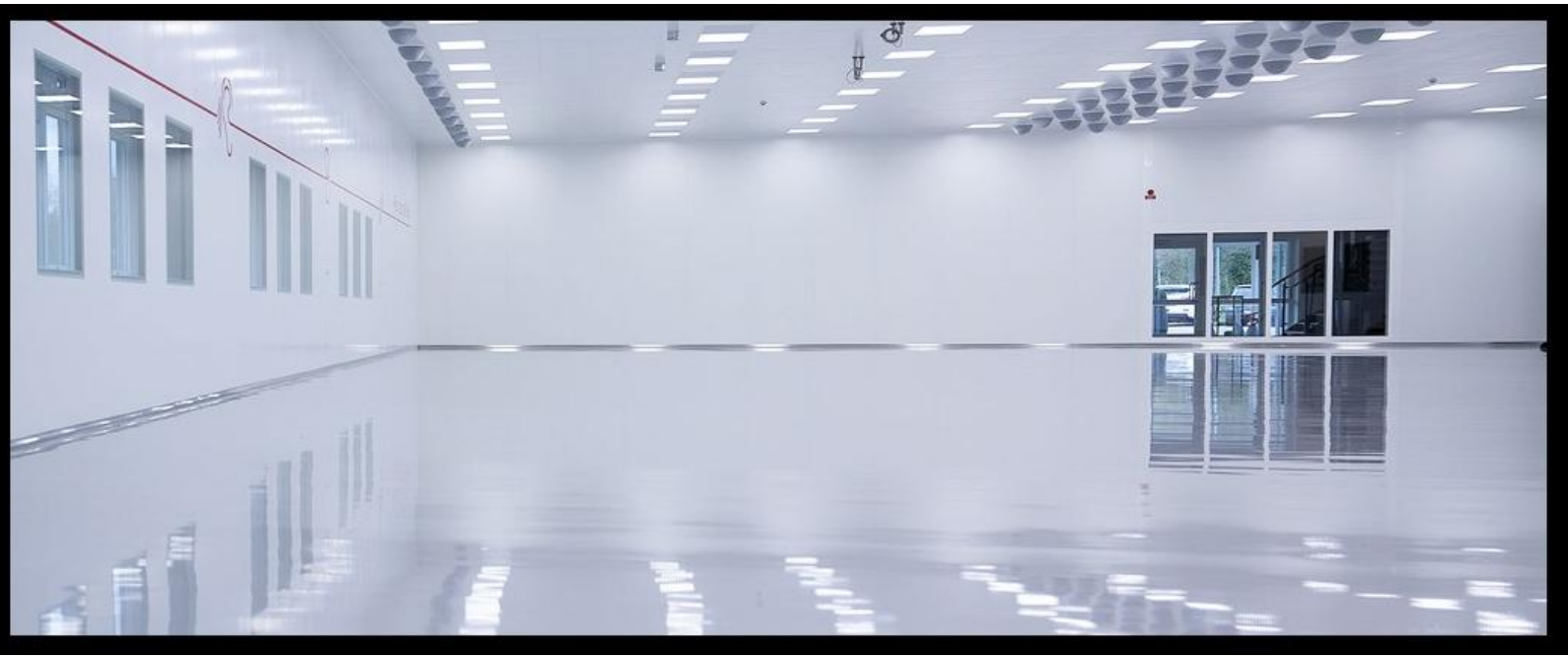
Green represents grass. In Hyrule Field, red and yellow orange denote volcanic regions, whereas blue is linked to places of water and sky. The player can easily identify and explore different areas of the game environment thanks to the creative use of color in the game.

Pattern is an example of another principle. Repetition is the essence of pattern, but not in this context. The parallels that the story and its concept establish are what constitute a pattern. Wes Anderson's films are a prime example. Pastel, flat settings with consistent color schemes are a recurring motif in Wes Anderson's work. One of the main reasons why people appreciate them is their simplicity and visual flair, which are present in all his work. All of this sums up his style, which frequently needs to be closely followed while creating the movie's setting.

Patterns are essentially associations based on commonalities. This association is utilized in every setting, as demonstrated by the Assassin's Creed games' jumping-related components. There are numerous ways to use this quick and easy identification method for relationships. By teaching the player or spectator to associate, we can subtly provide them information that we want them to take in. In the end, it can be about anything, including color and environmental things. For instance, David Fincher's film "Gone Girl" uses the recurrence of scenes and our surroundings to show us time and even the psychological state.

Order

Order can mean this.



Or This.

In this case, "order" refers to how our story presents order. Consistency is the primary concern of order, which ought to be conditioned by our narrative in all its manifestations.

Understanding the plot and learning as much as you can about the author's views should be among your first priorities from the beginning. What is the setting of the story? What and how do we want to present it to the players and audience? These are important questions, along with many more. After we have the fundamentals, we must learn more about what we hope to produce. Do we want to design a post-apocalyptic metropolis, for instance? Since a metro in China and one in Russia differ greatly, several concerns are raised right away, including the society in which the story is set. Is the story set in the past, present, or future? Does this story contain any noteworthy technologies? Where do we want our camera or player to travel, from a technical perspective? What should be discreetly displayed and what should they see? All of this has significant environmental ramifications, and any miscommunications among the team or modifications to these questions that might arise later could be extremely time-consuming.

The Impact of Artificial Intelligence on 3D Environments

This leads me to the next topic I want to talk about today, and sure, it will just be the much-discussed AI. I believe that AI is having a positive impact on our industry. The construction of environments is another example of how work that used to take tens to hundreds of hours has been drastically reduced. Nowadays, nearly everyone who has been interested in AI has tried it out to develop 2D settings. However, there are plenty of alternative AI programs available; Luma AI is one of my favorites since it makes it possible to use AI to create 3D models. Photogrammetry is the foundation of the first function. Luma Capture differs from traditional photogrammetry in that it uses artificial intelligence (AI) to generate models at a much faster rate and with smaller file sizes, which speeds up model display. The Nerf system from Nvidia powers all of this. Nerf renders visuals in the so-called neural radiation fields using neural network learning.

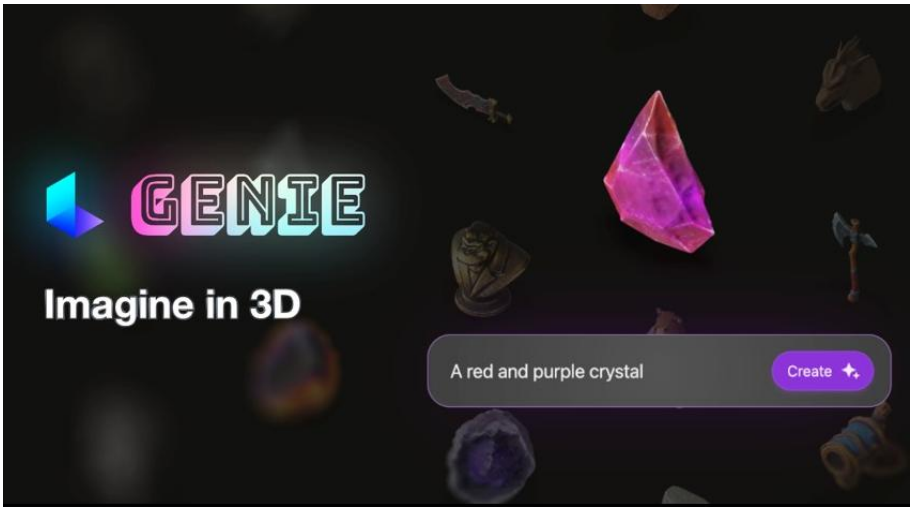
https://blogs.nvidia.com/blog/instant-nerf-research-3d-ai

https://www.youtube.com/watch?v=xUh4RnFkbPw

There are still issues with this system today. Nonetheless, this approach is already usable in a professional setting when used appropriately.

https://www.instagram.com/p/CnyLAibjkra

By utilizing Nerf's capabilities, we may convert its restrictions into an advantage and create a new kind of graphics for videos, such as music videos. Its applicability can be found in backdrops with functional lighting changes and full-fledged reflections.



Genie from LumaLabs is another function that interests me more. By simply typing the desired term, this AI generates models directly. Since Genie from LumaLabs is free, artists have an enormous array of options and can save time by not having to make or buy 3D models for scene design.

Even now, there are still some issues with this technique, including occasionally the created model's textures' usefulness, but these may be fixed by hand or by using other AI software to improve them. But as technology has advanced recently, the final textures produced by this technique have likewise improved in quality, necessitating less changes.
https://www.instagram.com/p/C2QMtDDPj4m
The sample displays Genie's most recent model, which sought to make a croissant entirely with words. I'm excited to see this technology in a few years since it's incredible how far it's come.

The new Airen 4D system and Dream Texture are two of the most adaptable AI tools that can assist us with this. Both AI tools allow us to directly construct scenes, components, and textures in 3D software, and they operate on a similar principle. All you have to do is put your imagination into writing. If you require a texture for a model, for instance, simply indicate your requirements, designate the texture's size and quality, and it will be produced in accordance with your request, which we can alter indefinitely.
https://www.youtube.com/watch?v=ArEEyzr32gY&t=3s

Other benefits include endless tiling, so the texture can be created indefinitely. These textures in new AI models are already practically equivalent to graphics used in professional settings. Additionally, it makes flawless connections between two intersecting textures. Working with whatever texture size we select is an additional option. This allows us to simply optimize textures to meet our demands by generating higher quality if necessary. We can also utilize this option in reverse.

Dream Texture and Airen 4D can also be used for output generation, which is essentially how they work as a rendering engine. The key difference is that they are far easier to use than normal render engines. All you must do is enter your imagined prompt and see the area. Let's look at an apple as an example to properly demonstrate this. Let's say we wish to make an apple-themed advertising.
https://www.youtube.com/watch?v=5sozo4kjaYo

All we need to do is create a simple model that represents space and the overall shape of the object we are envisioning, then enter the query to obtain the render we want. If we want it to look different, we just need to alter the question or create another variation.
https://www.youtube.com/watch?v=5sozo4kjaYo

In order to better build the material we envision, this approach also allows us to assign materials to our object models. These artificial intelligence techniques make it possible to produce a vast number of variations and modifications in a very short amount of time.

With the help of this workflow, we can have direct conversations with the client about designs and make real-time adjustments to the 3D environment based on their and your thoughts. This raises the efficiency of environment creation to a level that was previously unthinkable.

https://www.youtube.com/watch?v=ArEEyzr32gY

Finally, I want to stress that designing environments for video games and films is a challenging field that calls for not only technical proficiency but also creative vision and an awareness of how the setting emotionally impacts the player or viewer. It's critical to understand that artificial intelligence cannot do everything for us.

I hope that this talk gave you a better understanding of the field of environment creation and encouraged you to learn more about this exciting field. Keep in mind that every element crafted into the surroundings has the power to affect our perception and draw us into the narrative or experience.

I appreciate your attention and engagement, everyone. Please feel free to ask any other questions you may have. I hope the remainder of your day is enjoyable and that your artistic pursuits bring you great success.

VFX CAN BE DONE "WITHOUT MONEY" HOW TO START FOR FREE

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Abstract

These days, visual effects (VFX) are a crucial component of films and advertisements, but their production frequently necessitates expensive software, strong technology, and a significant investment of time from skilled artists. Due to the abundance of inexpensive or even free substitutes for conventional tools, anyone can work with visual effects even if they lack access to costly hardware or specialized software. In addition to introducing the tools and software available for novices, this lecture focuses on several methods of producing visual effects without requiring a substantial financial investment. Furthermore, it offers substitute instruments and artificial intelligence technologies that help expedite and streamline the visual effects of the creation process.

Keywords

VFX, budget, alternatives, Industry Standard, AI, think out of the box, experiment, creation.

Introduction

The title of my presentation is "VFX can be done 'without money' and how to start for free", and it may be a bit misleading, because I'm not going to go through the 'step by step' guide on how to spend the least amount of money. It's not really going to be for complete beginners, I will try to make it interesting for everyone.

At the end of the presentation, I will try to get you to think a bit differently about the whole process of creating VFX and I will try to show you some alternative ways of creating VFX that are maybe cheaper or different and maybe even easier for some people compared to the usual ways. I will also compare some of the software that's currently considered "standard" to software that's considered "alternative" as well as I will talk about some budgets and why they do and at the same time do not really matter.

The cost of VFX

Let's talk about the cost of VFX. We all know that in movies, in the film industry, it's usually the thing that costs the most, that takes most of the budget.

I chose these four movies *(Avengers: Endgame, Avatar, Ex Machina and Everything Everywhere All at Once)*. And the reason why I chose them is that some of them are random, but for example Avengers has been one of the most expensive or even the most expensive VFX films made so far. And on the other hand, Everything Everywhere All at Once, the movie on the most right, is one of the cheapest big films made with VFX.

If you look at the posters, you can see the film budgets and we can assume that a big portion of them were used for VFX. And if you compare those movies, yes, they are all different, but at the same time they have many things in common. I wanted to compare the effects. You could say that with bigger budgets there are usually more effects, but it doesn't always mean that the effects are going to be better. Art is subjective and so I believe that there are many people who, for example, love Avatar and there's many people who hate Avatar. It works for other movies as well. So, in my opinion, the budget really doesn't matter when we talk about the quality of the effects, it only matters when we talk about the quantity of effects, right?

So, let's look closer at, for example, Avatar and Everything Everywhere All at Once. Some of you may argue that those two movies are too different to be compared. I would like to disagree because even though there is a 13-year difference between those films and one of them is almost completely CG (Avatar), while the other one uses real footage combined with VFX (Everything Everywhere All at Once), they both won an Oscar for VFX. Even with the budget discrepancy (Everything Everywhere All at Once's budget being 14.3 million), both achieved critical acclaim.

One aspect I'd like to compare is the production teams. Avatar was made with six supervisors and thousands of artists, while Everything Everywhere All at Once was made by just six artists in total. Avatar utilized standard software like Maya and Nuke for 3D work and compositing, while Everything Everywhere All at Once used free software like Blender and After Effects, omitting Nuke altogether.

Now, let's compare the costs. Avatar's software suite could cost around $7,000 to $8,000 annually, depending on individual or company use. Conversely, thanks to Blender, Everything Everywhere All at Once incurred approximately seven times less in software expenses.

The VFX 'Requirements'

Let's talk about the "requirements" or "standards" in the VFX industry. I'm pretty sure this is something you all know. You don’t want to work on something that's slow and doesn't give you enough power. You want to work on something that's faster. You want something that runs smoother because, from my own experience, if you work on a slow PC, it hinders creativity. All the loading time, crashes, everything that slows you down takes away from your creativity. It pretty much makes you hate the work that you would otherwise enjoy. So, for that, I would say if you wanted to work in VFX, if you want to do VFX, it's one of the most important things. Spend money on a better PC, or at least on a better GPU. That's what you need for renders. So slow PCs are not good and good, fast PCs are good.

Now let's talk about the software. On the right side, we have what's considered the standard; on the left side, we have what's considered the alternative. I had to include Canva because that's what "self-claimed designers" use. Some of you may argue that After Effects should be on the right side because in industry it's also used for other things than just composing, but if we compare it as a compositing program, you will consider Nuke to be the standard, not After Effects. So that's why it's on the left. Now, we know that the standard is good, but does it make the alternatives bad? No, it doesn't, right? They're also good. It just depends on when and how you use them.

Free or Budget-Friendly Software Alternatives

Now let's talk about free and budget-friendly alternatives. Let's talk about software in general. What software should you use, and does it matter? Short answer: it doesn't matter. Use whatever you like. The long answer is more complicated. I would say that the most important thing for you is to use the software that you enjoy using. If you feel comfortable using the software and enjoy using it, then use it and don't care about what others say. The second most important thing is to never force yourself into using something that you don't like. And the reason is that if you force yourself into using software that you don't like, it will only lead to creative burnout. So, for that, don't force yourself into using something that you don't like. Give different software a try, but if you try it and don't like it, then use whatever software you prefer.

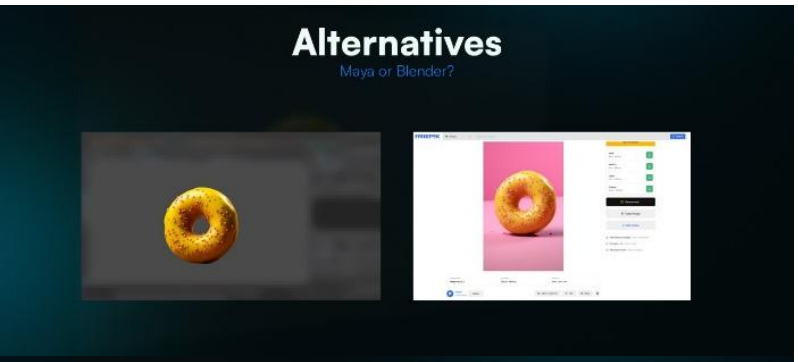
Now, another thing: Don't be overwhelmed by all the tools that the software offers. I heard this somewhere on the Internet, sadly I don't remember the source anymore, I'm sorry for that. I heard that you only need to know 20% of the software 80% of the time. And it's true. So even though software nowadays offers many different tools, you don't need to know all of them, so don't let that discourage you from trying new software.

Do you need to use industry-standard software? It depends. Again, you need to ask yourself these three questions. "Do you want to cooperate with bigger artists on bigger projects?" If you do, if you want to work on, let's say, feature films, and you want to work in a company that already uses a certain type of pipeline, you need to adhere to the pipeline. So that's why you need to learn the software. You need to use the same software as your colleagues use because otherwise, you wouldn't be able to work on the same project or you would need to find workarounds. And it's always better if you fall under the same pipeline. So that's the first question. The second one will be if "you can afford the cost of the industry-standard software". Obviously, in companies, the companies would pay for the license for you. They have their own computers. But for you to start working in the company, you first need to learn it, and for that, you need to ask yourself if you can afford it. And I will talk about different types of licenses in a while. So, ask yourself if you can afford the cost to learn the software. And the third question, the most important one, "if you enjoy using it". Again, don't force yourself into using something that you don't like.

So different licenses, here we go - If you're a student, take advantage of that. Try to get student licenses. Some companies offer discounts, some companies let you use the software for a year for free. If you are not a student, then look for demo or trial versions. I don't think that the 14 to 30 days that you get for free are enough to learn the software or to properly test it, but it's better than not using it at all, not trying it at all. For example, Foundry offers non-commercial versions. You can try that. It's quite limiting, so you may not get the full test of the software, but it's better than not testing it at all. And my advice would be to always read the terms of service, because sometimes even when things appear as free and you get them for free, then you may have signed up to pay for another year. So, you need to read the terms of service, so you don't accidentally have to pay for another year once your free license expires. And don't pirate software. It's illegal and most surely not worth it.

Let's compare some of the alternatives and why they're not considered standard now. I'm not going to go through all the software. I'm just going to show you three examples. Let's look at Photoshop, for example. With Photoshop, you must pay monthly with the Creative Cloud, and it may end up costing you a lot of overtime. There are alternatives - You could use GIMP, for example. It's "a stripped-out version of Photoshop", but it's free. So, if you need to start making something or if you just want to test it, it's free. On the other hand, if you want to get a proper "copy of Photoshop", let's say if you wanted all the same tools except for the new AI things, then I would recommend using Affinity Photo. It's pretty much "the same as Photoshop" except you only pay like $80.00 one-time payment, and then you can use it forever, which is way better, because with Photoshop, you must pay monthly. And with Affinity Photo, you have a lifetime license.
It may not be the best option to use it in companies if there are multiple people working on the same projects and sharing them between each other, but at the same time, if you're a solo worker, then definitely Affinity may be a better option for you than Photoshop. They're both good.

Let's talk about Blender and Maya, or the main 3D software nowadays. Maya is the standard, and Blender is slowly becoming the new standard as well. I'm noticing, mainly with the younger classes, that many new students are using Blender instead of Maya, and I think it's great, because I don't think there's much difference in the end. Of course, there are a lot of disadvantages and advantages to using Maya. But at the same time, Blender is free, right? Compared to Maya, it's completely free of charge. When starting with VFX, I was always told that I wouldn't be able to work on great films or do something greater with Blender, that I would always need to use Maya or other industry standard software. Well, it's not true, because we have Everything Everywhere All at Once, that won an Oscar with Blender and Cinema 4D. So that, I guess, proves something.



Now just to test it, let's look at this 3D doughnut - try to guess which software it was made in. Some of you may have guessed it was Blender, some of you may recognize the blurred background and think it's Maya. Well, in fact, it was made by AI. It's not even created in 3D software. So, I guess it proves my point, that it doesn't really matter what software you use, because to the public, to people who are not in the VFX industry, it doesn't really matter.

Let's talk about Blender again. Some people may not like Blender because of the default render engines. In my opinion, Cycles get the job done. It's great if you know how to use it. You can pretty much do anything with it. But if you don't like it, Blender's great because you can get a lot of add-ons, and some of the add-ons are extra-render engines as well. You can get Octane Render completely for free for Blender, so if you don't like Cycles, it's a great alternative. Renderman is free for non-commercial use, I believe, and Redshift you must pay for monthly. It's quite costly, but it's optional as well. If you like Blender and you want to render with Redshift, you can. It's an option.

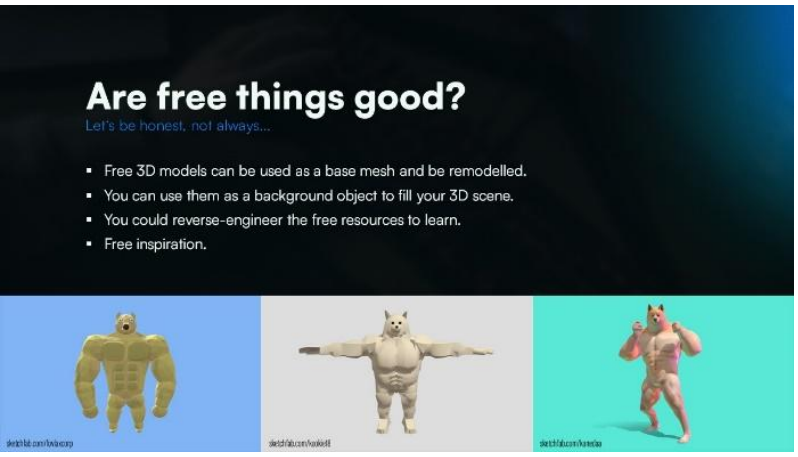
Now let's talk about sculpting. If I mention sculpting, most of you are probably going to think about ZBrush, right? This is the main software, and I must agree that it

is the main software for a reason. In my opinion, it's way better than Blender for sculpting. Some people may be able to sculpt in Blender. I honestly tried it and it's okay if you need to adjust something or deform an object, but it's not great if you want to make advanced characters in it. So, in this case, I would not recommend Blender for sculpting. If you only want to learn sculpting, I will go with ZBrush. But at the same time, if you want to try Blender's sculpting, try it. It's free. Why not? But ZBrush is the better option in my opinion. Also, if you have an iPad, you can get Nomad Sculpt. It's also great. ZBrush is not even that expensive. You also have to pay monthly, but it's not expensive compared to other software.

Now, alternatives when it comes to compositing - you have nodes in Nuke, nodes in Fusion, and you have layers in After Effects. Nuke is great, Nuke is awesome, and you should try Nuke if you have access to it. But at the same time, it doesn't mean that After Effects is bad, right? Just because Nuke is good, it doesn't make other software bad. I personally love After Effects. It's great if you're a solo worker, if you only work on your own projects. But if you must share them, then the layer-based software may get confusing, and it often takes time for other people to actually work through your projects. Hence why I would recommend trying Nuke if you can. But if not, try After Effects. Go with Fusion too. Fusion is awesome because it comes with DaVinci Resolve. Try it, it's great.

Embrace the Keyword 'FREE'

Let's talk about free stuff - embracing the keyword "free". Now, I think you all know this. You can just Google "free" anything and you get it. And although the internet is full of free stuff, not everything that appears to be free is free. Again, no pirated stuff - there is a lot of illegal free stuff, but also the free stuff that's free may come with a lot of catches. You need to give an attribution to the original creator, ask for permission, and maybe even share revenue. So, keep in mind that "free" doesn't always mean "free". But also, you should seek free things, because first, it's free - you don't need to pay for anything. And second, there is so much free stuff that often saves you time so you don't have to create stuff; you can just download and edit it.



Now, let's talk about whether free stuff is good. And to be honest, it's not, most of the time. As you can see from the examples, I chose three images of a Doge. And those are all from Sketchfab. All are available for download, and all you must do is credit the original author. And as you can see, they're all free, but they're all a different quality. And it's this way with everything - you may find good stuff; you may find bad stuff. And so, you should search for free stuff. Even if you find something that's not exactly what you want, you can always use it to learn. You can use it as inspiration. You can reverse engineering the topology, for example, and make it yourself. Or if you're working on a scene where something needs to be blurred in the background, you can just download something that's low poly and blur it. Nobody will notice.

Free Online Resources

Free online resources - again, as with free things, you can find a lot of inspiration online. Look through social networks, look through everything online. I think you all know this. It's a basic thing but let the algorithm on social networks help you. So, search for artists, react to their posts, save them, like them, comment on them, follow the people, and the algorithm will slowly recommend more and more inspiration to you. And I've heard this opinion many times: people say that "getting inspired is stealing". Everybody wants to be unique, but in my opinion, being unique nowadays is really, difficult and nearly impossible. So, you should try to be inspired and get inspiration from other people, but don't completely steal something. If you feel bad about being inspired, reach out to the original author, ask them for permission, or if you feel bad and you don't want to talk to the person, just give them credit. Say that you got inspired,

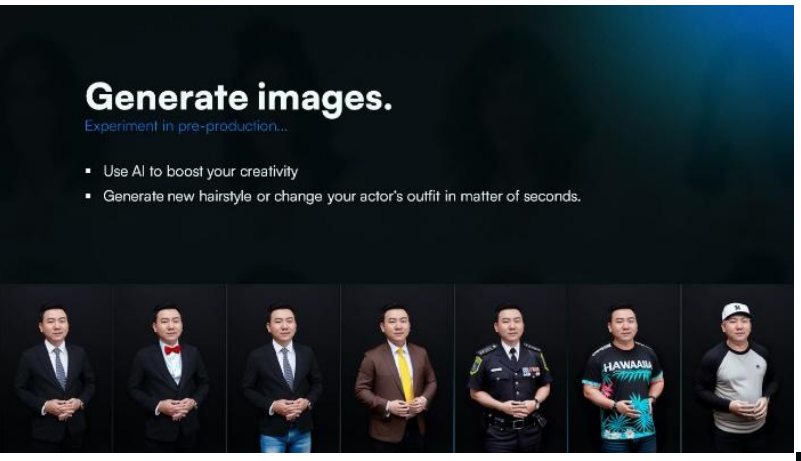
it's not stealing, you are just taking inspiration - you are not stealing from them. Search for YouTube tutorials. That's all this slide is about. Go to YouTube, search for stuff, learn stuff. I've heard that "the less views and the stronger accent the person has, the better the tutorial is". I don't know if it's true. So, I searched for tutorials. Some Youtubers also offer project files you can learn from. Those are also great sources of inspiration and learning. If you don't like YouTube, if you haven't found what you were looking for there, then you could try sites like Udemy or Skillshare. And even though you need to pay for courses there, they are worth it, because they offer more, I guess. You can pretty much pay for stuff and learn it that way.

These are just some sites that you could use to find footage: Sketchfab, I guess everybody knows that it's for 3D stuff. Then you have Pixabay, that's for video footage, music, pictures, all mostly free. And then if you need some footage like explosions, fires, water, rain, other stuff - ActionVFX, fxelements, FootageCrate… are all great. But always check for the license and make sure to follow the terms of service, because you don’t want to get sued by someone just for using their stock footage. So, check for the license and either give attribution or ask for permission to use it.

Try AI Tools, Save Time & Money

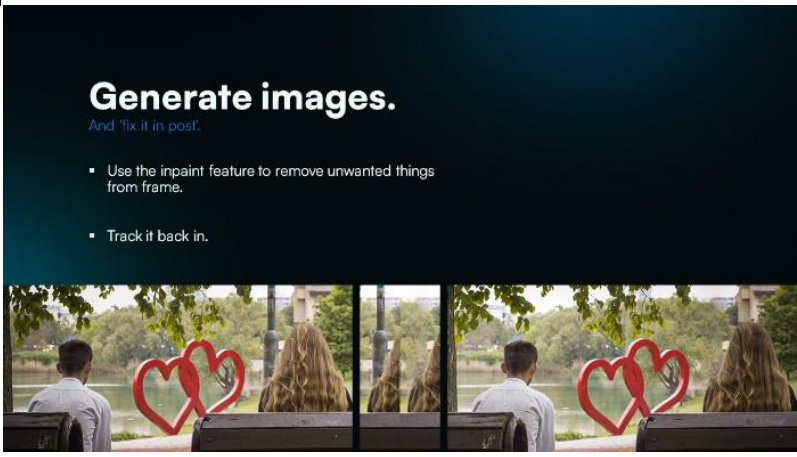
OK, now let's talk about AI quickly. I really love AI because it saves money, it saves time, and it's fun to experiment with. ChatGPT - you can use it for many things. I'm pretty sure most of you use it to write your thesis and stuff. You shouldn't, but it could be a great tool for filmmaking as well. It could help with scripts, it could help with shots, and something I learned from our teacher a couple of weeks ago is that if you get a film script from a director, let's say, and he asks you to work on certain VFX shots, you can pretty much ask GPT to analyze the script for you and find the VFX shots, to tell you what technology you should use, what software you should use, how you should do it, and it's going to do it for you. And this way you save hours of time scrolling and reading through the script and finding the shots because AI does it for you within seconds.

Now let's talk about generative AI. There is so many generative Ais nowadays. I would recommend using Stable Diffusion, mostly because it's free and you can run it on your own PC, but there is also Midjourney, there is DALL-E, there is Adobe Firefly, also included as AI directly in Photoshop. Some of those may cause you some money though. So, for that reason, I would recommend Stable Diffusion. It's great and it could help you with many

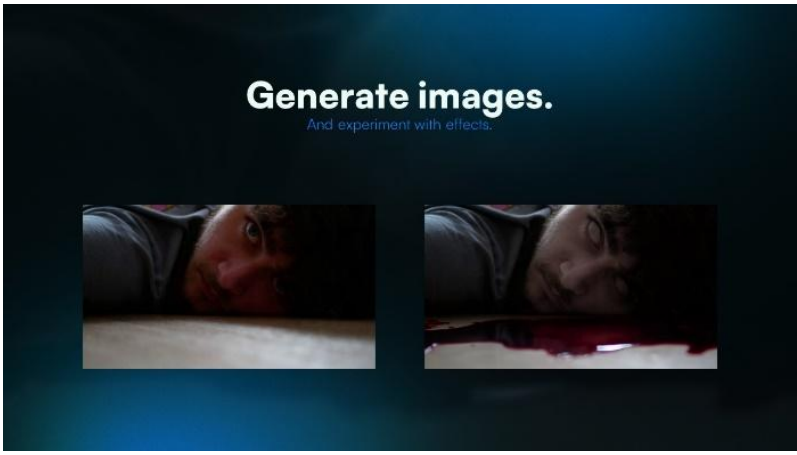


things. For example, in pre-production - imagine this is your actor and you want to test different outfits for him, for your movie. So instead of getting the actor to come to you and paying for his time, all you need to do is just get his picture and experiment using AI at home. If you decide you want him to look more like a cowboy or wear a different outfit, you just generate it and see if it works for your movie.

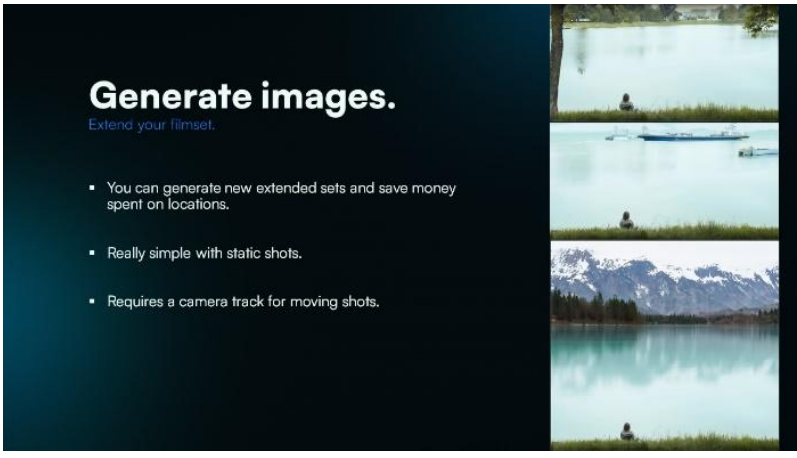
Another example is that you can fix stuff in post with it. If there is something covering your frame and there is something detailed supposed to be behind it, you can use AI to generate the part of the frame and then just track it back in, and that way it saves you time painting stuff, color matching, and doing all those things. And again, it's mostly free if you use stuff like Stable Diffusion or the AI in Photoshop.



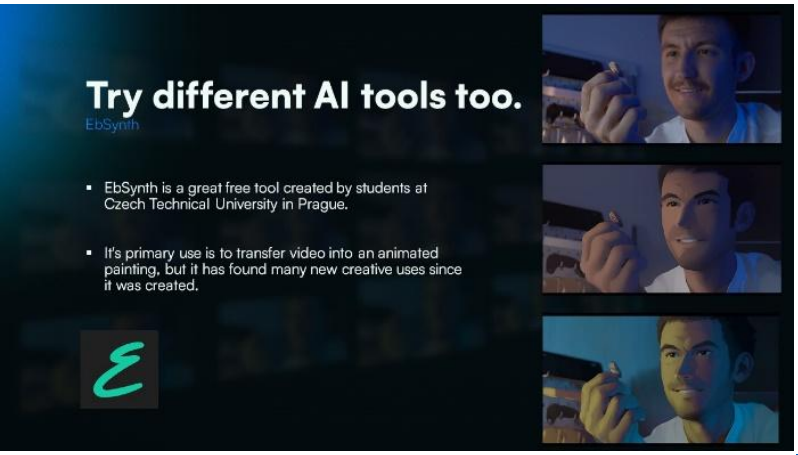
Now, you could use it to create actual effects too. This is one of the examples I was working on. It's for a student film, and I was asked to add clouds in the background. Now, I was thinking about how I'm supposed to do this. My first idea was to find stock footage or a stock image and then color match it. But then I realized that I could easily use AI. So, I just selected the top of the frame, asked AI to generate clouds, and then after a couple of edits, I had the finished product. This saved me, I would say, hours of time, and it only took minutes to get the clouds done with AI.



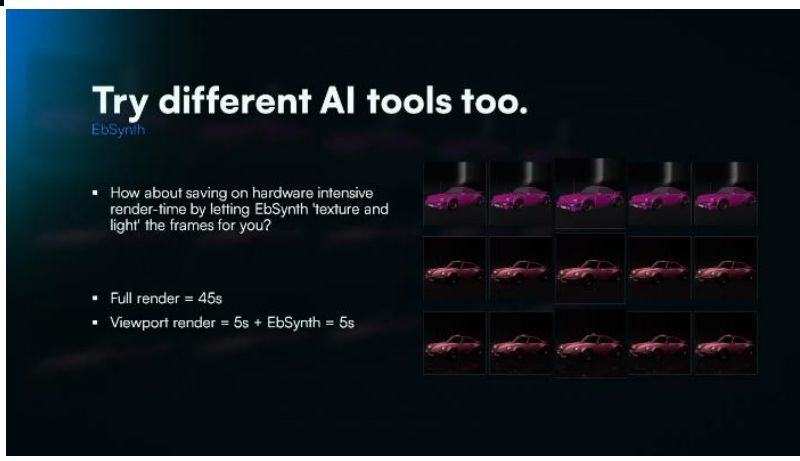
The next example has blood in it. It's another example of AI. This was for a friend of mine, and he asked me to add a blood splatter to the ground. I decided to use Adobe Firefly AI for it, and they censor blood. So, what I did was that I selected the bottom of the frame and asked the AI to generate red juice, and it did this. After that it was simple - all I had to do was just put it back into the frame, and then I just made some adjustments for it to look like it's moving on the bottom of the frame and stuff, and again, it looks quite OK. There are some realistic reflections in the blood as well, and it took me minutes instead of hours - again, it saved me time.



Another thing you could use AI for, and again it's free, is to extend your frames. This is a shot from another student film. The first frame was shot in Bratislava. I was asked to add mountains and forest in the background, so I did that. The second image is the first generation. The AI also generated those random boats, but we didn't like those, so I selected it again, extended the frame and generated mountains and forests. It works well with static footage. If you have a moving shot with various camera movements, you may need to experiment and track it back in, but it works. It's a concept, and it works.

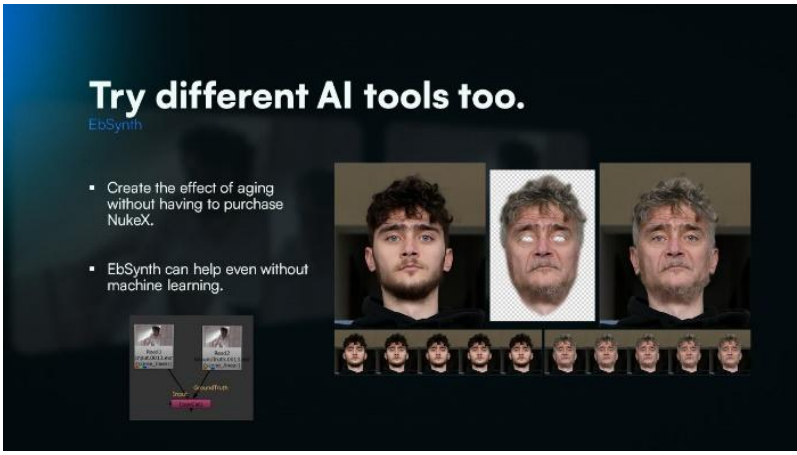


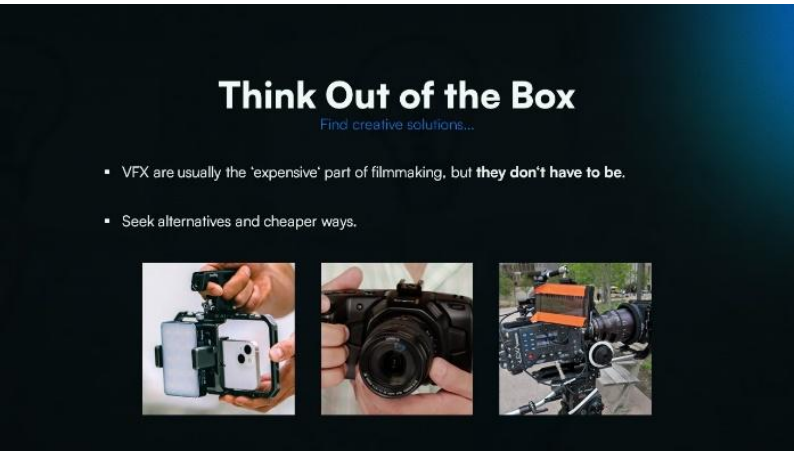
The great thing is to experiment with other AI as well. There's Ebsynth. Its primary use was to transfer a certain style from a key frame onto the entire sequence. But it didn't take long until people figured out new solutions and new uses for it. Here's my example: I used it to save on render time. The first row you can see is the direct render from the viewport. It's unshaded and unlit, just the thing you see in your viewport, and it took around one second per frame to render, so 5 seconds in total. Then, I rendered one fully shaded, fully lit frame, which took another 5 seconds. So, that's 10 seconds. Then I ran it through Ebsynth, and it applied the one key frame onto the entire sequence, which took another 5 seconds. So together, it took me 15 seconds to get a fully rendered sequence, which otherwise, directly from Blender, would take me 45 seconds.



It's not great for crazy camera movements; again, it's just a proof of concept, and it's something that could be used in the future to save on render time.

Next effect I did with Ebsynth is an ageing effect, which otherwise you would need to do with AI in NukeX. You would use copycat, a machine learning node, and it would learn the difference between an old person and a young person, and then you would apply it to the footage. But it takes hours, it takes a long time, and you must pay for a Nuke license. I did it completely for free in a matter of, I don't know, three hours. I got the footage of my actor, I used a free phone app called FaceApp, which is totally free for your phone *(you pay for extra features)*. I chose a couple of keyframes, made my actor old through the app, then imported it back into my PC, ran it through Ebsynth, and it made him old. I had to make a couple of adjustments to try to make it perfect.



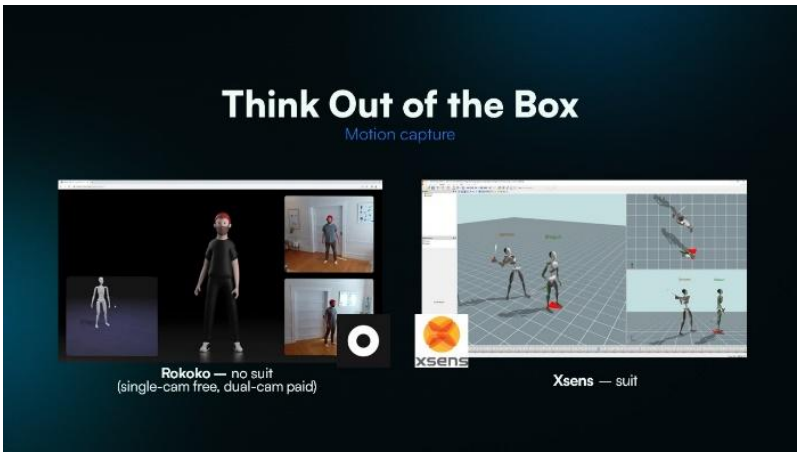


Make VFX Without Breaking the Bank

How do you make visual effects without breaking the bank? How do you make the effects without spending money that you don't have?

Now, I would like to encourage you to think outside the box. Consider creative solutions and alternatives. You don't always need to stick to the standard methods. We all know that VFX is usually an expensive part of filmmaking. It's obvious, and I want you to seek alternatives.

When I seek alternatives, I'm not talking about using your bed sheet instead of a green screen or using your phone or cheap light instead of professional lights, or even using your phone instead of a camera. But I'm also talking about things like, for example, if you want to make a CG film and you want to use motion capture - instead of getting an expensive suit like an X-sens, you could use something like Rokoko. It's free if you only use one camera. It uses AI to analyze the footage and then converts the movement into a digital form. But if you want to use two cameras for more accuracy, you must pay. Still, it's cheaper than getting a full mocap suit. If you don't have access to it, it's a much cheaper option. It may not be as accurate as a full suit capture, but it's one of the alternatives you could consider as a solo creator.

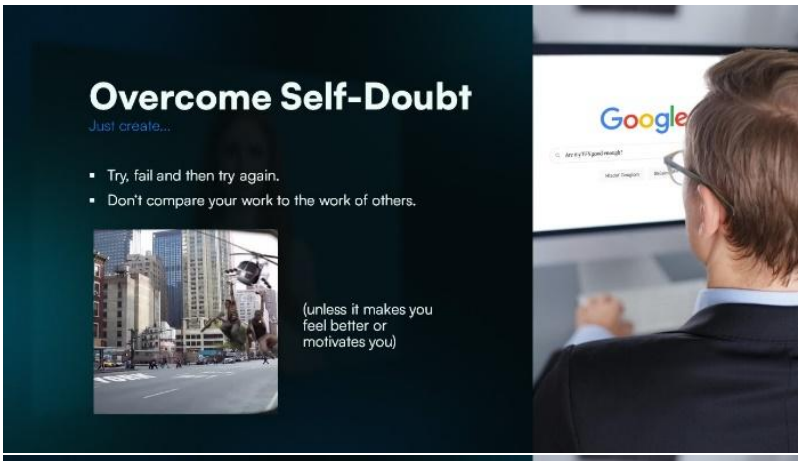


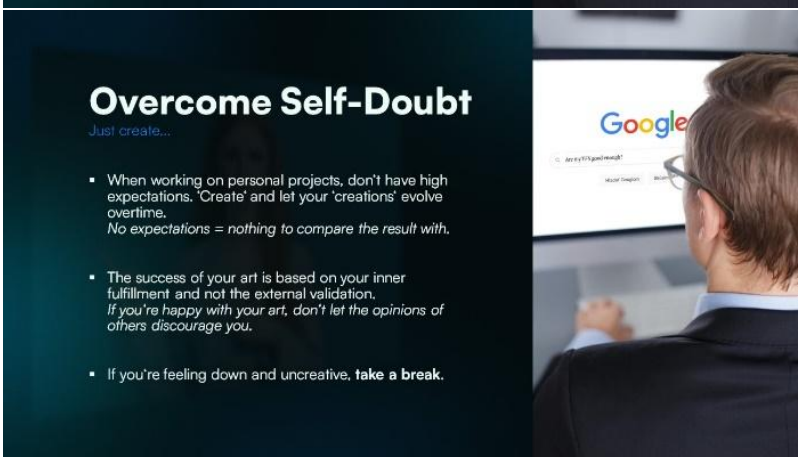
Next, let's say you want to photo-scan something using photogrammetry. Usually, you would take pictures of the object from all angles and then use software on your PC to analyze and clean it. But why not just download one of the many available free apps and scan it with your phone? iPhones, especially newer ones, have a LiDAR scanner that can be very helpful. It's just another alternative to consider. It may not give you a perfect result, but it's worth trying out.

Another thing I want to talk about is thinking about different camera angles. Not all effects have to be CGI. Let's say you want to create a shot like this. (grave shot) All you must do is to take your camera, put it inside a box, and aim it at the sky. It's a simple technique, but it can be effective. You could also use different camera angles to capture miniatures. For example, I've seen many people use toy cars on a treadmill, with cheap lights, fog machines and it looks great. It almost looks like a real night car scene. So, think about different ways to approach things.

Now, let's talk about using render farms. Yes, they can be expensive, but they save time (and time is money). If you're someone who wants to create and doesn't want to wait for renders to finish, consider using render farms. They're worth it. If you're a Blender user, there's Sheep It. It's a great community render farm. It works on a shared rendering basis, so while you're rendering other people's projects, they're rendering yours, resulting in faster renders.

Overcome Self-Doubt





Now, the thing I want to talk about, the thing that I struggle with the most, is overcoming self-doubt. We all doubt ourselves and our creations, and my advice would be to always try and keep on trying. If you fail, try again. If you fail again, then try again, and so on until you succeed. Making VFX is a learning process. There are always new technologies coming out, always something new to learn.

Just try and work, create, and don't compare yourself or your work to other people unless it makes you feel better. These are old effects from Africa, for example. (compilation of African VFX) Now look at that - I'm pretty sure you all can make something better with modern tools. If it motivates you, then compare yourself to "more skilled" people. But other than that, be yourself, do your thing, and don't let others discourage you just because you think they are "better than you" or something like that.

Now, a couple more pieces of advice. When you're working on personal projects, most surely set some sort of expectations. Your main expectation should be to finish.

But don't be too precise. Don't set up high expectations, because then you may be unhappy with it. If you have no high expectations, there is nothing to really compare your finished art to, which means you won't end up unsatisfied.

The success of your art isn't based on what other people think. It's mostly based on whether you enjoyed creating it and if you are happy with the result. If you are happy with it, then listen to other people, try to learn from criticism, but don't let it discourage you. Just create.

And my most important advice: If you are feeling down and uncreative, then take a break, because as an artist, there is nothing worse than burning out. So, take a break, go for a walk, touch some grass. It helps.

Conclusion

Wherever you can, find inspiration. Give credit to the original creator if you think it's a theft. Don't fear freebies. Seek out free items. Make use of it. Free stuff is fantastic. Try out other tools. AI is beneficial. It's a tool. It isn't meant to take your place. You ought to be proficient in it. Consider options and think creatively. Something being regarded as an industrial standard does not necessarily mean that it is the greatest option for you; rather, it simply indicates that other people are accustomed to using it. And for that reason, it is common. However, that doesn't imply you have to utilize it. Another piece of advice is to be creative, experiment with visual effects, and never stop exploring.

CONFERENCE CONTRIBUTION – 5, DAY 1

CREATION OF A GIANT

MARI GALLET, THEONI FOTOGLOU, *students of the 1st master's year in Howest University of Applied Sciences - Digital Arts and Entertainment, BELGIUM.*

Abstract

The short "Giant of the Steppe" was made over the course of half a year by a team of six students. It serves as a glimpse into a larger story, about a young girl travelling through the vast landscapes of the steppe on the back of a Great Yakram, looking for her lost family. She lives a completely nomadic lifestyle; with all supplies she needs located on the back of her animal friend.

Within these 80 seconds of the film, we follow the girl, Asel, through her morning routine on the back of this huge beast.

This film was made at Howest - Digital Arts and Entertainment under supervision of Dirk Lambrecht.

Music by Lea Keyaert, Sound Design by Liam Nagels.

Pedagogical introduction of project - Dirk Lambrecht

Project Coordination:

The projects last for 12 weeks, but some students start early and work during holidays to create high-quality work.

First Group:

- Project started early and continued working during holidays.
- Produced a high-quality project within the 12-week period.

Second Group:

- Members did not know each other initially.
- They introduced themselves and their skills on the first Monday.
- Successfully completed their project within the given time, producing another high-quality piece.

Overall Outcome:

- Both groups created impressive projects, referred to as "gems" or "masterpieces."
- The projects are part of a digital art entertainment course in the third year, before students leave for their internships.

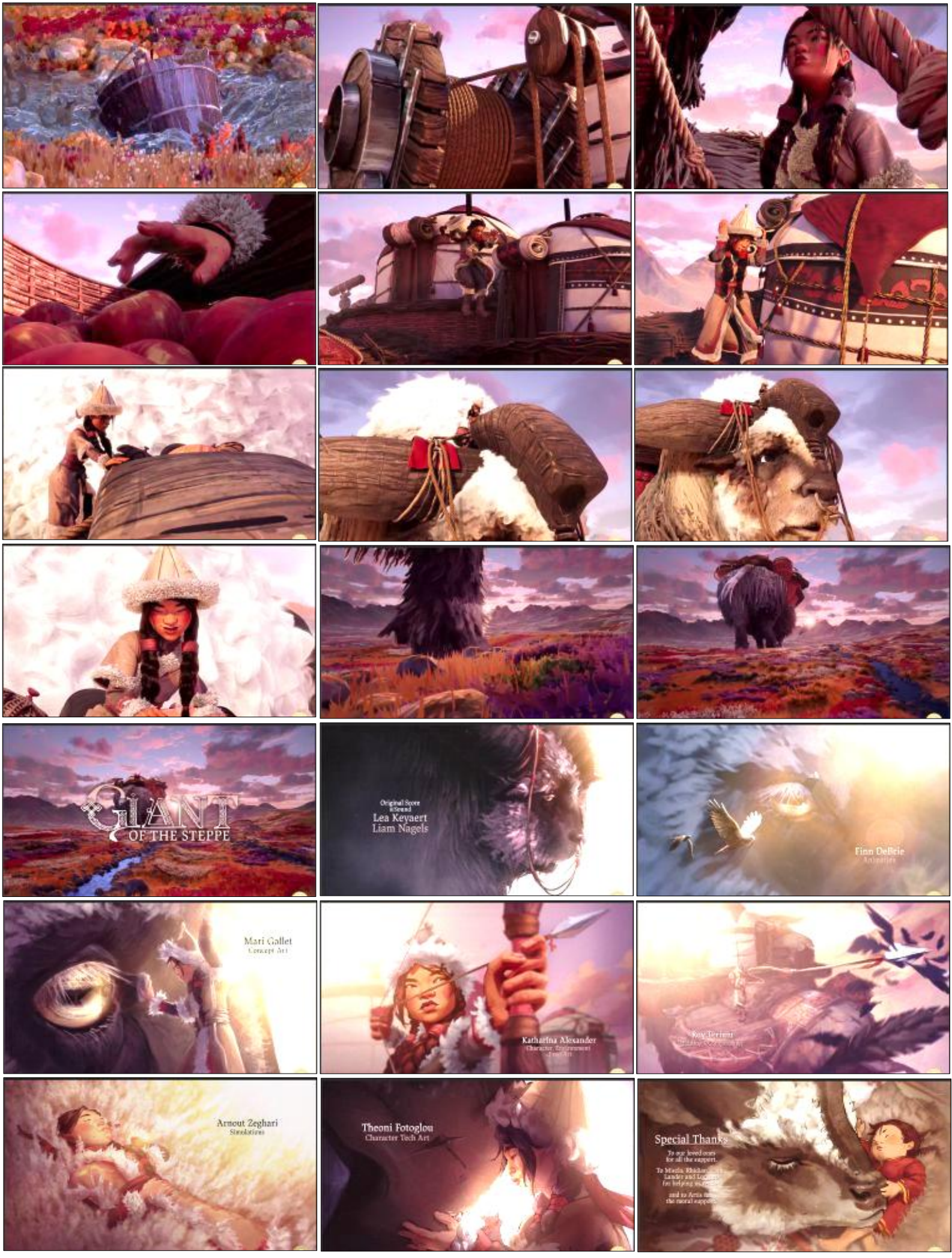
Mari Gallet

I am a Belgian concept artist, born raised in Kent and I studied at HO, SDAE and a 3D animation major. I am currently doing my internship at Larian Studios in Belgium, and I am hoping to eventually go into the film industry for concept art and visual development. I want to instead of interesting for me that you are from Greece, and you came to Belgium for study. I am curious also about your how you decided to go out from Greece and in Germany now.

Theoni Fotoglou

My name is Theoni, and I moved from Greece to Belgium and then got my internship in Germany. I decided to leave Greece because it didn't have a university that offered what I wanted to study. That's when I found DA in Belgium. It was the best option for me, and that's how I decided to go there.

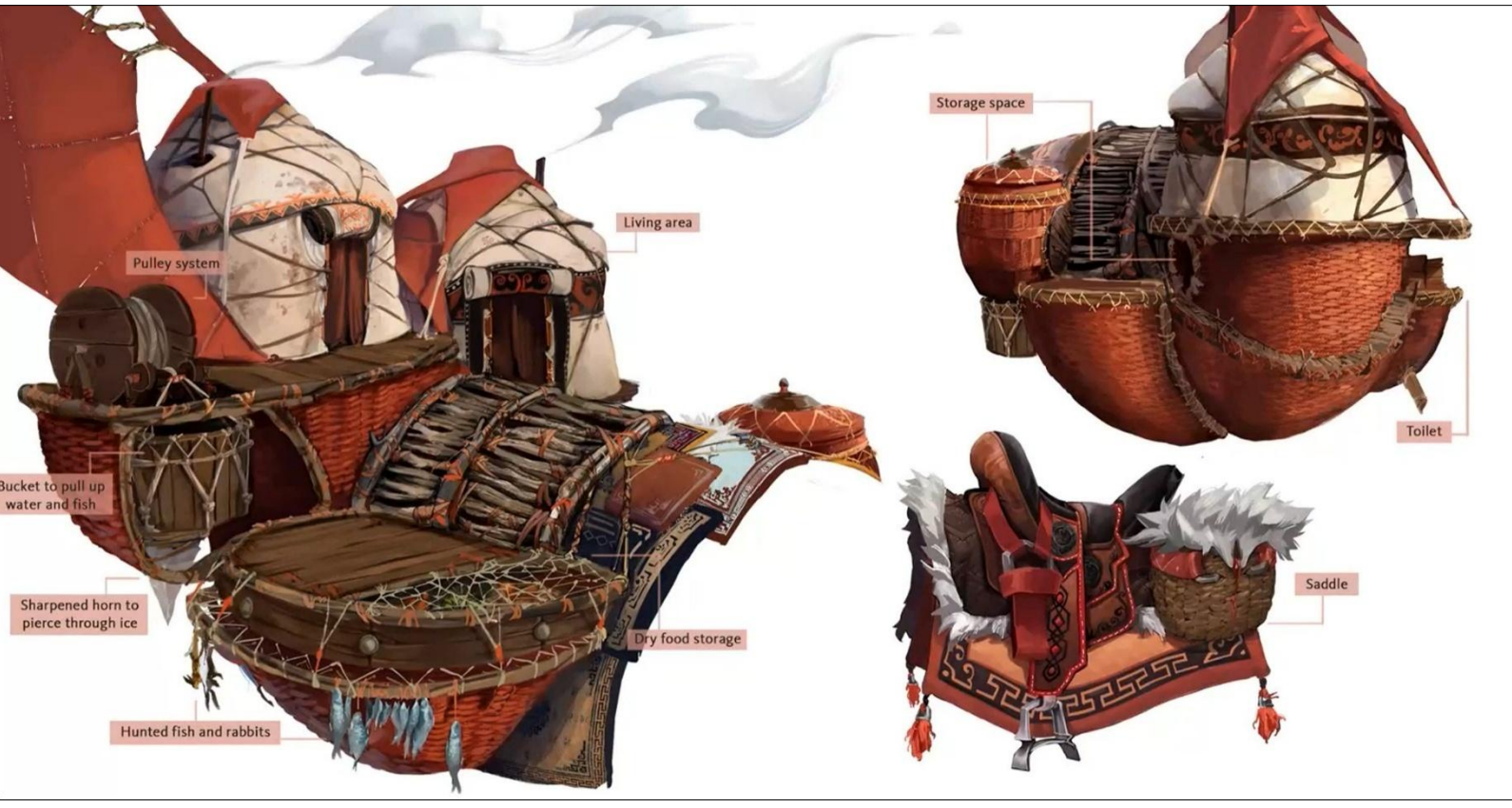
The internship where I am right now, which is at Airborne Studios, was my number one choice because I love their style. So, I'm currently doing my internship here as a 3D artist.


GIANT
OF THE STEPPE
Original Score
& Sound
Lea Keyaert
Liam Nagels
Finn DeBeie
Mari Gallet
Concept Art
Katharina Alexander
Armout Zeghari
Stookstons
Theoni Fotoglou
Character Tech Art
Special Thanks

Theoni and I, along with four other artists, worked on a project called "Giant of the Steppa." We had about four months to complete it, but given the ambitious nature of the project, we started early during the summer before the semester began. When we encountered technical difficulties, we continued working on it even after the official completion date. I served as the concept artist, Theoni was our character artist and rigger, and we had four other artists join us. This project was created for OS Digital Arts and Entertainment, and we recently won the Flanders Technology and Innovation Award for it.

Small portfolio

The project began as a small portfolio piece inspired by Central Asian cultures and fauna. Initially, it featured a horse-like steed with a rider racing through an icy landscape. Encouraged by our peers and teachers, we transformed this concept into a 3D graduation film. The definitive version featured a 13-meter-tall giant creature carrying a girl and her house on its back. Originally, the story included two human characters, but due to time constraints, only the girl remained. I designed all the objects for the final project, including the environment and the house.



Animatic

The story follows the girl through her morning routine, with a surprise reveal of the giant creature she rides. We created an animatic storyboard ahead of time to ensure efficient production. Our goal was to make the reveal of the giant creature a surprising and epic moment. We adjusted the original animatic to better convey the creature's scale. The project had to be completed within three to four months, which required careful planning and coordination. We started working on character models before the project was fully confirmed by the school. This approach allowed us to work efficiently, with different team members working on various aspects of the project simultaneously. For example, while the character model was being created, we began rigging to save time.

One of the significant challenges was simulating fur for the giant creature, Plov. This task was not part of the standard curriculum, so we had to learn how to simulate fur on a large scale. The process took longer than expected, consuming more than 60% of the project's time. Despite the challenges, we successfully created a realistic and fluffy appearance for Plov.

Environment

The project also involved creating a large environment. Team members came from diverse backgrounds, including VFX, animation, and game graphics production. We chose Unreal Engine for the environment due to its rendering capabilities. Katarina, our environmental artist, created everything from scratch, maintaining a hand-painted style without using photo scans or online materials. The environment included fully realized models, such as houses and modular pieces, to create a self-sufficient vibe for the girl's house on the giant creature's back.

The final stage of the project was composing, which involved combining elements from various software. Roy, our compositor, faced the challenge of integrating renders from Maya, Houdini, and Unreal, matching the lighting and ensuring a cohesive look. We also encountered difficulties with rendering, particularly with the fur simulation, which required the use of a render farm.

Our project aimed for a stylized visual style, using custom Nuke tools to achieve effects like cross-hatching, a painterly vibe, and half-toning. Matching the stylistic elements across different pieces was challenging, but we managed to create a cohesive final product.

Questions and answers

Q: I really love your project, and I would like to ask if you used any AI tools for the creative process and what software did you use for modeling and animation?

A: We did not use any AI at all. Everything is done by hand. We used Maya for animation modelling, ZBrush for sculpting, Photoshop for concepts, Houdini for Blove´s fur, Xgen for a cell's hair, Houdini for water simulations, Unreal for the environment, Nuke for compositing, and Marvelous Designer for clothes and yurts.

Q: Did you learn something new during the making of this movie, or what was the hardest part or the most challenging during the making?

A: I had a big learning experience because I was a 3D animation student and didn't know anything about simulations. I ended up working on clothing and fur simulations for Asol's clothes. The biggest struggle was making two simulations work together at the same time.

A: I spent most of the project animating and doing small administrative tasks. I wish I could have improved the planning. We had to rework our plan often to get everything done in time. I could have done more research in art direction.

Q: Congratulations on the movie. How did you manage the editorial? Did you make a previs and then progressively do 3D work or add shots?

A: The course structure required us to show a new edit to the teachers every week. We started with blocked out animation for every shot at the same time. Everyone was working at the same time, from block out to finish product.

Q: How much did you have to learn by yourself during the creation of this project and how much did you already know from school?

A: It depended on what each person was doing. Fin, our animator, mostly did animating. Arnaud, our simulation student, had to self-learn fur simulation in Houdini. For me, about 50% of my work was self-learned because I took on a role outside my major. Rigging and modelling were learned in school.

A: Most of my work was concepting, which I learned in school. I also learned to use F track for tracking a team.

Q: How did you find each other and organize the team?

A: I met Theoni in my second year, and we became friends. When I decided to make this my graduation project, I involved Theoni. Teachers recommended Finn, an animator, and Katarina, who could do stylized environments. We found two VFX artists during a school project, and they joined us.

Q: How much time did it take to do all the concepts? Is there a fun fact or background story about the giant for this project?

A: The original version took about a month or two. We reworked the project for Playgrounds Anthoven, changing it from blue to red. The giant became bigger week by week, eventually reaching thirteen meters tall.

Q: Congratulations on making something like this. To what degree is the texturing procedural or hand-painted?

A: Katarina and Alexander were responsible for the visual aspect. About 60% is hand-painted. The big environment with planks and basket material is more tile able. Most of it is hand-painted by Katarina, who defined the project's style.

Q: What are the next steps?

A: We don't have any real plans. I think we would all love to be part of it. But right now, we are all making our first sensitive steps in our respective industries. We are putting it off a bit like if we want to continue with this in the future, we would love to. But right now, we do not have any tangible projects in mind for now. It was perfect because you made an amazing portfolio.

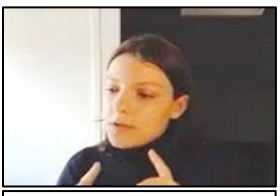
Q: Have you ever sat down and thought about what the actual duration of the project would be in the studio environment, let's say from start to finish with let's say the 40-to-50-hour work weeks and where we can, how long would it have taken to finish the project?

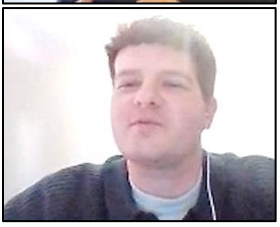
A: I have no clue. We were working on it full time, from morning till evening, for three months straight. Then we worked on it a little bit during the summer, which added up to two extra full-time weeks. Afterwards, Roy worked on it alongside his thesis paper for another month. He usually says he would have needed one or one and a half more full-time weeks. So, I think four to five months would be the necessary time. After those 12 weeks, we had the Grand finale. Everyone got a +1, and we invited industry. Everyone was dressed up, and the industry was impressed by the amount of work done in such a brief time. They said they would never accept a project like this in a company because it involved complex elements like hair, water, and textures. Tom from Walking the Dog

was amazed by the work done in 3-4 months. He said it would take six months in a company to produce something like this and then present it to find a distributor for co-production.
Currently, I am looking around to see if studios are interested in this project. Everyone is enthusiastic, but they also say the concept is there, but we need scriptwriters to turn it into a show or series. I remember when we stopped this, the six of you were like, "Wow, this is the best time we've ever had." You started crying, and I wanted to keep this and have it produced in some way. So, I am still looking forward to seeing what will happen with this one.
Q: You've done this within the school environment, with a lot of freedom and specific support that's hard to get outside of school. Could you tell us what type of support you found most important in making this film at Howest? Now that you are taking your first steps into the industry, do you find it different?
A: During our project, we got a lot of support from teachers in the form of personalized feedback every week. They were incredibly involved. It is nice to have six teachers paying attention to a small group, which is not common in bigger studios. It was nice to have extra sets of eyes to check if you are doing well and optimizing your work. It was also helpful to get professional opinions on improving workflow and doing things faster. We felt very guided along the path, which was nice.

BEHIND AMBER: CREATING DESIGNS, UNREAL WORKFLOW AND TEAM DYNAMICS

SACHA DEEN, DAYELL DE GRAAF, *students of the 1st master's year*
in Howest University of Applied Sciences - Digital Arts and Entertainment, BELGIUM.





Abstract

Objective: Create a video highlighting how robotic bees could help preserve nature in the future for a festival for future technology in Belgium.

Design Process:

- Concept: Product launch clip for robotic bees, inspired by Tesla and Apple.
- Mood Boards: Sleek, minimalistic designs with hexagon patterns.
- Beehive Design: Modern, artistic beehive serving as a power station for robotic bees.

Storyboard and Animation:

- Environment: Futuristic lab setting.
- Bee Design: Features sensors, cameras, and a pollinator, with a focus on minimalistic yet dynamic design.
- Color Scheme: Black, white, and gold accents.

Team Contributions:

- Team Lead (VFX Student): Planning, deadlines, beehive interior modeling, camera movements, simulations, final compositing, and color grading.
- 3D Animation Student: Storyboards, animatics, graphic designs, environment modeling, rigging, animating, and editing.
- Thor: Beehive design, lab room assets, flower room assets, environment lighting, and composition.
- Game Graphics Student: Bee design, texturing, sculpting, modeling, environment concepts, and graphic design.

Technical Aspects:

- Software Used: Maya, Houdini, Unreal Engine, Substance Painter, Da Vinci, After Effects.
- Rendering Challenges: Time-consuming rendering in Unreal, reflective environments causing issues.
- Advantages of Unreal: Immediate visual feedback, easy asset integration, iterative process, and flexibility.

Team Dynamics:

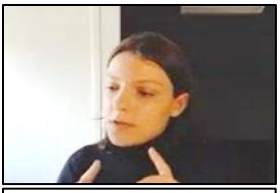
- Communication: Regular check-ins, feedback sessions, and collaborative problem-solving.
- Leadership: Ensuring deadlines are met, facilitating discussions, and making decisions to keep the project on track.
- Collaboration: Openness to each other's ideas, prioritizing the project's best interest over personal preferences.

Conclusion:

- Outcome: Successful project completion with a well-coordinated team effort.
- Acknowledgments: Thanks to students who contributed sound effects and original music.

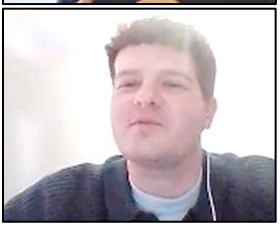
Keywords

Robotic bees, Nature preservation, Future technology, product launch, futuristic lab, beehive design, team collaboration.



Sacha Deen

I am Sasha and I'm a third-year VFX student currently doing my internship at a Belgian company, Faces Studios. I work on TV shows, but the studio also handles a lot of commercial and personal projects.



Dayell De Graaf

I'm from the Netherlands and studied Game Graphics Production at Howest University, though I have a passion for film and visual effects (VFX). That is why I chose to join film projects over game projects during my studies.

Currently, I am interning at Planet X, a studio in Amsterdam. They work on significant projects for Netflix, other films, commercials, and TV shows in the Netherlands. I work as a 3D artist but also contribute to their virtual production team. Virtual production uses large LED screens instead of green screens, a technique popularized by "The Mandalorian." It is becoming a preferred option for VFX, and I hope to continue in this industry.

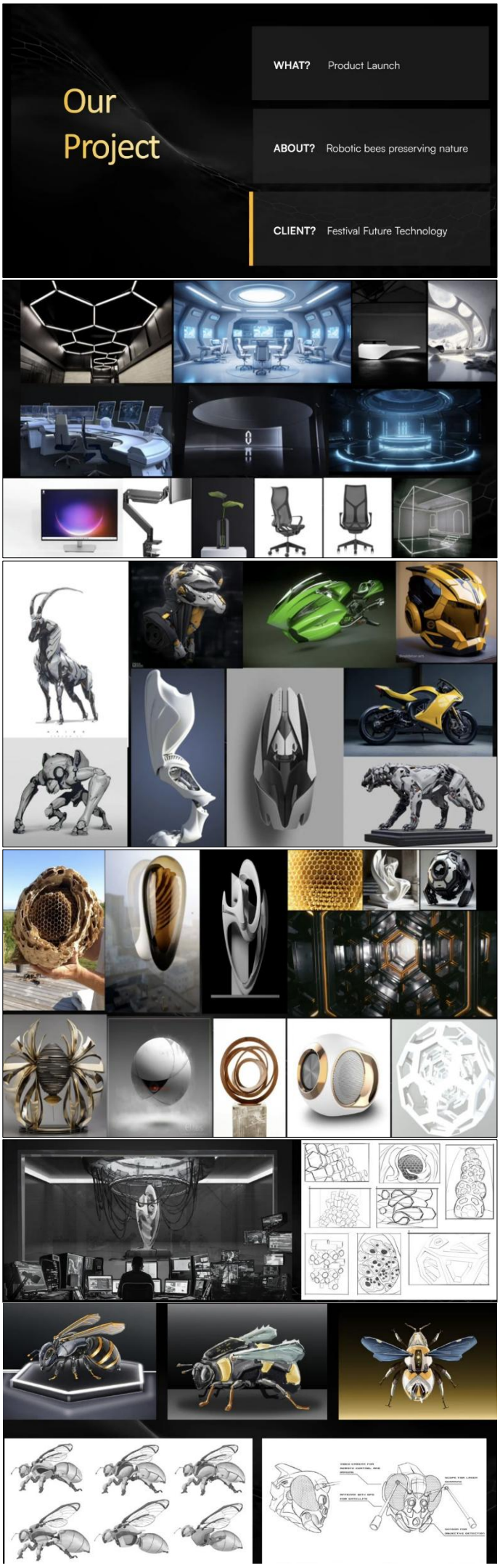
Client

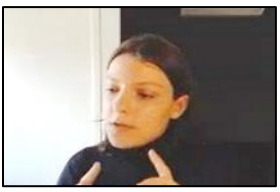
Dayell and I would like to talk about our project Amber. We were asked by a client to create something related to how robotic animals could help nature in the future. We decided to make a product launch clip about how robotic bees would help preserve nature. This video will be shown at a festival for future technology in Belgium.

Design Process: We started from scratch, brainstorming and conceptualizing. We chose a bee because it was simple and readable, and we wanted a finished product for our portfolio. We were inspired by companies like Tesla and Apple, aiming for a sleek, minimalistic design. Our mood boards included futuristic designs with hexagon patterns. We drew inspiration from motorcycles, hovercrafts, drones, and high-end products.

Beehive Design: Our team member Thor created a beehive to store bees, designed as a modern artwork sculpture. The beehive and bees shared a consistent design, with black, white, and gold accents. We envisioned a lab environment for testing the beehive, with a sleek and slightly eerie atmosphere.

Storyboard and Animation: We delivered storyboards and edits weekly. We liked the idea of flying into the beehive and showing its interior, maintaining a sleek structure. The bee design included sensors, cameras, and a pollinator, with moving parts hidden inside. We aimed for a minimalistic yet dynamic design, emphasizing the high-end nature of the product.



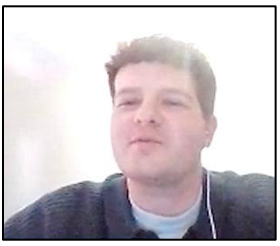


Team Contributions

VFX Student (Team Lead): Planning, deadlines, beehive interior modeling, camera movements, simulations, final compositing, and color grading.

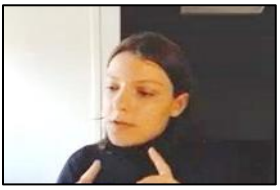
3D Animation Student: Storyboards, animatics, graphic designs, environment modeling, rigging, animating, and editing.

Beehive design, lab room assets, flower room assets, environment lighting, and composition.

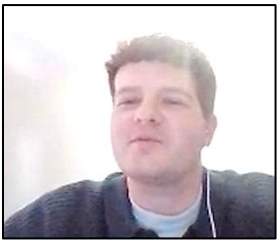


Game Graphics Student: Bee design, texturing, sculpting, modeling, environment concepts, and graphic design.

Technical Aspects: We used Maya, Houdini, Unreal Engine, Substance Painter, Da Vinci, and After Effects. Rendering in Unreal was challenging due to reflective environments, requiring high sample rates and extensive research. However, Unreal provided immediate visual feedback, easy asset integration, and flexibility, which helped streamline our process.



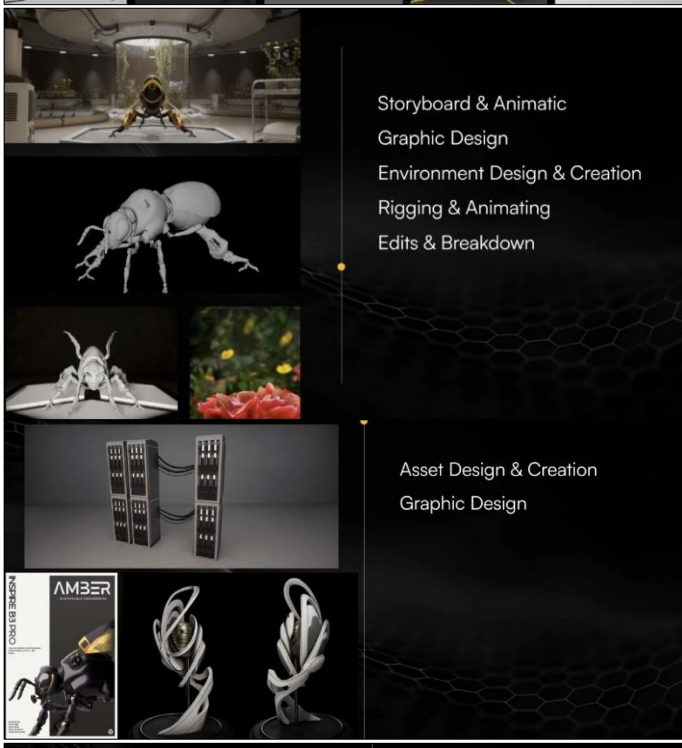
Team Dynamics: We maintained regular communication, provided feedback, and collaborated to solve problems. The team leader ensured deadlines were met and facilitated discussions. We valued each other's ideas and prioritized the project's best interest.

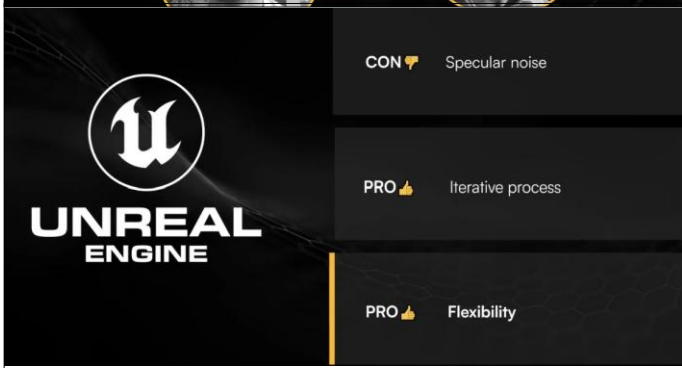


Something that we noticed during the weeks we once started working in Unreal was that we felt like we were ahead of a lot of the other groups because we could immediately see what our scenes were looking like. There's a lot of easy integration into Unreal with assets and we got a lot of feedback early on that I think a lot of the other groups kind of had way later into the process, which made it a very iterative process because we were kind of streamlining and finessing our scenes very early on, which you can't really do when you're rendering in Maya at the end, because then you'll notice a lot of issues and it's kind of too late. And flexibility wise, like I said, asset integration and Unreal are really easy. We used a lot of shaders for the flowers and plants in the flower room, mega scans. And I think in the end, we were one of the few groups that were not worried that we would finish the project, which was rare.

Conclusion

The project was successfully completed with a well-coordinated team effort. We are grateful to the students who contributed sound effects and original music.





Questions and answers

Q: I really like the style that it has, and I was wondering how satisfied you were with the result and what could have been improved overall, not just in the project, but in the workflow, etc.?
A: Our client loved it. She was very supportive and let us go free with our vision. Looking back, we were bummed out about the noise in the first scene. Next time, we will spend more time optimizing the video quality. Importing simulations in Unreal from Houdini was also challenging and required more time than expected.

Q: What posed the biggest challenge for you? Did something take longer than anticipated? Were you ever in a time crunch?
A: Planning was key to our success. We anticipated that some tasks would take longer and were willing to work on weekends and holidays. The B animation took a long time and integrating it into Unreal was challenging. However, we didn't have to cut anything significant from the project.

Q: How did you tackle the sharing of files between all of you in this school environment?
A: We used Google Drive for sharing files, which worked well for us. Each person had their own tasks and projects. We made different levels for each shot in Unreal to avoid conflicts.

Q: Were there any other software or programs that you used or any unexpected challenges or technical difficulties in production?
A: We used ZBrush for sculpting, Maya for hard surface modeling, Houdini for simulations, and After Effects for logo animations. The biggest challenge was hardware limitations, especially towards the end of the project when Unreal struggled with the complexity of the scenes.

Q: Did you use real-time rendering or path tracing in Unreal Engine, and were there any problems with multipass rendering?
A: For intermediate feedback, we used real-time rendering because it was fast. For the final video, we used ray tracing and accessed different AOVs in Fusion without any problems. We had to adjust the lighting when switching to path tracking.

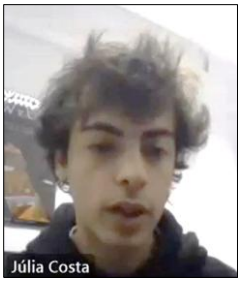
Q: Is it important for each of you to influence the main concept, or are you happy to deal with your part of the project?
A: Everyone had their tasks, but we always reviewed concepts as a group. If someone had a problem, others would help. We assigned tasks based on individual preferences and skills, but we were flexible and helped each other as needed.

Q: Did you have a narrative underlying this project while you were making it?
A: We initially had a more stylized story but chose a more abstract approach. The message was to show the product helping the environment. We wanted to convey a positive message, even though the concept might seem a bit grim.

CONFERENCE CONTRIBUTION – 7, DAY 1

GAMES CREATOR CLUB CASE STUDY: A CREATIVE REALM FOR GAME DEVELOPMENT

AFONSO CUNHA, ANTÓNIO RODRIGUES, HENRIQUE MONTEIRO, JÚLIA COSTA, RICARDO LOURO,
students of the bachelor's and master´s study in Lusófona University, Lisbon, PORTUGAL.



Abstract

The document provides an overview of a presentation by a group of university students about their projects and experiences in game development. Here are the key points:

Game Creators Club (GCC):

• A monthly event where students create video games based on a given theme. It allows students to explore and experiment with what they learn in classes, creating projects outside the usual curriculum.

Impact of GCC:

• GCC encourages creativity and skill development by pushing students out of their comfort zones. It helps them practice different styles and mediums, such as pixel art, 3D modeling, and game mechanics.

Projects and Experiences:

• Students shared various projects they worked on, including platformer games, Christmas-themed games, mini-games, and VR projects. These projects helped them learn new skills and experiment with different game mechanics and art styles.

Challenges and Inspirations:

• Students discussed the challenges they faced, such as staying motivated for certain projects and learning programming. They also shared their inspirations, which come from games they enjoy and the desire to explore new areas.

Balancing Art and Programming:

• The interaction between art and programming is crucial in game development. Students highlighted the importance of understanding both areas to create cohesive and functional games.

Events and Networking:

• The students participated in events like game jams and university showcases, which provided valuable feedback and networking opportunities.

Future:

• The students expressed their desire to continue improving their skills and working on diverse projects, with some aiming to create their own companies and publish their games.

• The document emphasizes the importance of creativity, experimentation, and collaboration in game development, highlighting the students' journey from learning to creating impactful projects.

Introduction - Filipe Luz

First, I would like to thank you for this amazing opportunity for having us here, and to the organization of this amazing event. From Lusófona students, we would like to share two presentations: The first group will present the Games Creators Club, which we think is a very good educational practice of our videogames department, and the second group will present two projects (one interactive app or game in VR and their final project, which they are working on to finalize and get funding to create a company and develop the game further).

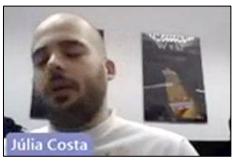
My name is Henrique Monteiro. I am a fourth-year student focusing on 3D art and game design. In this presentation, we will show what we do at the university and projects that inspire us to do more and different things. With me are my colleagues.

Hello, my name is Afonso Cunha. I am a first-year student studying with Enrique and the rest of the group. I focus more on 2D, especially pixel art. I will talk about how the Game Creators Club (GCC) made me explore different things and inspired me to improve and develop my skills.

Hello, I am António Rodrigues, a second-year student. I am mainly a programmer. In GCC, I explore programming and dabble in arts to learn. I will talk about my projects chronologically.

Hello, my name is Júlia Costa. I am a first-year student focusing on programming, though I know a bit more about arts than Antonio. I will show you what I did in the Games Creator Club and some games I developed.

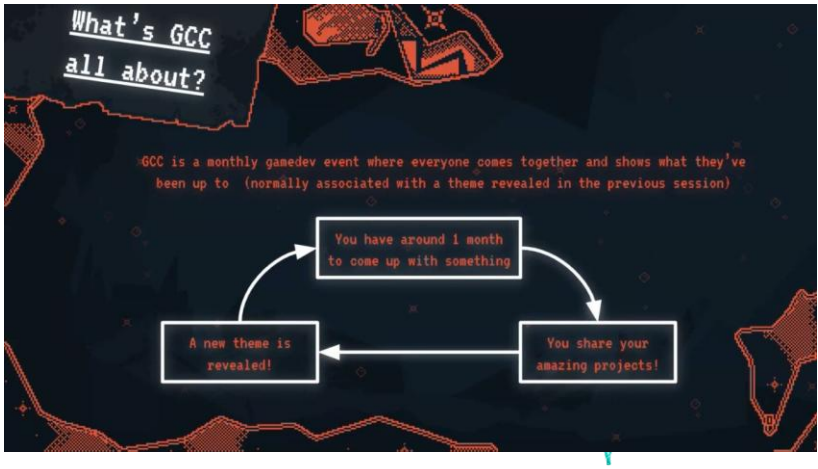
Hello, I am Ricardo Louro, a second-year student focusing on programming. I will show you some projects I developed for the Game Creators Club.



Game Creators Club

Today, we want to talk about our Game Creators Club. As second-year students, we started attending this event last year. It gives us the freedom to explore what we learn in classes and show projects we wouldn't normally do. The GCC works by having a theme each month, and we create a video game based on that theme. It can be anything, even if it doesn't work. We show our creations at the end of the day, and a new theme is revealed. In GCC, you don't have to produce a full-fledged video game. It can be anything related to the theme, even cake.
We use GCC to make games, assets, 3D models, songs, and visual novels. It helps us escape the workload of the semester and apply what we learn in classes. We had themes like Playdate and Game Boy, which boosted our productivity and creativity. We also do non-digital projects like board games. GCC is a place to bring all the things we can't do in classes and let them thrive.

We have two fun examples. One first-year student decided to create a different model and made a beautiful Playdate robot. On the other hand, I decided to make a joke and create a train model. This shows the two sides of GCC: we can be serious or not at all, if we have fun and are productive. It's always a fun time to be there and show our projects to everyone. We also started this year with some different aspects. We made Game Boy games, then moved to Playdate, and then we were given the theme to choose a new engine. This pushed our productivity and creativity even further. We also do non-digital projects like board games. For example, one of our professors created a board game that was a mix of Legends and Dragons. Another project was a board game with a train theme. GCC is a place where we can bring all the things we can't do in classes and let them thrive.



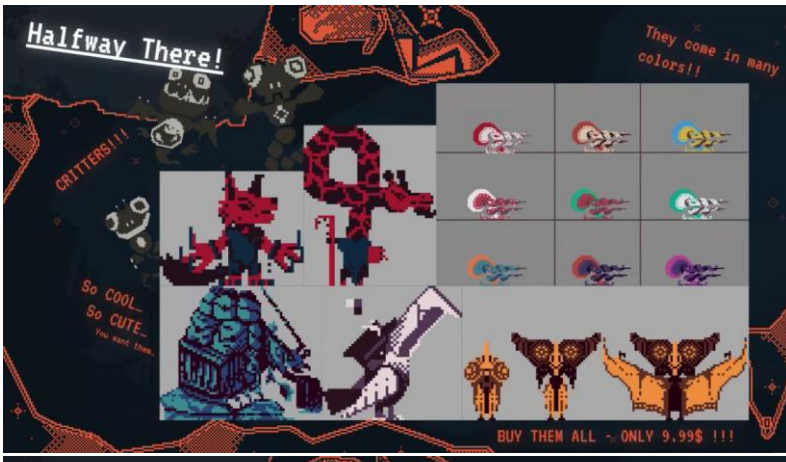
I'm more of a pixel artist, but I have a tender and soft spot for character creation as well as concept art. This was my starting point with my first-ever animation and some concept art for a monk-type character and a poorly executed walking cycle, but I'm still proud of it for the time. Then I started developing more. This was all before GCC, where I tried to put my feet a little bit into the water with some rendering and more concept art.

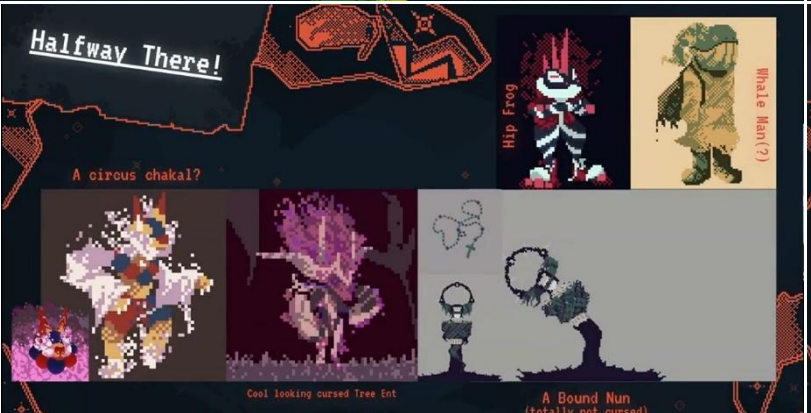
GCC

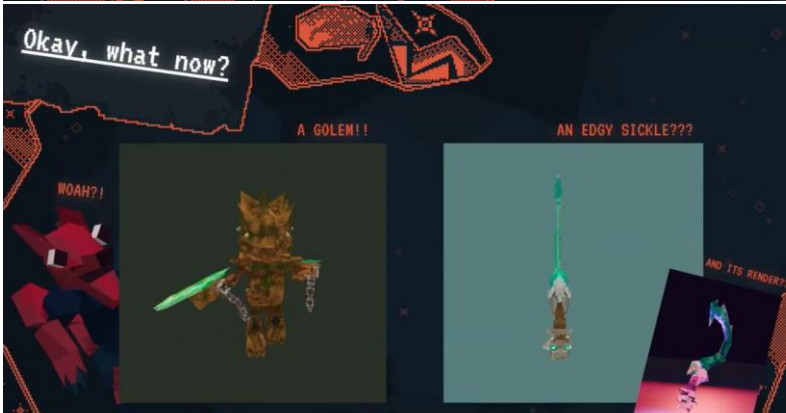
When I came to Lusófona this year, I got a taste of how fun and diverse the themes at GCC can be. One of the themes was Game Boy. Utilizing Game Boy Studio, we aimed to create a Game Boy game that could be ported to the console. I made some assets for it. I didn't reach completion on this project, as often happens, but it shows that you're free to do a ton of different things, from sprites of characters to splash arts and in-game scenes. With GCC and some sessions already under my belt, I started seeing other people creating their own stuff, including character renderings. It kind of incentivized me to create little tests, little fantasies, and little worlds to practice my own creativity because I believe it is something you can practice and get better at. This is one of many examples where I tried to start from typical RPG or fantasy classes like mages and warriors and then develop them based on animals, for example. You have some critters up there as well for another project, which I'll talk about more in the presentation. It was a theme related to Playdate, so those little creatures were also fun to make.

Not to mention that with this comes practice of my own flexibility within the medium of pixel art. It's easy to draw consistently, at least from my experience, with the style you're comfortable in. When you're forced to take on different hardware limitations, different artistic concepts, and different ideas overall, and when you're more exposed to that, I think these are the results. You start to be more creative and more productive. At a certain point, I felt excited to try new things and color schemes. Just changing a little claw on the lobster turned out to be so much fun. This is one of the effects that GCC had on me. It really impacted the way I see creativity and how I express it. My animations were another thing that I could take from GCC and apply to other classes here in college. For example, that was actually a project for one of my classes. Maybe that's why it's a little sketchy at certain points because I didn't have the time. But anyways, I could take what I learned and home in GCC and transfer it into other areas of my art.

Having many themes and a monthly theme forces you to explore different styles and think a little bit outside the box. I'm grateful for that in GCC. Talking about getting out of our comfort zone, this is something that I have only started practicing more, which is 3D, still with the pixelated look because I generally love it. My first attempt at 3D modeling turned out cute, a little too eager to live in my opinion, but it's fine. I continue to improve and try my best in new areas. That's mainly what my part in this presentation has to say about GCC. It's a nice spot and makes you feel comfortable to miss targets, fail at stuff, and sometimes succeed and show it to the rest of the group. The reaction is always positive, so there is no fear there.







For me, GCC is about experimenting with things I haven't done in classes. My first projects were in Unity, where I created a platformer game and a Christmas-themed game. These projects helped me learn new skills and experiment with different game mechanics. My most recent projects include a mini-games party game and a 3D model for Playdate. GCC allows me to try new things and develop my skills.
One of my first projects was a platformer game where you play as an alien. You throw a ball, and wherever it lands, you teleport it. It's supposed to be a frustrating platformer because if you miss, you fall all the way down. Surprisingly, it ended up being a big hit. My teachers loved playing it, and it might come to Steam soon as part of our university's game collection. I made all the pixel art for this game myself, even though I'm not really an artist. It took me a while, but I did my best, and I think it turned out OK for a programmer.

Another project was a Christmas-themed game where my team was given the theme of codfish. I had no idea what to do with codfish, so I made a little game where a fish jumps to get garlic. I didn't really like this game, and it's not on my itch.io anymore, but it was a learning experience. My most recent projects include a mini-games party game and a 3D model for Playdate. The mini-games party game is incomplete, but it was a learning experience to have multiple games inside one game. For the Playdate project, I didn't feel like learning how to code for Playdate, so I focused on 3D modeling instead. It was my first model that I didn't follow a tutorial for, and I'm proud of it. I'm still modeling sometimes thanks to this project because I had a lot of fun with it.

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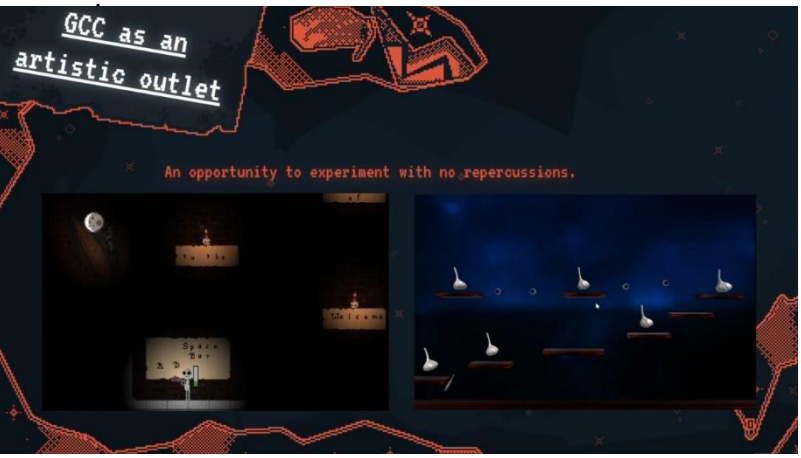

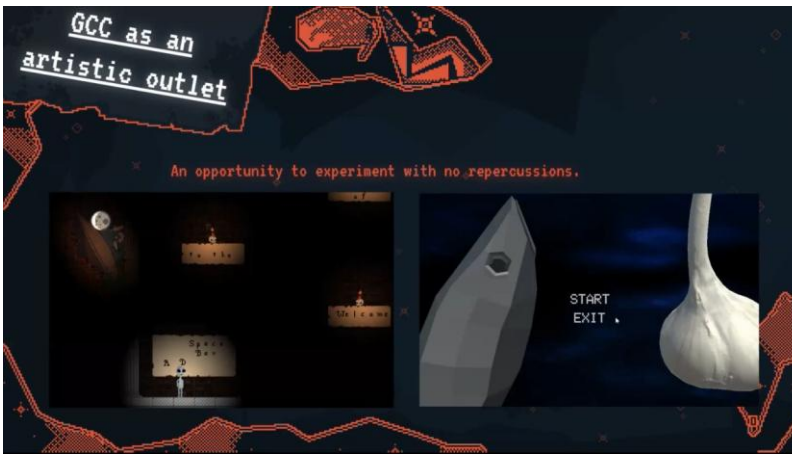

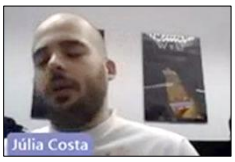

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Two fun examples

We have two fun examples. One first-year student decided to create a different model and made a beautiful Playdate robot. On the other hand, I decided to make a joke and create a train model. This shows the two sides of GCC: we can be serious or not at all, if we have fun and are productive. It's always a fun time to be there and show our projects to everyone. We also started this year with some different aspects. We made Game Boy games, then moved to Playdate, and then we were given the theme to choose a new engine. This pushed our productivity and creativity even further. We also do non-digital projects like board games. For example, one of our professors created a board game that was a mix of Legends and Dragons. Another project was a board game with a train theme. GCC is a place where we can bring all the things we can't do in classes and let them thrive.

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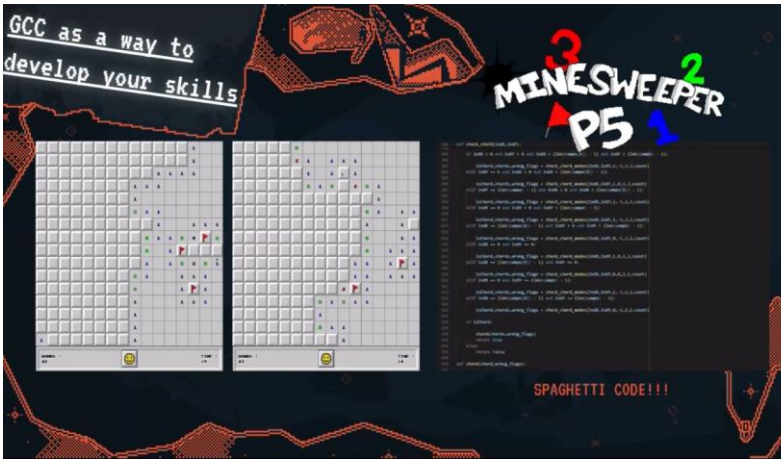
I'm also in the first year of the video games course. I focus more on programming, though I know a little more about arts than Antonio. During the presentation, I will show more of what I did here, especially in the Games Creator Club, and some games I've developed.
GCC helps me develop my skills. I came to this course as a complete beginner. I had worked very little with programming and had never even used Unity. Here are two projects:
The first project, on the right, is the first project I ever presented in GCC. The theme was a visual novel, so I created a satirical political game. You might not understand it very well because it's about Portuguese politics.

The second project, on the left, is the last project I presented. It's a little game about two miners fleeing from a giant boulder that's chasing them. They must pump the cart to escape. It was very fun to do this project. I did it in less than 24 hours with the help of my colleague Afonz. He did all the art and gave me an idea because I had no idea what to do for this month's GCC. I asked Afonz, and he gave me this idea, so we decided to do it. One sleepless night, and it was done.

Here is another little project that I presented in GCC. It was my second project. It was a recreation of Minesweeper, a game that I like very much, in Python. In math class, we were experimenting with a Python library that lets us visualize things. I thought I could do something fun with it and decided to recreate Minesweeper. As you can see here, my code is very spaghetti-like. It isn't very good. I wouldn't let my teacher see this, probably, but it was my first time doing a project like this.

One of my most popular projects now is a little game I made for Playdate. It's another game about bombs. I know I play a lot of games about bombs. In this game, you have a little bomb, and you must spin the crank because the console has a crank to disarm it. Sometimes you must press buttons, and at the end, you get a little certificate. It will appear here at any moment. There's a certificate of expertness and a certificate of incompetence if you completely fail it. It was a very fun game. It gained some traction on itch.io, and I'm proud of it. I like to use GCC to try new things and develop the skills I have.

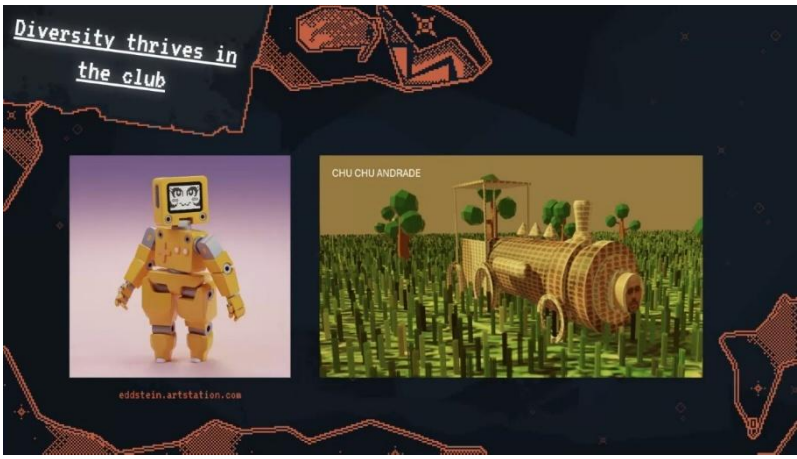


Diversity

Now I would like to talk about diversity because, like Afonso said in the very beginning, we use Game Security Club also to not only make games, full games or undeveloped games, but also to create assets in 3D models, songs, and visual novels. We try to be creative and bring a little bit of everything, even if we don't have the time to do a full game because it also helps us a lot in the middle of the semester when we're full of work to do.

It ends up being a little escape because we can choose what to do and see the little passion and the little knowledge we gathered throughout the whole classes and bring it here. I have two fun examples. One, like my colleagues showed, we had the play dates, the console theme for one month, and one of the first-year students decided to do a different model and he made this beautiful play dates robot. And then we have my creations that are completely opposite. I decided to make a little joke on my picture and made him train. These are the two sides we weigh up in the names

created club to bring. We can be serious about it or not at all if we have fun and be productive. It's always a fun time to be there and show our projects to everyone. Like I said, we also started this year with some different aspects. We started with TB Studios, so we, like Alphonse already told, made Game Boy, very Game Boy games. Then we went to play on a date and then we were given the theme of the themes, basically to choose a new engine. And that also ends up bringing our productivity a lot and trying new things, trying new ways to do things. It ends up bringing us new knowledge and having fun doing so. It's a way we can learn and it's a way we have fun doing things with our friends and showing the creations we bring.



In the end, even our professors hate some of the engines, so it's always on discussing about what is the best engine. They're not, and we end up learning by it. It's very good to practice your skills and show it to everyone.
But we also do stuff more non-digital. We like to bring some board games from time to time. The one on the left is Professor Wilson's one from a couple of months ago. It was kind of like Legends and Dragons. It was fun. And the other one was that when the theme was trains and two players, or two trains and it had a lot of actions. So, we don't stop on games like I was saying, board games, 3D art, songs about games, or even images about games.

This is our little spot where we can bring all the things we cannot bring to classes and let it thrive inside here. And it's a little escape also when we want to really touch a certain aspect of a game or we want to show, oh, OK, I don't have time to do all of this, but I can do a model for it. And we do it and it's always good and we always get great feedback from people. It's very relaxing and very, very good.
And now that the presentation's over, we would like to know if there's any questions.

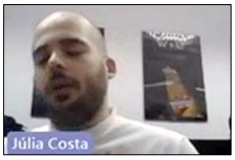
Questions and answers

Q: What inspired you to bring 2D pixel art into your projects?
First, FOMO (fear of missing out) because I saw everyone doing it. When you're presenting stuff in GCC, you're exposed to other people's projects. One thing that appeared a lot was beautiful models and shin
A: y stuff on the screen. I wanted to do that as well, but in my own way. 3D is always a useful skill to have. I enjoy taking part in game jams, and sometimes there are cool concepts where I wonder how it would look in a retro pixel style but in 3D. So, curiosity drove me to start practicing.

Q: What are your favorite game genres and inspirations?
A: I enjoy online games, roguelikes, and puzzle games. I also like games with procedural generation and randomness. My favorite story-driven game is Baldur's Gate. My favorite genres are hard to pinpoint because I play a lot of different things. Generally, I like online games, especially free-to-play games because they're accessible. When playing alone, I enjoy roguelikes, which is why I love procedural generation and randomness in games. I'm not usually into story games, but I really like Baldur's Gate. I also enjoy playing puzzle games to relax.

Q: What were the biggest difficulties in your project?
A: The biggest difficulty for me is staying motivated for some university projects that are outside my interests. In terms of game development, programming is the hardest part for me. I focus more on 3D modeling, so I struggle with coding. I often must do extra research and ask for help from my colleagues.

Q: Where do you find inspiration for your projects?
A: I usually take inspiration from games I like. Most of my projects are related to mines or bombs in some way. I enjoy games that tell stories and quick games that require reflexes, like platformers. For example, the miner's game and the bomb game both



Q: How do you balance the interaction between art and programming in your projects?
A: It depends on the game and where the idea starts. Sometimes the theme inspires the art style, and we adapt the gameplay to fit that style. Other times, the gameplay mechanics dictate the art style. It's important to have a basic understanding of both areas to avoid unrealistic requests.

Q: Can you give an example of where you feel the balance between being on the art side and the programming side is a good thing and where it is a challenge?
A: Combining art and programming in game development can be both beneficial and challenging. One clear example of this balance is a project where we had to simulate a game that would run on the ZX Spectrum. In this case, the art was conditioned by the programming, influencing the entire aesthetic and workflow of the project. This interaction can be inspiring because it forces creativity within certain limitations. For instance, the constraints of the ZX Spectrum's capabilities required us to think creatively about how to achieve our artistic vision within those technical boundaries. This often leads to innovative solutions and a unique visual style that might not have been considered otherwise.

However, this balance also presents challenges. There are many times when artistic vision needs to be implemented within the constraints of the programming, which can be difficult. For example, an artist might have a specific vision for a character or environment, but the programmer must ensure that it can be rendered efficiently and interact with the game mechanics properly. This requires constant communication and compromise between the art and programming teams.

From an artistic point of view, it can be frustrating when the limitations of programming restrict the artistic vision. For instance, an artist might want to create highly detailed textures or complex animations, but the game's engine or hardware limitations might not support it. This can lead to a feeling of being constrained and can sometimes stifle creativity.

On the other hand, these limitations can also be seen as a positive challenge. They force artists and programmers to think outside the box and come up with creative solutions to work within the constraints. This can lead to a more cohesive and well-thought-out final product. For example, in our project, we had to simulate a game for the ZX Spectrum, which required us to simplify our art style and focus on what was most important for the gameplay and visual experience. This resulted in a unique and visually appealing game that was also technically efficient.

In summary, the balance between art and programming in game development is a dynamic and ongoing process. It requires constant communication, compromise, and creativity from both sides. While it can be challenging, it also leads to innovative solutions and a more cohesive final product. The key is to embrace the limitations and use them as a catalyst for creativity and collaboration.

Q: Do you feel inspired by the limitations imposed by the balance between art and programming, or do they typically annoy you, at least from an artistic point of view?
A: The balance between art and programming can be both inspiring and challenging. From my perspective, as someone who is now entering the programming world, I find that learning the basics and working on small projects is a great way to bridge the gap between these two disciplines. In art, I am already comfortable creating models and integrating them into my game. However, programming is still a new area for me,

and I am not as comfortable with it yet. This challenge pushes me to learn more and understand the fundamentals so that I don't always have to rely on others for coding tasks.

Seeing other people showcase their code and complete projects independently is highly motivating. It encourages me to improve my skills and strive for better results in my own projects. I believe that eventually, one will develop a curiosity to explore both art and programming, and both can be equally important depending on one's interests and goals.

However, having too many options in a free workspace can sometimes be overwhelming. The sheer number of choices can paralyze decision-making and hinder progress. In such cases, being restricted to a specific platform, hardware, or programming method can be beneficial. These limitations can enhance creativity by forcing you to think outside the box within the given constraints. It challenges you to expand your vision and push the boundaries of what is possible.

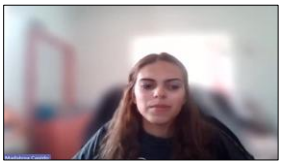
In my experience, working within these limitations often leads to the best results. It encourages innovative thinking and problem-solving, which are essential skills in both art and programming. Embracing these constraints and using them as a catalyst for creativity can result in a more cohesive and well-executed final product.

So please, just before we pass it on, there's an important thing we'd like to share with you, which is to invite you all to participate in this little monthly session because it is open to everyone. You don't have to be with us presently to participate. This presentation also comes as an open invitation to anyone interested. Feel free to talk to us, to contact us through the links that we made available in our bios or even our teachers, Flip Blues. And thank you for the opportunity. But yeah, feel free to participate, to contact us. We'd be the most joyful to have you with us. So, thank you, thank you, thank you very much. Thank you for the time point. It's also mainly for our series of first grades of game design because they have the same probably visual technical point on SUS with programming and with the artistic side of game design.

CONFERENCE CONTRIBUTION – 8, DAY 1

FROM CONCEPT TO REALITY: THE JOURNEY OF SHADES OF INSANITY AND DEEP BLUE DIVE

TIAGO BERLIM, MADALENA CAGIDO, JOSÉ REIS, *students of the 3rd bachelor's year in Lusófona University, Lisbon, PORTUGAL.*



Abstract

The document presents a detailed overview of two game development projects, "Shades of Insanity" and "Deep Blue Dive," created by a team of students. It covers the following key points:

Introduction of Team Members:

Project Descriptions:

Shades of Insanity: A single-player, first-person 3D psychological puzzle game where the player controls a mental patient in a psychiatric hospital. The game involves finding pills to stay stable and uncovering the character's past through hallucinations and voices. Key mechanics include first perspective and mirror mechanics.

Deep Blue Dive: A VR game was players document marine wildlife at different ocean depths. The game features tagging, photographing, and repairing mechanics, with levels set in the sunlight, twilight, and midnight zones of the ocean.

Development Process:

Shades of Insanity: Initially aimed for a simple art style but evolved into more realistic environments. Sound design is crucial for immersion, inspired by "Hellblade: Senua's Sacrifice." The project received feedback from teachers and playtests to refine the game.

Deep Blue Dive: Developed in a short time frame with limited access to VR headsets. The game addresses challenges like motion sickness and accurate mechanics simulation.

Events and Networking:

The team showcased their games at events like Over and Out and Lisbon Games Week, gaining valuable feedback and networking opportunities.

Plans:

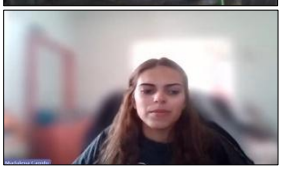
Shades of Insanity: Focus on improving mechanics, puzzle design, and visuals, with plans to publish on Steam.

Deep Blue Dive: Potential collaboration with the Lisbon Oceanarium to create an immersive experience.

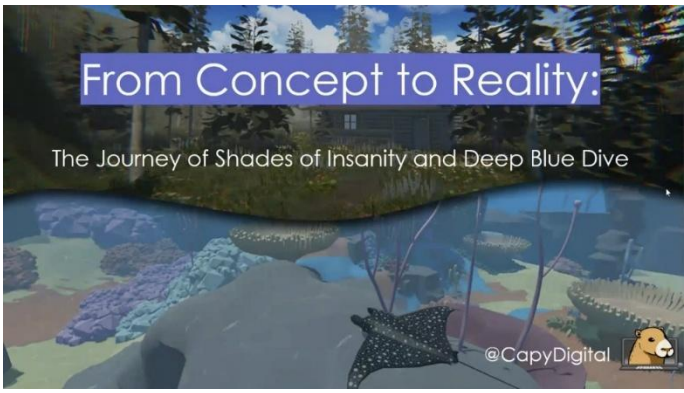
The document highlights the journey from concept to reality, emphasizing creativity, technical challenges, and the importance of feedback and collaboration in game development.

We're going to talk about two of our projects that were developed, and they're called *From Concept to Reality, The Journey of Shades of Insanity and Deep Blue Dive*.

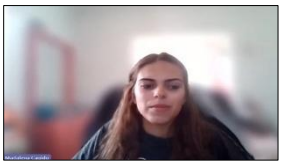
My name is Tia Berlin. I'm a 3D artist.



My name is Madalena Cagido. I'm a 2D art designe.



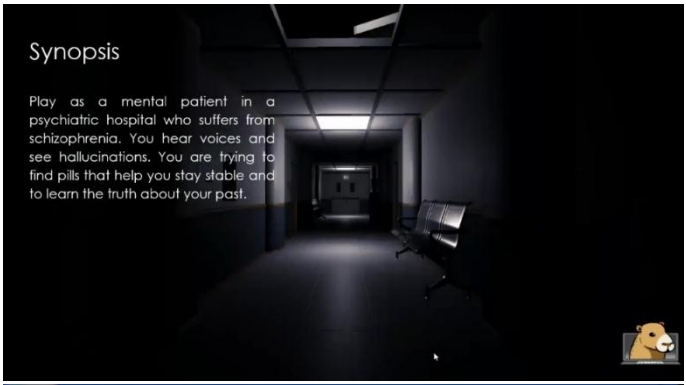
I'm Jose. I'm a programmer. And so, I'm the one responsible for all the coding on our projects.
In this presentation, we'll be talking about the two of our projects, *Shades of Insanity* and the *Pool Dive*. We will talk about how we came up with the ideas for them, the development process behind them, and we'll also show you a bit of gameplay. Then we will talk about our experience at some events that we attended last year and after that we will talk about our plans.

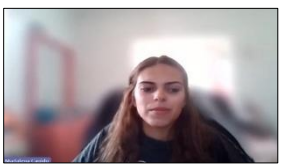


Shades of Insanity

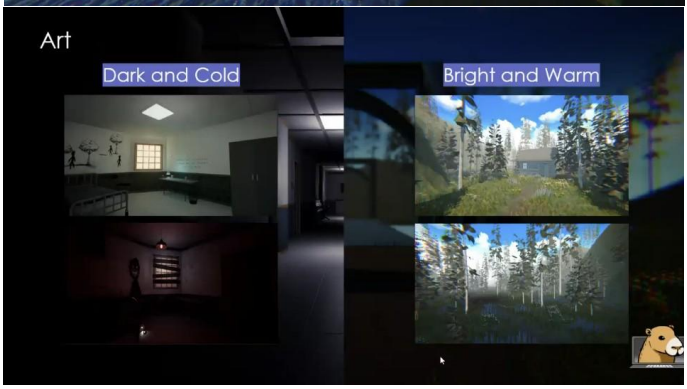
The first game that we'll be talking about is Shades of Insanity. It is the longest game we have ever worked on for over a year. It started as a final project for university but now we are developing it outside of class.

What are Shades of Insanity all about? Basically, Shades of Insanity is a single player first person 3D psychological puzzle game. The player plays as a mental patient in a psychiatric hospital who suffers from schizophrenia. The patient basically hears voices and sees hallucinations. The player is trying to find pills that help the patient to stay stable and to learn about the truth of his past. As the player progresses through the game, they find clues and hints about the character's past. Everything the player hears or sees or every hallucination that the character has is connected to his past lives before he was admitted to the psychiatric hospital. The two main mechanics are the first perspective and the mirror mechanics. If anyone here has already played Super Liminal before, you already know how the first perspective works, but basically it consists of grabbing an object from a certain angle and distance and then dropping it either further or closer from us to change its size. With the mirror mechanic, you can use mirrors to fix broken objects. You can do this by placing objects that are broken in front of a mirror which will reflect that same object but unbroken. Then you interact with the mirror and get the unbroken version of the object.



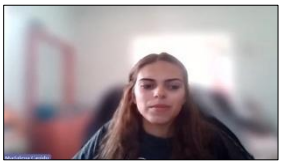


Originally, we wanted a simple art style, very low poly, very minimalistic art style, but as our project grew, so did our ambition. So, we developed a more realistic game environment. We went from a very low style to a more realistic art style. There are two major sceneries in our game. When the player first starts the game, they find themselves in a hospital environment, a very dark and cold and very tight environment. We wanted the player to feel very scared. But as the player progresses, they find themselves in a forest, a very bright and warm environment. With these two types of environments, we want to make a contrast between them. When the player is in the hospital environment, we want to make it dark and cold, and when the



player is in the forest environment, we want to make it very warm and bright.

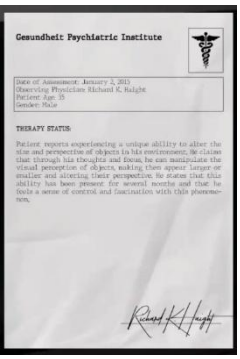
The sound design was a huge moment in our game because it's a very important part of the immersion. You can't have a horror game without creepy noises and a creepy environment. An experience is if you watch a horror game without sounds, it's not as scary. We put a lot of effort into sound design. Our most ambitious parts of the sound design were the voices that the player would hear. Originally, we wanted to make binaural sounds, which is 3D in both headphones, but that's kind of complicated to do. We kind of pushed it back. We're now working on it to implement it. We took a huge inspiration from Hellblade: Senua's Sacrifice. If you don't know it, I highly advise you to look it up. They did an amazing job with their voices. It's our biggest inspiration for this.



Final project

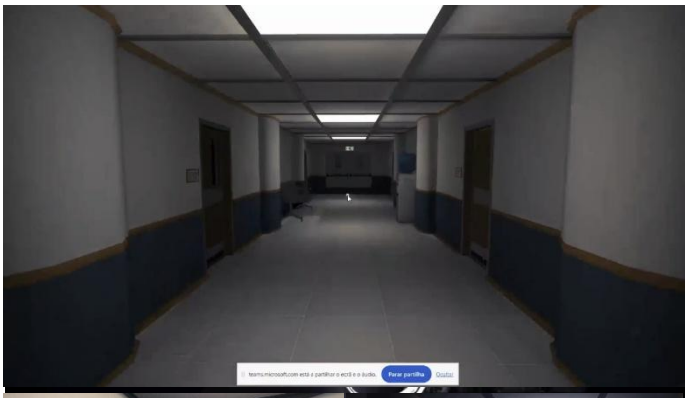
It's the project we developed for our final year. We developed it for one year, a total of two semesters. For developing it, we received multiple feedback from different teachers. All these teachers are experts in different video game areas. We have a lot of different feedback for developing these games. Also, something very important for developing these games is playing tests. We did tests with very different people, and we also did questionnaires for these people. We have everything they noticed in the games, and we just used the questionnaires to develop the games. Here you can see a very clear difference, especially visually. But everything we did is based on the answers that people gave us.

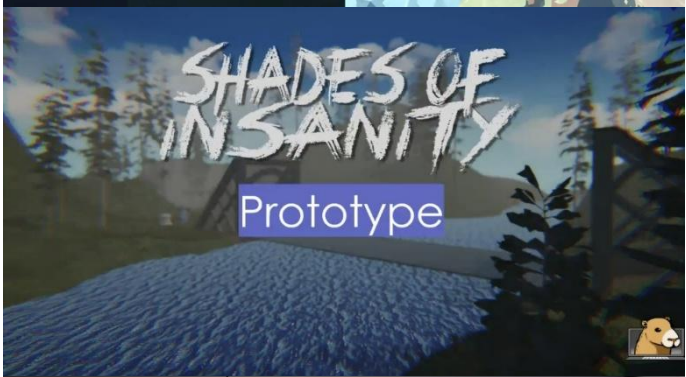
A bit of a side story in the early development of the game. We were still trying to figure out what kind of game we wanted to make. So basically, Madalena had the idea of a horror game. But I am like a scaredy cat. I don't like horror games, and I wanted to do something bright and colorful, so we decided to compromise and do this project where the patient would hallucinate between a scary place and a warm place to give him a sense of security, like a safe place. Now we're going to show you a bit of gameplay.

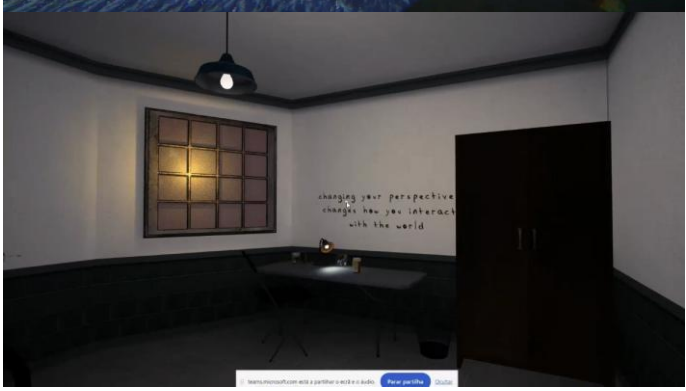


What you see here is a medical note, and we use this to explain the symptoms that the character has. Each symptom is related to a game mechanic, and our goal with these medical notes is to try and explain to the players how the game's mechanics work without breaking too much immersion in the game.

We have only introduced the first mechanic, the first perspective one, and here we introduce the player to the ability of rotating objects that you have in your hand. Once again, the first perspective, reinforcing the mechanic, making sure the player learns it and

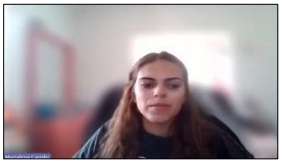






adapts to it so they can progress through the game. Here we introduce the mirror mechanic to the player. This mechanic is still being worked on and our focus right now is to improve how the player interacts with the mirror to fix broken objects. We have done play testing lately and we noticed that the way we were doing the interaction was not very intuitive and most of the time players didn't really understand what they were doing and so they got stuck in some places. What you just saw is the new version of how the mechanic works. Before you had to grab the objects, place it somewhere where the player could see it in the mirror and then go and click in the mirror. Now, as you saw, I just must throw it against the mirror.

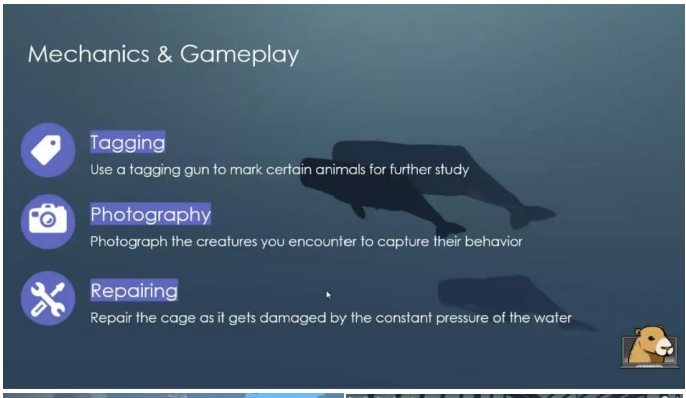
There is a contrast between the inside of the hospital and the forest. The hospital being darker and colder and the forest being brighter and warmer. And we use the forest more in the context of the character.



Our second game that we are presenting. It's called *Deep Blue Dive.* This is the latest game we have developed, also for economic purposes, and it's probably the game we had the least time to develop, not counting game jams, that we only had like 3 days to develop. We had like a month to develop the concept for the game, and we only had like 2 weeks to develop it. We had like two or three full days with the VR headsets and two full weeks to develop. But even though we only had like two or three days with a headset, we still developed the game. But it was extremely difficult to know if the mechanics were right or there were a lot of things that we had to consider, like motion sickness. It was our first VR game that we had to make. Motion sickness was one of the things that we had to consider and the mechanics. We have something called the VR toolkit that simulated the VR headset on Unity, but it was never actually right. Even if you use it, you never felt the real VR headset on you.

Deep Dive

Playing as a Marine biologist going underwater with tasks. Tasks documented the marine wildlife in different areas of the sea. *Deep Dive* had three main mechanics. The first one is that we have 3 tools at our disposal. One of them is a tagging gun that shoots tags and trackers, and you need to hit certain animals in a list that's underwater. The second is a camera that we need to take photos of the animals that are surrounding you. And the third is a little torch that you need to repair the cage. In the third level, the pressure of the water gets so high that it starts damaging the cage and you need to repair it with this torch. The game will have 3 levels, and each level is situated in a different depth zone in the ocean.



About some of the events we attended. The first one is called *Over and Out* and it's the last event at our university. It's like an award ceremony. We were there with both games. In the third one, we won an award with a game that's not shown here. The second event was *Lisbon Games Week*. It's a big event here in Portugal that's meant to showcase all kinds of games. There are a lot of indie companies, a lot of big companies too. We were there with both games, *Deep Blue Dive* and *Shades of Insanity*, and it was a really great experience. It was really satisfying watching people play and enjoy our games, having fun. We met some amazing people that day. It was really, good. Overall, both experiences were amazing, but at *Over and Out*, they gave us an idea to put *Deep Blue Dive* in the Lisbon Aquarium and we're going to talk a bit about that now.

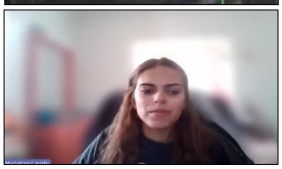
What's next? We are currently working on *Shades of Insanity* and our focus right now is improving the mechanics and puzzle design to provide a smoother and more fun experience for the player. In terms of art, we are also reworking some of the visuals and lighting inside the hospital. We also want to add more moments of tension and some jump scares by playing with sound, but that currently has low priority compared to the rest. We have until early June to make all these changes and some more that we want, and then the game will hopefully be published on *Steam* in the *Lusófona game collection.*

For *Deep Blue Dive*, we are currently in talks with the Lisbon Oceanarium with hopes of bringing the game there as an immersive experience. We don't have much time to work on this game and because of that, it is still in a very early prototype stage. But if we manage to get the green light from the Oceanarium, we're planning on collaborating with the people that work there, the people that do the maintenance of the aquarium, and the people that take care of the animals. By collaborating with them, we hope to get a better understanding of all the work that is being done there so we can align this project with their goals and expectations.

Questions and answers

Q: What made you want to tackle subjects like mental health and schizophrenia in your first project?

A: We all like serious games that leave you thinking. Games can help you escape reality, but the best ones leave a mark on you. We wanted to bring awareness to mental health issues and make the game as realistic as possible to avoid being offensive or insulting to those who suffer from these conditions.



Q: Did you have any technical issues during the project?

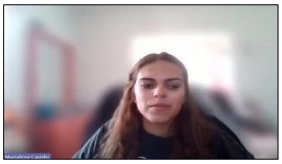
A: We had some technical problems, mainly programming issues. Balancing the difficulty of the game's mechanics was challenging because we got used to the game, making it seem easier than it was for new players.

I would also like to add that I think the most difficult part for us, especially to Shades of *Insanity,* was to balance out the difficulty of the game's mechanics. Because when you are working on a game, every time you make a change or add something new, you go and test it out, see if everything is working OK. You end up replaying your game a lot. What makes is that you get so used to it that it gets a lot easier for you to complete the puzzles. You start by thinking that it will also be easy for other people. If you don't, you do not play tests. That was something that's we did not do for a long time. You won't get a good feeling about how difficult the game is. And when you see people trying the game, you will see them not having such an easy time as you would expect. That happened a lot at the beginning of the development.

Q: I think you've made two very lovely games with unique mechanics, and I think it's amazing that you are working with the Aquarium to have it as an immersive experience. How long did the concept stage take for both games?

A: For "Shades," the concept stage took about one to two months. We focused on creating two ambiences that resonated with each other but had a huge contrast. For "*Deep Dive*," the concept stage took about one month, focusing on creating a chill ambience with fewer complicated mechanics. And if you talk to developers, there are a lot of things that start off that you want to do and then they're discarded by the end of the project. And this one, they made it because it's such a core concept to our game. We didn't want to throw it out, but it was difficult because some feedback that we had was that the people thought that they were playing two different games that they didn't resonate. That was one of the issues. In terms of the like timeline, I think the first month and a half, maybe two months, was just a concept. It was just thinking about what the game would be, what it would look like, what the mechanics were, and we had to, we must make this all on paper first. We must make paper prototypes before moving on to digital prototypes to make

sure this is the way to go. Maybe two months of concepts of thinking about the game's mechanics and all that. Throughout development, you have several stages where you must think about if your concept is working. So, it's not like a first stage and then you never think about it anymore. You also think about it later in the projects as you develop it for *Deep Dive*. And it's more if I say of an emotional prototype, it's meant to make you feel good, make you immersed in the different atmosphere underwater.



Q: What was your research like, and did you have an advisor from the medical field?
A: We didn't have a professional advisor, but we had a lot of first-hand experience with mental illness. We met people who suffered from these conditions and used their experiences to inform us of our game design. If you notice in the first room, we have a lot of drawings and we use those drawings to teach the controls of the game WSD the mouse and rotate. How can I take advantage of this to make my game better and realistic?

Q: Have the people you know who suffer from these conditions played your game?
A: One person we know who suffers from mental illness is doing well and works as a painter. Another person, who we used to rent a house to, has since moved in with her sister. We no longer have contact with them, so they haven't played the game.

PHILOSOPHY OF VFX AND GD DEPARTMENTS OF THREE SCHOOLS

DIRK LAMBRECHT, *BELGIUM.* PHILIPE LUZ, *PORTUGAL.* LUDOVIT LABIK, *SLOVAKIA.*

Dirk Lambrecht

We started in 2006 with game education, focusing on 3D animation as the backbone. We had developers and artists not only for games but also for 3D. Currently, we have six majors and had to differentiate due to the increasing number of students.

We are now in our sixth iteration, with group projects in the last year for all majors. The first year focuses on building skills with tools, the second year on experimentation, and the third year on group projects, simulating a production company. Students work on a 12-week project with a deadline, presenting their work to clients and the world.

Our philosophy also emphasizes soft skills like planning and communication. Technical skills are important, but fitting into a team is crucial. We work on this through group projects and peer-to-peer evaluations. Students are placed in different groups weekly to improve communication.

With six majors, everyone has their own focus, but collaboration is essential.

Philipe Luz

Our university is now connected with Film EU. I would like to highlight the importance of paying attention to the new audience in film, as networking brings amazing opportunities.
Our department, which is vibrant and enthusiastic, started game studies in 2009. At that time, the game industry in Portugal was new, with only few developers. Now, the industry is growing rapidly, with many international companies establishing a presence here. Our philosophy is not to be a technically oriented school but to provide diverse skills for our game students. They learn programming, game design, art, and more, preparing them for indie companies.

Our students often dream of working for AAA companies, but our focus is different. We work extensively with serious games, especially in the second and third years, where students develop games for people with intellectual disabilities. For example, they have created games to help deaf children learn mathematics. These experiences have a significant social impact and expose students to various aspects of gaming beyond entertainment.

We also emphasize research, with several programs and activities that offer scholarships for students to pursue master's and PhD degrees.

We offer a partial degree in video games within the film department, which includes various other degrees like film, computer science, fine arts, fashion design, and more. Recently, we introduced a master's program in game design and playful media, focusing on alternative and performance-oriented games. We are also starting a new master's program in games and artificial intelligence.

Through the FilmEU consortium, we will launch the Replay Erasmus Mundus program in September. This program will have semesters in Lisbon, Ghent, and Finland. Erasmus Mundus programs are highly competitive, accepting 18 to 24 candidates from hundreds of applicants, and sponsored by the EU. We aim to increase student integration and teamwork through game jams and the Games Creators Club. These initiatives allow students to collaborate with alumni and industry professionals, fostering a network and creating games together. Our goal is to enhance interactions, collaborations, and teamwork in our courses.

Ludovit Labik

Our school started education in 2011, making us the youngest compared to Dirk Lambrecht, who started in 2006, and Filip Luz, who started in 2009. We began with visual effects and added game design to our curriculum four years ago in 2020.
Being in the same department, game design and visual effects offer a fantastic opportunity for our students. They interact daily, sharing the same space, which fosters collaboration and new projects.

Our school is an art school with three facilities: theatre, film, and music. Cooperation is vital for developing our students' games. They must incorporate acting, storytelling, and strive for realism.

I admire one notable project, Giant, was excellent and involved students from various disciplines, including visual effects, animation, and game design. This interdisciplinary approach is crucial for the future. While I appreciate the stylization in Mary's project, I envision our students' future in creating highly realistic work. Achieving this with limited resources is challenging, but it is possible with today's technology, typically used by large industry companies. The key question is how to create realistic games with limited funds and small teams. I believe decentralization of SW and HW offered to amateur users, cooperation and communication among students across Europe are essential.

Our school has joined the Film AU project, and we will be part of it for the next three years. Cooperation is not optional; it is necessary. This project will help us improve our education and ideas. Our teachers will travel to places like Lisbon, Dublin, and Brussels, and we expect your students to come here for a few months to share conditions and ideas, focusing on artworks.

I do not see our future in quickly made mobile games. Instead, I see our students' future in projects that could be popular in 15 years in future, and storytelling will be the most important aspect. For our future development of games of our students, I count that they must use acting, they must use storytelling and to be as realistic as possible. I think that the **most important will be storytelling, storytelling, storytelling**. And the question is how to make a very realistic game if you do not have too much money and if, if you are just few students in in Group and you must compare your result with big company. It is my personal noticeably big question about how to do it. It means that our teachers must go to, for example, to Lisbon or to Dublin or, or to Brussel or whatever. I also think that your students will go here, to our ground and to be here for, I do not know, two or three months and, and to share the same conditions and to find ideas on how to put it to artwork.

Regarding our day, I think that it is a very, very successful meeting.

COLLABORATIVE SCREENPLAY WRITING WITH AI

TOBIAS FRÜHMORGEN, *Filmmaker, researcher and film lecturer, Lusófona University, Lisbon / FilmEU European University / Filmuniversity Babelsberg. GERMANY/PORTUGAL.*

Abstract

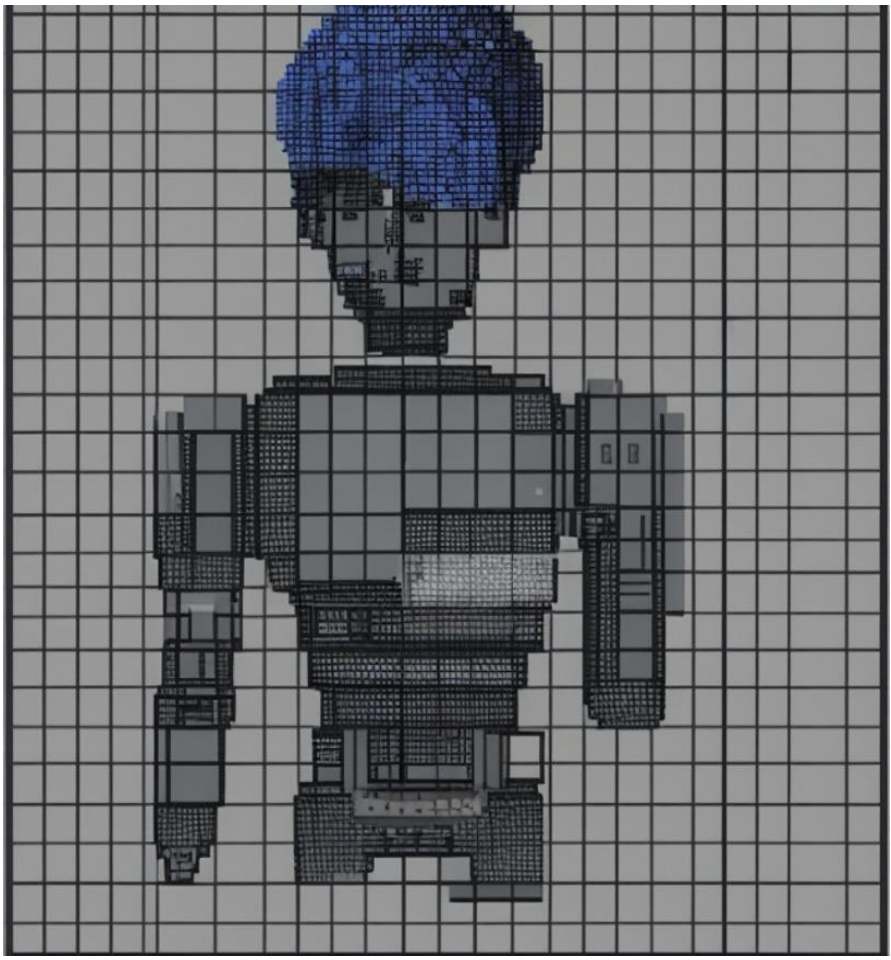
This proceeding explores the collaborative process of screenplay writing with GPT language models as part of the artistic research project "Machine Acts". The project investigates the new artistic potential and challenges of human-AI co-creation in screenwriting. The research questions focus on the process, dialogue, and tools of co-writing with GPT, as well as the philosophical implications of AI in creative processes. The paper discusses the concept of human-AI collaboration in a writers' room context, addressing both the benefits and limitations of using Large Language Models (LLMs) in creative writing. It explores philosophical questions surrounding AI creativity, sensory limitations, and the evolving concept of art in the era of machine-generated content. The findings highlight the potential for AI to enhance human creativity while emphasizing the continued importance of human oversight in maintaining narrative depth, coherence, and ethical integrity. The study also addresses challenges such as bias, originality concerns, and the need for balanced integration of AI in creative processes. This research contributes to the ongoing dialogue about the role of AI in arts and storytelling, suggesting a collaborative model that leverages the strengths of both human and machine intelligence.

Keywords

LLM, GPT, storytelling, narrative, Writers' Room, Natural Language Processing, Co-Creation, Artistic Research.

Introduction

The "Machine Acts" project is an artistic research initiative that explores the collaborative process of screenplay writing with Large Language Models (LLMs). This pilot project, conducted in collaboration with FilmEU RIT (European Film Universities Alliance), ran between October 2022 and June 2024. Led by Tobias Frühmorgen, a researcher and cinema lecturer at Lusófona University, the project included collaborators from Lusófona University (Portugal), LUCA School of Arts (Belgium), and Tallinn University (Estonia). The research team comprised experts from various fields, including storytelling, artificial intelligence, philosophy of art, game design, and sociology. The core objective of 'Machine Acts' is to explore the interplay between human creativity and machine intelligence in screenplay development. By researching the artistic capabilities of LLMs, namely GPT models, this project aims to understand whether a machine can create - in the best case innovative - narratives that can capture the audience's attention. Beneficiaries of research include screenwriters, producers, professional story developers, academic researchers specializing in film, and of course the audience.



Artistic Research

This project was conducted as artistic research, defined as a multidisciplinary approach that uses the creative potential of artistic practices to explore complex scientific problems and develop innovative solutions. Through art (in this case: film), researchers can uncover new insights and perspectives that enrich traditional scientific methods. Borgdorff (2012) argues that "artistic research seeks to contribute to the knowledge systems of art and science by emphasizing the reflective, investigative, and experimental capacities inherent in artistic practices.". The "Machine Acts" project uses this methodology to explore how humans can collaborate with machines in screenwriting.

Methodology

The research questions of "Machine Acts" focus on understanding the nature of LLMs, the tools and processes involved, and the possibility for LLMs to be more than a statistical word-processing machine. The project utilized various versions of GPT, from GPT-3 to GPT-4, examining the evolution in speed, precision, and reduction in hallucinations and biases across these models. The central research question is: How can human and machine creativity enter a fruitful exchange to produce innovative outcomes in the form of a narrative for a film? The methodology involves a back-and-forth process between prompting and evaluating AI's responses by a human. The criteria for this, based on experience in storytelling, were if the output was surprising, caught the attention and the potential for a dramatic conflict or a novel view on the world.

Philosophical Perspectives on AI Creativity

The Nature of Machine Creativity

It has been undoubted for quite some time now that machines can fulfill creative tasks, as described by Guzik, Byrge and Gilde (2023) or Ivcevic and Grandinetti (2024). Also, the - what is now called - "Generative AI" which produces novel written content - still images, moving images, and sound formats - must be considered a highly creative tool. However, questions remain regarding the nature of this machine creativity and whether AI systems are truly creative or merely simulating creativity. To answer this, we can use John Searle's Chinese Room argument, which states that AI has 'little to offer in terms of understanding thinking, as programs alone are insufficient for genuine thought." (Searle 1980). He later (2010) expanded his own argument illustrating that simply running a computer program isn't enough to produce consciousness or intentionality. While computation deals with syntax, minds involve semantic content. The transition from syntax to semantics can't occur through syntactical operations alone, as this approach ignores the brain's unique biological capabilities that enable cognitive processes. Markus Gabriel (2018) builds on this, stating that 'Thinking is a sensory ability". Thus, it is impossible for (current) computers to develop a consciousness because they lack all these sensory abilities." The sensory limitations of current AI systems highlight a fundamental challenge in the debate over machine creativity and consciousness. If thinking is indeed a sensory ability, as Gabriel (2018) argues, then the absence of sensory experiences in AI—such as the ability to smell, touch, to love, to die or engage in the firsthand experiences of life—creates a significant barrier to the development of true consciousness in machines. And we can argue with Damasio (1999) that consciousness is a precondition of creativity. This limitation invites skepticism about the role of AI in narrating human stories, as narratives are deeply rooted in human experiences that machines cannot simply replicate. Moreover, the absence of a corporeal form further complicates the issue. Current DeepLearning machines are solely trained on texts, images and sounds. Human stories are not just about facts or logical sequences; they are imbued with emotions, perspectives, and the lived realities of human existence. Machines, no matter how effective or highly trained or how fast they are, lack the embodiment that informs and shapes human creativity. Thus, while AI can generate content that appears creative, it may ultimately lack the depth and authenticity that comes from being truly alive. The question remains whether we should trust machines to narrate human stories. Without sensory experiences and a corporeal existence, AI may only ever be able to simulate creativity, rather than embody it. Runco (2023) suggests calling this form of creativity "pseudo-creativity" because the lack of intentionality is a significant barrier to true creativity. This limitation is crucial when exploring the possibilities of AI in the realm of human creativity and storytelling.

AI as mimicry

Following this, the concept of AI mimicry has gained attention, particularly with the observation that "sufficiently advanced mimicry is virtually indistinguishable from intelligent behavior" (Millière, 2023). This idea echoes the concerns raised by scholars like Emily Bender, who famously described AI as "stochastic parrots" - machines which, while capable of producing human-like outputs, do so by replicating patterns rather than understanding content.

Similarly, Gary Marcus (2022) has emphasized that "systems like GPT-3 provide remarkably little in the way of explanation. They don't tell us why the world is as it is; they merely mimic statistical patterns of how language has been used in their immense databases." However, while mimicry can sometimes appear indistinguishable from genuine creativity, it is crucial to recognize that mimicry alone is certainly not equivalent to true intelligence. AI, as it currently exists in non-quantum computers, lacks the comprehensive cognitive abilities that enable independent, nuanced creativity with embedded intentionality. This limitation is particularly evident when considering complex creative works, such as original screenplays, symphonies, novels or many other, which require not only the generation of content but also deep understanding, context, coherence and intentionality, let alone artistic expression and an opinion about the world. Yet, the discourse around AI and creativity should not be entirely dismissive of the potential of generative AI. Lev Manovich (2019) offers an alternative perspective by suggesting that "*AI art is a type of art that we humans are not able to create because of the limitations of our bodies, brains, and other constraints.*" In that sense, AI-generated art represents a new frontier—one that humans, due to their biological and cognitive limitations, might not be able to achieve independently. This view invites a reconsideration of what art and storytelling might become in the era of AI, where machines are not merely tools but collaborators in the creative process.

A Way Out of the Dilemma: Collaboration as a New Form of Creativity

To navigate the dilemma of whether AI is merely simulating creativity or capable of true creative expression, it is helpful to shift our focus from competition between human and machine creativity to collaboration. While AI might lack the sensory experiences and intentionality that characterize human consciousness, it excels in processing vast amounts of data, identifying patterns, and generating novel combinations of ideas that might not be immediately apparent to humans. When viewed through the lens of collaboration, AI can be seen as an extension of human creativity rather than a replacement. Just as artists have historically used tools—from the brush to the camera—to expand the possibilities of creative expression, AI offers a new medium through which creativity can be explored and expressed. By combining the human ability to infuse art with meaning, emotion, and lived experience with AI's capacity for generating and exploring novel forms and ideas, a new type of creativity can emerge—one that can transcend the limitations of both human and machine alone. This collaborative model also redefines the concept of authorship. In the traditional sense, authorship has been tied to individual human creators. However, in the context of AI-assisted creativity, authorship becomes an on-going and shared process, where both human and machine contribute to the final output. This does not diminish the role of the human creator; rather, it enhances it by providing new tools and perspectives that can lead to innovative and unforeseen outcomes. Mark d'Inverno & Jon McCormack (2015) have expressed it this way: "… AI has much more to offer art than attempts at mimicking the creative process itself. [AI] can become our creative partner [..] where new forms of creative activity are developed by meaningful collaboration between human artist and machine agent." In their view, meaningful collaboration between human artists and machine agents can give rise to new forms of creative activity that neither could achieve alone. This perspective shifts the narrative from AI as a mere tool or imitator to AI as an active, yet non-human, participant in the creative process. The software Sudowrite frames AI as "the non-judgmental, always-there-to-read-one-more-draft, never-runs-out-of-ideas-even-at-3AM, Al writing partner you always wanted." The ongoing debate about whether AI is truly creative or merely simulating creativity is complex and multifaceted. However, by reframing AI as a collaborative partner rather than a competitor, we can begin to see the potential for a new form of creativity that leverages the strengths of both human and machine. This approach allows us to move beyond the limitations of current AI technologies, acknowledging their unique contributions while also recognizing the irreplaceable value of human experience, emotion, and intentionality in the creative process. In this sense, AI does not have to fully replicate human creativity to be valuable; instead, it can complement and expand our creative capacities, leading to new and exciting possibilities in art, storytelling, and beyond. As we continue to explore this collaborative relationship, we may find that the future of creativity lies not in the distinction between human and machine, but in their integration.

Human-AI Collaboration in Screenwriting

Human-Machine Dialogue

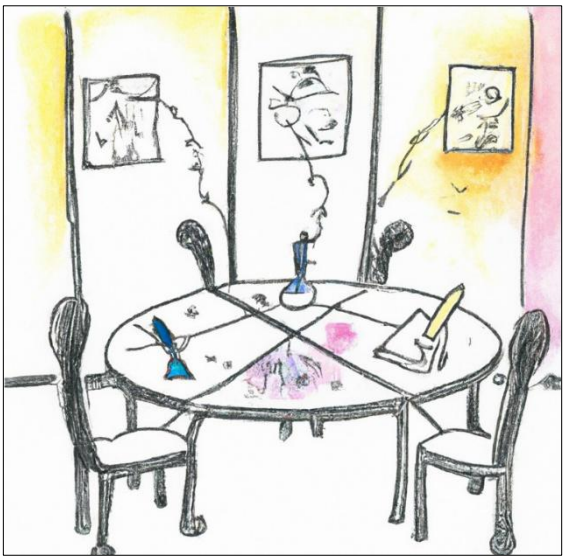
Bill Sherman (2020) describes the relationship between artificial intelligence and its human creators as "a snake eating its tail, artificial intelligence exists in a circular relationship with its human creators." This metaphor captures an essence of human-AI collaboration, where the roles of creator and creation are continually evolving and influencing one another. In the "Machine Acts" project, this collaborative model is brought to life using large language models (LLMs) as partners in screenwriting. Rather than merely generating content, LLMs engage in a continuous dialogue

with human writers, as happening in the writers' room situation. The concept of the writer's room can be described as a collaborative environment where human and AI storytellers work together to develop, write, and refine narratives. This (virtual) room, as used in contemporary series and cinema writing where humans with diverse tasks, backgrounds, and desires collaborate, facilitates a dynamic interaction between human creativity and machine-generated suggestions. The process involves exploring prompts, creating feedback loops, and iteratively refining AI-generated content to achieve a coherent narrative. The writers' room model emphasizes the importance of role distribution and task allocation. Human writers and AI systems are assigned specific roles and tasks to maximize the strengths of each participant. Human writers focus on high-level creative decisions, they provide the context, themes, and initial ideas, while the AI generates drafts, suggests dialogue, and proposes plot developments. This iterative process allows for a rich exchange of ideas, with AI offering novel perspectives that human writers might not have considered. This interaction is not passive; it requires human collaborators to develop a deep understanding of AI's operational mechanisms. Writers must learn how to prompt the AI effectively, asking the right questions to elicit useful responses, and then refine those responses to craft a compelling screenplay. This dynamic interplay can be likened to a dialogue among human collaborators, each bringing a distinct perspective to the table. In this context, AI is not just another tool but an additional "participant" at the table with a unique, machine-based viewpoint that can challenge and expand the human writer's creativity. Like any collaborator, AI's contributions can range from insightful to flawed to hallucinating, requiring careful human oversight to guide the final creative outcome.

Black Box and Trust

However, the collaboration between humans and AI in screenwriting is not without its challenges. One significant issue is the "black box nature" of AI systems like GPT, as noted by Frühmorgen (2022) or Riedl (2019). The opacity of these systems — where the origins of data, the processing methods, and the reasoning behind outputs are often unclear — raises concerns about transparency, data provenance, and cultural sensitivity. These concerns underscore the importance of trust in the human-AI dialogue, particularly in creative fields where authenticity and integrity are at the heart of the output. Trust operates on two levels in this collaboration: between human creators and AI, and between the resulting creative work and its audience. First, human creators must trust the AI to produce outputs that are factually accurate, emotionally resonant, and consistent with the narrative's intent. This trust is complicated by the fact that AI systems, while capable of generating vast amounts of content quickly, do not truly understand the world they are describing. Their suggestions can often be generic, uninspired, biased, or even hallucinative or false, reinforcing the need for human oversight to ensure quality and relevance. Second, the audience and broader society must trust the content generated with AI assistance. In his work "The Problem with Counterfeit People" Daniel Dennett (2023) discusses the ethical implications of AI-generated content, emphasizing the need for transparency and accountability. As AI becomes more involved in creative processes, it is crucial that the audience knows when AI has been a collaborator, ensuring that the content's origins are clear and that its integrity is preserved. This dual trust dynamic — between human creators and AI, and between the resulting creative work and its audience — is essential for maintaining the credibility and value of artistic outputs produced in collaboration with AI. While LLMs can rapidly generate ideas and mimic styles, they still require human judgment to sift through these outputs, recognize the gems, and discard the dross. This collaborative filtering is where true artistry lies, blending the strengths of both human creativity and machine efficiency.

Narrative Outputs



The artistic outputs of "Machine Acts" include three screenplays for a mini-series in the tradition of "Black Mirror" (2011-), DEVS (2020), Mr Robot (2015 - 2019) and Chernobyl (2019). They are all set in a near-future scenario (the one that GPT-4 is best at writing), they have changing protagonists and different starting points, - but the same structure of 8 sequences (following Gulino's structure, 2014) and live in a similar atmospheric, melancholic, slow-paced narrative tone. Even though this was not prompted specifically, it turned out that they are all dealing with the use of machine learning technology that affects the personal lives of the protagonists.

"Surprise Me with What I Want"

48 Pages. 8 Sequences + Outro. 56 scenes Initial themes: AI in contemporary media, human-machine relationships, anthropomorphizing of AI, Silicon Valley myth. Topic of the narrative: Dream of Harvesting Story: In a world where dreams can be manipulated, Leona and Aria uncover the unsettling reality behind their altered perceptions, forcing them to question what is real and what is fabricated by those in control.[1]

"Digital Shadows"

72 Pages. 8 Sequences + Outro. 103 scenes Initial themes: 'Transdividuals - Future Subjects and the divided Self', Subject creation on the web, 'Dividuum,' 'Plasticity' Topic of the narrative: 'Transdividuals - Future Subjects and the divided Self' Story: In a visually dynamic cityscape where digital phenomena bleed into the physical, Alex and Jordan embark on a journey to unravel the merging of their digital and real lives, facing unexpected challenges and redefining their existence.[2]

"Narcissus and Oracle"

47 Pages. 8 Sequences + Outro. 59 scenes Initial themes: Entrancement, self-reflection, pre-cognition. Topic of the narrative: Authenticity and digital fame Story: Chef Nathanael's struggle for perfection and recognition in his culinary career leads to a breakdown, prompting him to confront the dissonance between his public persona and private turmoil, ultimately seeking authenticity in his life and work.[3]

Benefits and Challenges of LLMs in Screenwriting

An analysis of the collaboration on these 3 narratives provides potentials benefits as well as limitations.

Potential Benefits

Enhanced Creativity: LLMs can introduce a vast number of novel ideas and perspectives that human writers might not have considered, thereby expanding the creative possibilities. This capability is particularly valuable in brainstorming sessions, initial idea generating sessions, overcoming creative blocks.

Efficiency: LLMs can quickly generate multiple drafts and suggestions, speeding up the initial phases of ideation and writing. On publicly available LLMs, the output is done at a speed that is 3 to 5 times faster than the human reading speed (150 tokens per second, equating to 250 - 350 words). Also, the machine is never tired, is there instantly for the user (as long as you have paid the service and it has not been shut down by the company), you can pick up or pause anything you want. This time saving efficiency can help streamline writing.

Overcoming Writer's Block: AI can provide a continuous stream of ideas and suggestions, helping writers overcome creative blocks and maintain momentum in their writing process. This constant flow of helpful inspiration can be a significant asset in maintaining productivity.

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[1] "Surprise Me with What I Want":
https://ipfs.io/ipfs/QmXq9SJTGE3LJefoAVhdajTEcUe8SFsszNK1ABBVvF8BFj

[2] "Digital Shadows":
https://ipfs.io/ipfs/QmWGGPkzxSHsiSLhfT88Dauc2X7kM1AP9tMTqTWyBRTVgC

[3] "Narcissus and Oracle":
https://ipfs.io/ipfs/QmTofdY9eNV1NC3kGKhp2jGiXCaTnRtC8XRvAjC2oXLzqv

Accessibility: LLMs can democratize screenwriting by providing aspiring writers with access to high-quality writing assistance, thereby lowering the barrier to entry in the film industry. This democratization can lead to a more diverse range of voices and stories being told.
Multilingual Inputs: LLMs effectively handles multilingual input, even within the same sentence, lowering the bar for non-English speakers and stressed-out creatives searching for the right word. It can facilitate international collaboration and cross-cultural storytelling.
Style imitation: By analyzing vast amounts of data, LLMs can replicate the stylistic nuances of renowned authors or filmmakers. This capability allows writers to experiment with blending different styles, such as combining the narrative techniques of a Stephen King story with the surreal elements of a David Lynch film, thereby creating unique and innovative narratives.
Idea merging: Furthermore, the ability of LLMs to merge two or more ideas into one is a powerful tool in the storytelling process. By synthesizing disparate concepts, LLMs can generate novel plot twists and character developments that might not occur to human writers. This feature encourages creative exploration and innovation, providing writers with a broader palette of ideas to draw from when crafting their narratives
Patterns in narratives: The proficiency of LLMs in recognizing patterns within stories by identifying recurring themes, motifs, and narrative structures across diverse scripts, enabling writers to understand and utilize these patterns in their own work. This analytical capability is particularly useful in maintaining consistency within a screenplay, ensuring that character arcs and plot developments adhere to traditional storytelling conventions.

Challenges and limitations

Character Development: LLMs struggle with deep character development and emotional depth. The disconnection from characters' backstories to their actions in the narrative are evident. Human intervention is necessary to add layers of complexity and nuance to characters.
Plot Coherence: LLMs often struggle with maintaining plot coherence throughout a narrative. They may introduce plot points or events that are inconsistent with earlier parts of the story, or they may exchange or forget protagonists, leading to confusion or a lack of logical progression. This can happen significantly in longer forms.
Conflict resolution: LLMs tend to solve conflicts very fast, almost as if avoiding them. They are unable to handle the conflict from one scene to the next, expanding, reshaping it, while still maintaining the tension. They are very inclined to melodramatic endings, and they cannot stand ambiguity. maintaining narrative consistency over longer texts
Philosophical Themes: LLMs have difficulties handling philosophical themes and transform them into stories. This leads to superficial, low-complex backgrounds and topics of the narratives. This limitation necessitates human oversight to ensure thematic depth and coherence.
Biases: AI exhibit huge biases related to race, gender, and cultural background, reflecting the data on which it was trained. While the race and gender bias has been slightly improving over the past years by the companies, there still exists a *settings bias* ("Berlin" is often associated with artists, "Sao Paolo" is often associated with drug gangs"), *minority bias*, a *disability bias* (if not prompted, nobody has any form of disability). Also, a *cultural bias* remains strong, as shown in Atari (2023): "their (LLM's) performance [..] most resembles that of people from Western, Educated, Industrialized, Rich, and Democratic (WEIRD) societies but declines rapidly as we move away from these populations. Ignoring cross-cultural diversity in both human and machine psychology raises numerous scientific and ethical issues."
Originality and Plagiarism: AI models are trained on vast datasets that include existing works. This raises concerns about originality and the potential for unintentional plagiarism. Proper safeguards and ethical guidelines are necessary to address these issues. That's why the WGA agreements stipulate that any work created with AI must be released into the public domain, free from all rights and ownership claims.
Dependence on AI: Over-reliance on AI for creative processes might stifle individual creativity and lead to homogenized content. It is crucial to maintain a balance where AI enhances rather than replaces human creativity. Encouraging a symbiotic relationship between human and machine can mitigate this risk.
Data Privacy and Security: The use of AI involves handling large amounts of data, raising concerns about data privacy and security. Clear policies on data ownership and usage might protect both creators and audiences but it is very unclear how the companies are using these data considering they are mostly US-based, and the servers are spread over the world.

Conclusions

The integration of AI into screenwriting represents a significant advancement in the creative arts. “Machine Acts” showcases the benefits (efficiency, speed, narrative patterns, style imitation) and limitations (lack of emotional depth, lack of consistency and coherence, lack of connecting characters to stories). The findings of the “Machine Acts” project highlight both the promise and the limitations of AI in creative processes. While AI can significantly enhance efficiency and introduce novel ideas, it still requires human oversight to ensure quality, coherence, and ethical integrity. It is critical to address the associated challenges and ethical considerations to ensure that LLMs can serve as a beneficial collaborator rather than replacing human creativity and jobs. With today’s LLMs, a harmonious collaboration between human creativity and machine intelligence can work with appropriately distributed tasks.

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Screenplay Outputs

"Surprise Me with What I Want":
https://ipfs.io/ipfs/QmXq9SJTGE3LJefoAVhdajTEcUe8SFsszNK1ABBVvF8BFj

"Digital Shadows":
https://ipfs.io/ipfs/QmWGGPkzxSHsiSLhfT88Dauc2X7kM1AP9tMTqTWyBRTVgC

"Narcissus and Oracle":
https://ipfs.io/ipfs/QmTofdY9eNV1NC3kGKhp2jGiXCaTnRtC8XRvAjC2oXLzqv

CONFERENCE CONTRIBUTION – 2, DAY 2

VIDEO GAMES AS ANIMATION: CONCEPTUAL APPROACHES TO THE ANIMATIC

VÍCTOR MANUEL NAVARRO REMESAL, *Professor of Philosophy at Colegio Nuestra Señora de Lourdes Universidad Isabel Valladolid, Castilla and Leon, SPAIN.*

Abstract

Video games are a hybrid media that can be studied from many fronts. They have ludic, machinic, and narrative sides (Mukherjee, 2015) that can sometimes be at odds in game analysis. However, there is another side that is often overlooked: video games are also animatic works. Our first contact with them is playable images, a reality that places firmly within visual culture, and by not studying as such we are cutting some much-needed ties. Even when they include so-called "live action" footage captured from real actors and real locations, their representational and expressive capacities belong to the realm of animation. This is not just a technical observation with implications only for animators: it makes games belong within the animatic apparatus explored by Cholodenko (2007) and Levitt (2018), an apparatus with its own formal structure, (an)ontology, and impact on our relationship with visual media. It also has further impacts on different levels. This presentation unpacks them on three fronts:

1) history and genealogies,
2) industry and intermediality,
3) player experiences.

Keywords

Hybrid Media, Animatic Works, Visual Culture, Intermediality, Player Experiences.

The presentation VIDEO GAMES AS ANIMATION: CONCEPTUAL APPROACHES TO THE ANIMATIC is only available in *video format.*

OUT OF LINE- PUZZLE DESIGN PROCESS

WILSON RODRIGUES DE ALMEIDA *Teacher at the University of Lusófona, Lisbon, PORTUGAL*

Abstract

Going from idea to execution is a path we all need to tread while developing anything creative.
During video game development we should strive to make this path clearer, shorter and a lot of fun, in turn, this will greatly increase the number of possible iterations your team is able to achieve and that usually translates to better games.

While developing Out of Line, as a game designer, I needed an effective process that would help the team and me to go from loose mechanics to actual playable levels in the shortest amount of time possible.

Out of this need, I created a 7-step design process that was employed during the game's production:

Step 1 - Define Core Values
Step 2 - Create a Framework
Step 3 - Mechanic Exploration
Step 4 - Sketch Puzzles & Interactions
Step 5 - From Concept to Playable
Step 6 - Level Integration
Step 7 - Playtest

We will explore each step in detail, how it works, why it is needed and most importantly, the context in which it was applied. In the end this is just a process that can be useful to you, but above all, it is also a presentation on how to stay comfortable and adaptable to the ever-changing flow of the game development process.

Keywords

Game development, game design, puzzle design, process.

Figure 1 - *Out of Line cover image.*

- The original prototype was created by Francisco Santos and his colleagues while still attending school.
- They won the best game award at the 2018 edition of PlayStation Talents in Portugal.
- Shortly after, the local game studio Nerd Monkeys approached the Out of Line team to form a partnership and begin developing a vertical slice.
- With the vertical slice, Nerd Monkeys was able to strike a deal with a publisher.
- By the end of 2019, I joined the team.
- A few months into 2020, COVID hit, and we all went remote. The team had to adapt, resulting in some delays to the game's production.
- Out of Line is a 2D hand-drawn puzzle platformer released in June 2021 for PC, Nintendo Switch, and Xbox.

Disclaimer

I would like to highlight that although the process I am about to describe was successfully applied, it is not the only way of approaching the kinds of challenges this project presented. A few of the covered topics will be project-specific, but most are agnostic and can be transferred and applied to other contexts. When possible, I will favor a general approach. Game development can get very chaotic and messy, the main objective of the text that follows is to use my specific case as an example to inform and challenge you to create your own process. Hopefully this will help navigate the chaos.

Puzzle Design Process

1. Define Core Values
2. Creating a Framework
3. Mechanics Exploration
4. Sketch Puzzles & Interactions
5. From Concept to Playable
6. Level Integration
7. Playtest

Define Core Values

When joining a game production that is already ongoing, there will be a lot of previously developed work. As a new game designer on the team, you should know and understand the reasons behind some of the decisions. Read, watch and play everything available about the project, and if possible, discuss it with the original creator(s).

Your main objective at this point is to get up to speed as fast as possible and have a better understanding of the game's vision:

- Check if the vision is already completely defined.
- If not, you may be the one responsible for taking on that role.
- Make sure everyone on the team is aware of the vision.
- Create visual materials that support the vision and help align everyone with it.

When I joined the Out of Line's production there was:

- A Vertical slice with a playable game.
- Functioning toolset to create some simple interactions inside Unity.
- Scarce documentation.
- A lot of art for characters and locations, as this was the preferred method for Francisco, the Out of Line creator, to show his ideas.

First months

- In the beginning my job was to take the cool ideas inside Francisco's head, document them in a structured manner to facilitate discussions and the planning of the whole game.
- As a game designer, it's indispensable to understand and respect the project's vision to be able to contribute and add to it, otherwise you might find yourself trying to create a completely different game.

Game overview

This was the result of those first months, a document with the planning for the whole project from start to finish.

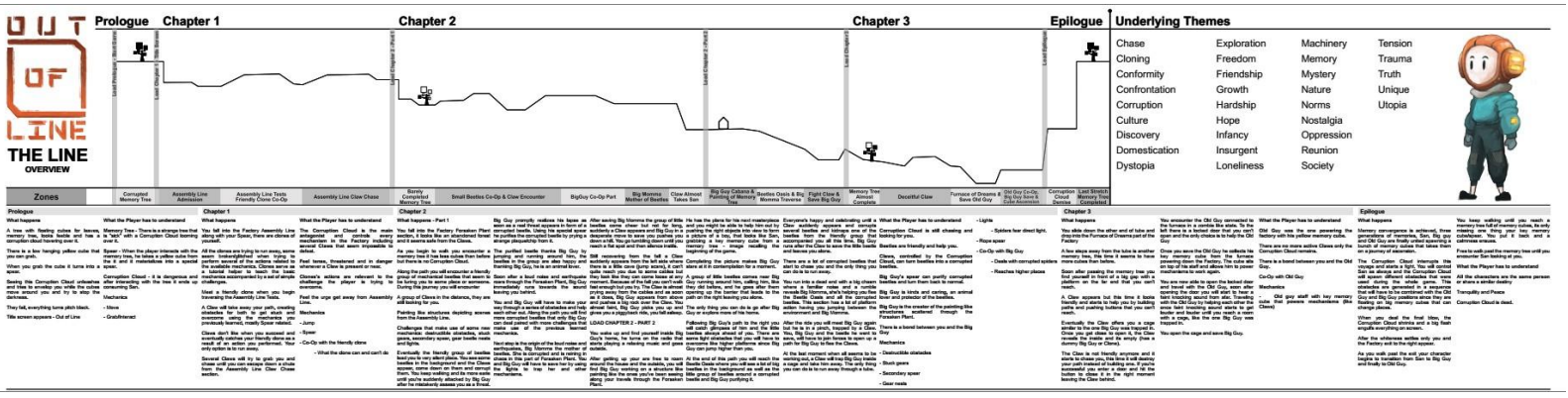


Figure 3 - Out of Line Game overview

With this document, we developed a holistic vision of the game, including the general layout from start to finish. We mapped out all story beats and divided the game into chapters, organized by zones. We listed all mechanics and elements by zone to provide a comprehensive view of where each mechanic would be introduced and used. This approach ensured that everyone on the team and the publisher could easily see and understand the game. Besides this document I also defined the puzzle design values, this helped me structure and guide my puzzle designs while also empowering other team members to provide better feedback.

Puzzle Design Values

1) No traditional tutorials or explanatory text.
2) Avoid repetition.
3) Learn by experimentation.
4) Spear:
    a. It's a tool, not a weapon.
5) Simple elements.
6) Few elements:
    a. No more than 5 or 7.[4]
7) Complex problems / Simple environments:
    a. Clean reading of all the puzzle elements and how they work.
    b. Avoid cluttering.

[4] MILLER, G. A. (1956). The magical number seven, plus or minus two: Some limits on our capacity for processing information. Psychological Review, 63(2), 81–97.

8) Solution is easy to execute:
    a. Quickly execute the solution once the player knows the answer.
9) Solutions are always logical:
    a. Stay within the rules to win the player's trust.
    b. Never break the player's trust.

Creating a Framework

Framework = My own custom Out of Line lego pieces (the building blocks for my puzzle design inside the engine)

Why?

The framework helps introduce some certainty and clarity to the often-chaotic process of game design. By adding constraints and limiting the set of elements and mechanics available, it encourages a focus on creative combinations. Through a deep understanding of these components, you start to grasp what is possible within a specific Possibility Space.[5]

Figure 4 *- Lego set.*

Out of Line Framework

To begin, we review the Game Overview defined on step 1, next, we select a specific zone within the game that needs to be worked on. We then assess the available elements and mechanics that can be utilized in that area. Finally, we embrace the constraints of the zone and concentrate on designing puzzles and exploring the mechanics.

Example

- Zone
- Small Beetles Co-Op Encounter
- Mechanics
- Spear
- Recall spear
- User as Lever
- Use as a platform
- Elements
- Beetles
- Follow Player
- Gear Nests
- Lights
- Spider Fear Lights o
- Destructible Objects

[5] SCHREIBER, I., & ROMERO, B. (2021). Game balance.

Mechanics Exploration

Goal

We delve into the editor, which in this case is Unity, the main objective is to play with the mechanics set on the previous step and understand what is possible inside the game engine, by creating small gameplay examples. As the game develops further, the need for this kind of exploration work decreases and it becomes relevant primarily when introducing a new game mechanic that hasn't been used before.

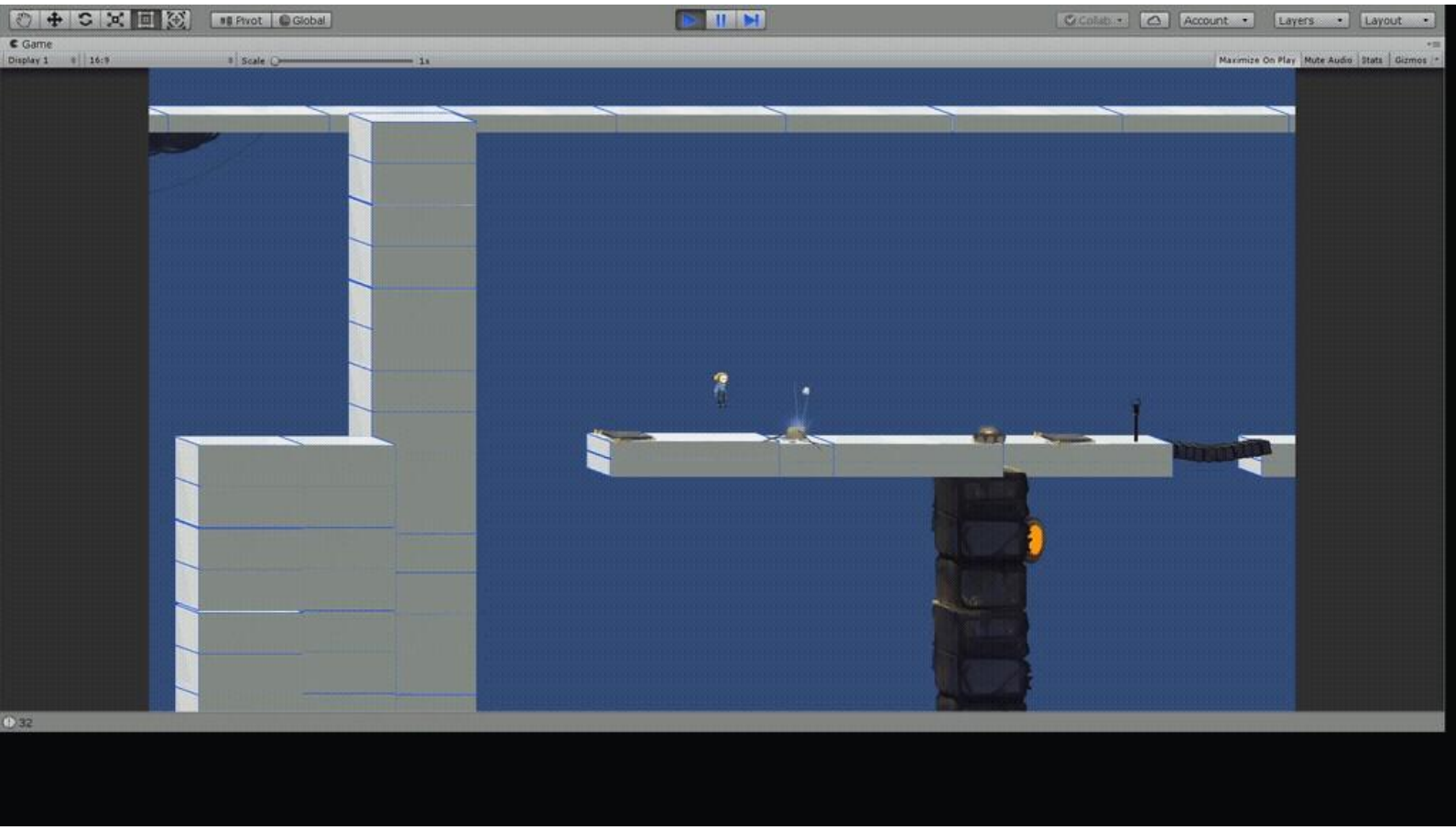


***Figure 5** - Out of Line mechanic exploration inside the Unity editor.*

The Approach

Truly play with the tools and functionality inside the editor, enjoying the process, experiment with every situation and idea that comes to mind and without any expectations of generating useful puzzle ideas (though you might still come up with some). Explore combinations of all available mechanics and push the limits of the tools to see where they might break. It's especially beneficial if you can abstract the mechanics' purpose and focus solely on its functionality as it makes it easy to discover different contexts it can be applied to, leading you to new gameplay possibilities.

Realization

After several iterations, the tools began to show their severe limitations concerning the pace of content production we needed. When creating puzzles that reached a certain level of complexity, the tools would slow down the entire process due to how they were built. At the time, we were a very small team, with only one programmer and a half (myself being the half), and we simply couldn't allocate the necessary resources to develop better tools. So, a compromise had to be made. In hindsight the better decision would probably be to hire a second programmer to work on the tools, but this was not an option at the time and the team decided to move forward as it was.

Compromise

Since designing puzzles with the current tools was breaking the flow, specifically, between the puzzle concept phase and having it playable on screen, I had to "create more time" by changing the whole process. By creating a hard separation between creative puzzle design work, outside of unity, and puzzle implementation. This decision led to the next step in our development process.

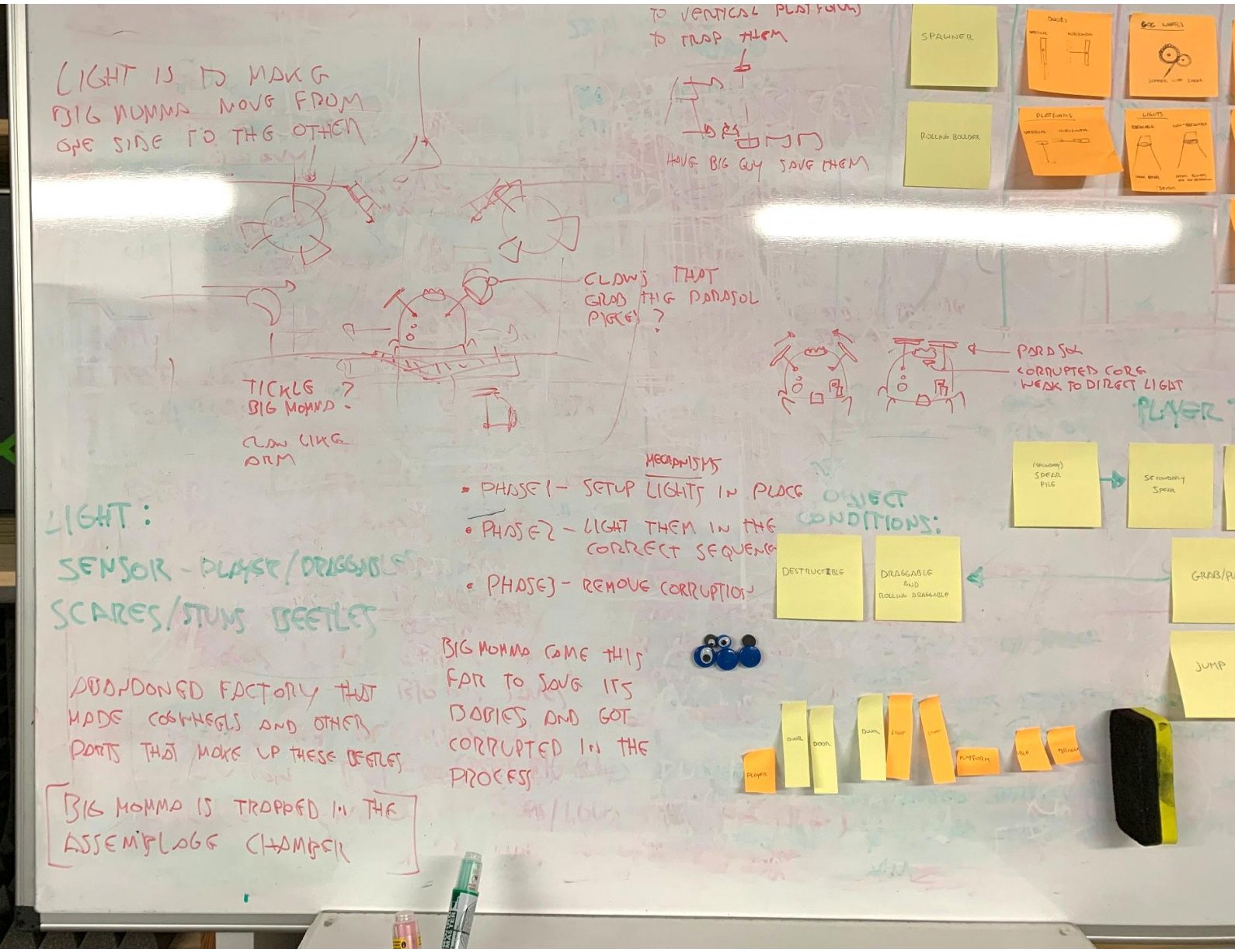


***Figure 6** - Out of Line puzzle design sketches on a whiteboard #1.*

Sketch Puzzles & Interactions

Solution

While it's common to sketch ideas on paper, this became the primary method for most of the creative work, since I couldn't be as creative as I wanted/needed within the editor. Producing puzzle design drawings was significantly quicker, and there was less emotional attachment when discarding ideas, it was just me and a blank page or board with no distractions. It's crucial to emphasize that this approach was only effective because I had a thorough understanding of how the mechanics and tools work on the editor.

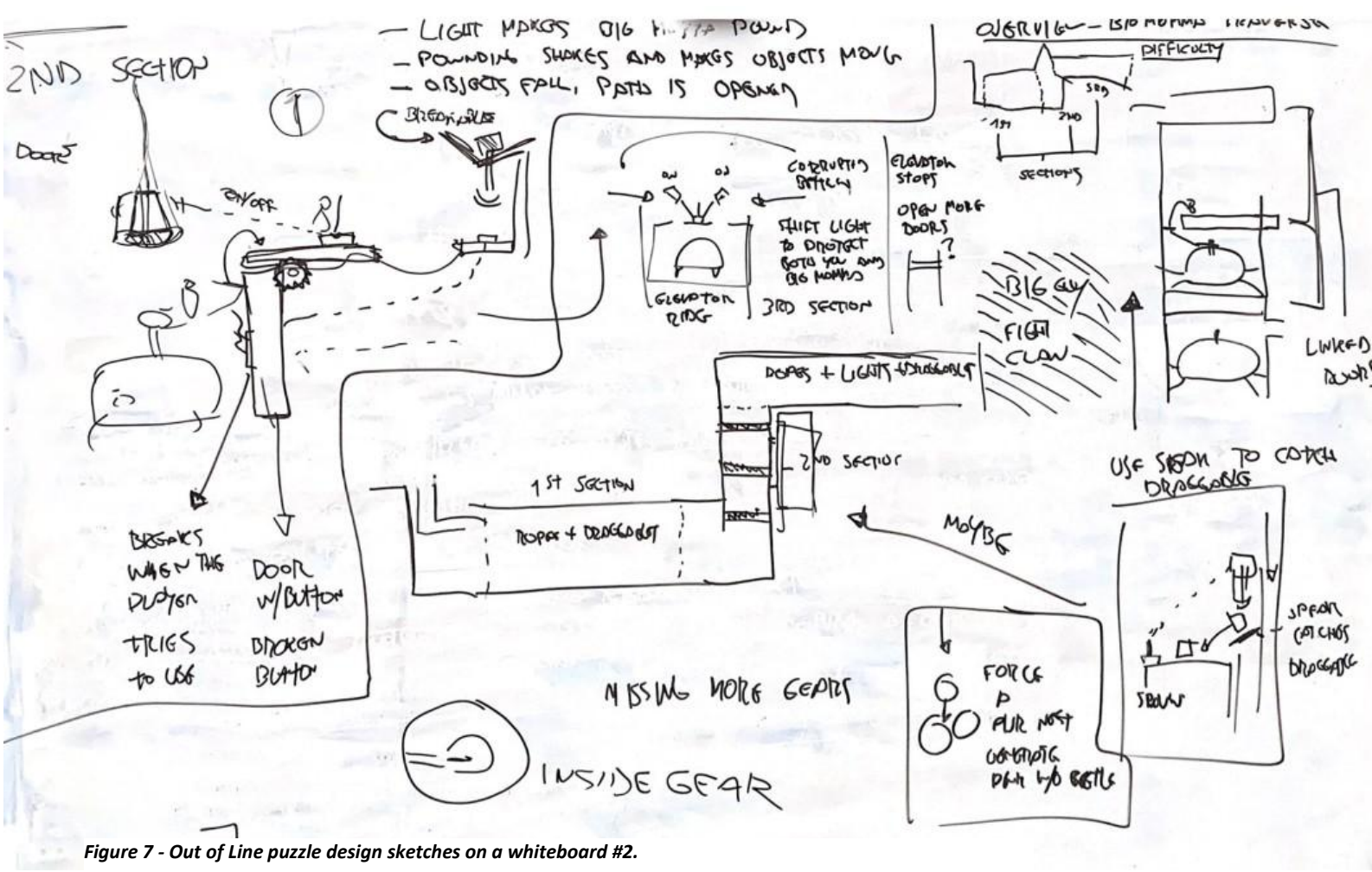


Figure 7 - Out of Line puzzle design sketches on a whiteboard #2.

The Process

With the previously defined framework in mind, the storyboard the puzzles and interactions using small, numbered vignettes. These vignettes represent the various steps of each puzzle, indicating which objects moved or were interacted with. This method would later help to quickly infer the puzzle's difficulty, more vignettes immediately mean more steps and probably a higher difficulty or complexity. Creating small interactions is faster, allows for more variety quickly and helps avoid getting caught in an analysis paralysis type of situation.

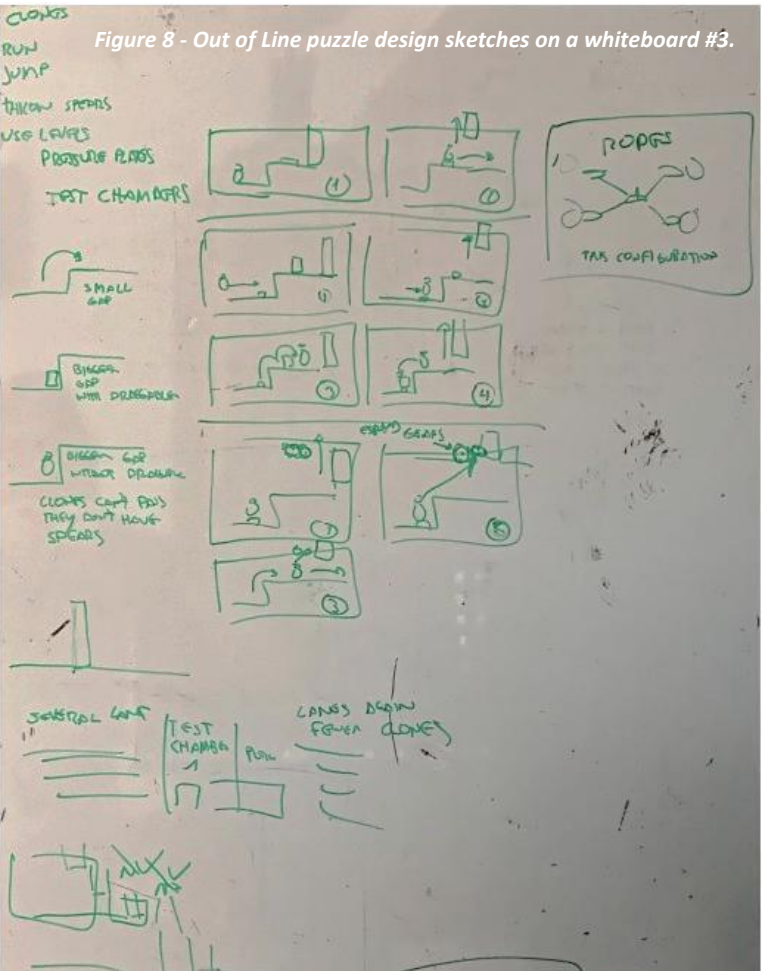
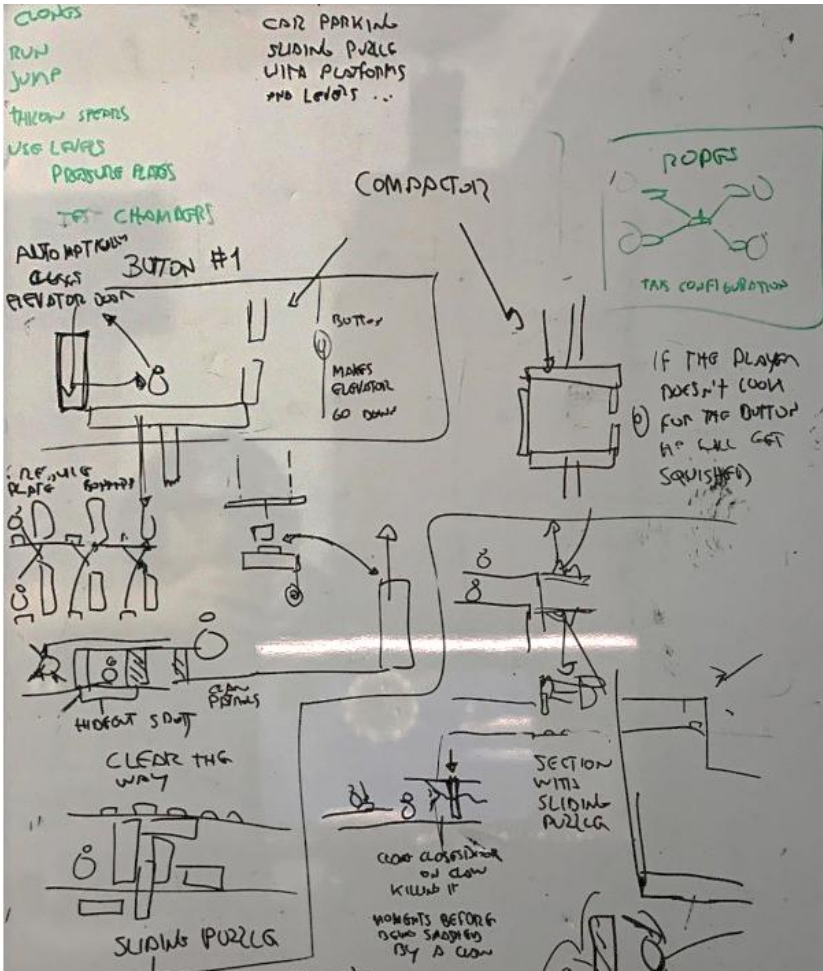


Figure 8 - Out of Line puzzle design sketches on a whiteboard #3.



Keep in Mind During the Process

- Avoid going for complex intricate designs from the on set.
- You waste more time.
- Get less variety.
- It is harder to get it right from the onset, usually due to too many variables at one time.
- It is easier to get trapped and burn yourself out, as if mentally exhausted.
- Connect the smaller interactions you created to generate puzzles.
- How many ways can you connect them?
- Switch them around to see what you get.
- Is there a theme?
- Try to remove a mechanic of an already established puzzle and see what happens.
- Iterate, iterate…

From Concept to Playable Build & Test

Back in the editor, we're now ready to build and play our puzzle designs. I generally build batches of three to four puzzles that are linked together and do a quick evaluation by playing them right away. Then, I repeat the process with another batch until all sketches are used.

When building puzzles inside the editor, don't judge them yet—just focus on building, that is the one of the reasons for separating creative work from implementation, this way I could solely focus on the technical side of the tools.

Since the puzzles in each batch are somewhat linked by their mechanics, a single section may seem boring on its own but can be essential in the broader context to set up what's coming next by teaching something to the player. Play the puzzles yourself and cut the ones you instantly know aren't working design-wise, whether it's because you're pushing the game's mechanics too far and they break, missing some programmer magic to support your idea, or they just don't translate well from paper to play. Save the ones that work and proceed to the next step.

Level Integration

All Comes Together

We now have a collection of working puzzles for a specific zone of the game, but we haven’t yet fully considered their difficulty, complexity, or context within the level itself. The next step involves integrating these puzzles and organizing them within the broader context of the zone and its rough layout. During this phase, but not exclusively, it’s common for art to influence design and vice versa. It is expected to go back and forth between this integration step and the previous design phase multiple times before achieving satisfactory results and completing the current step, other team members should and would chime in with their feedback. This is extremely important.

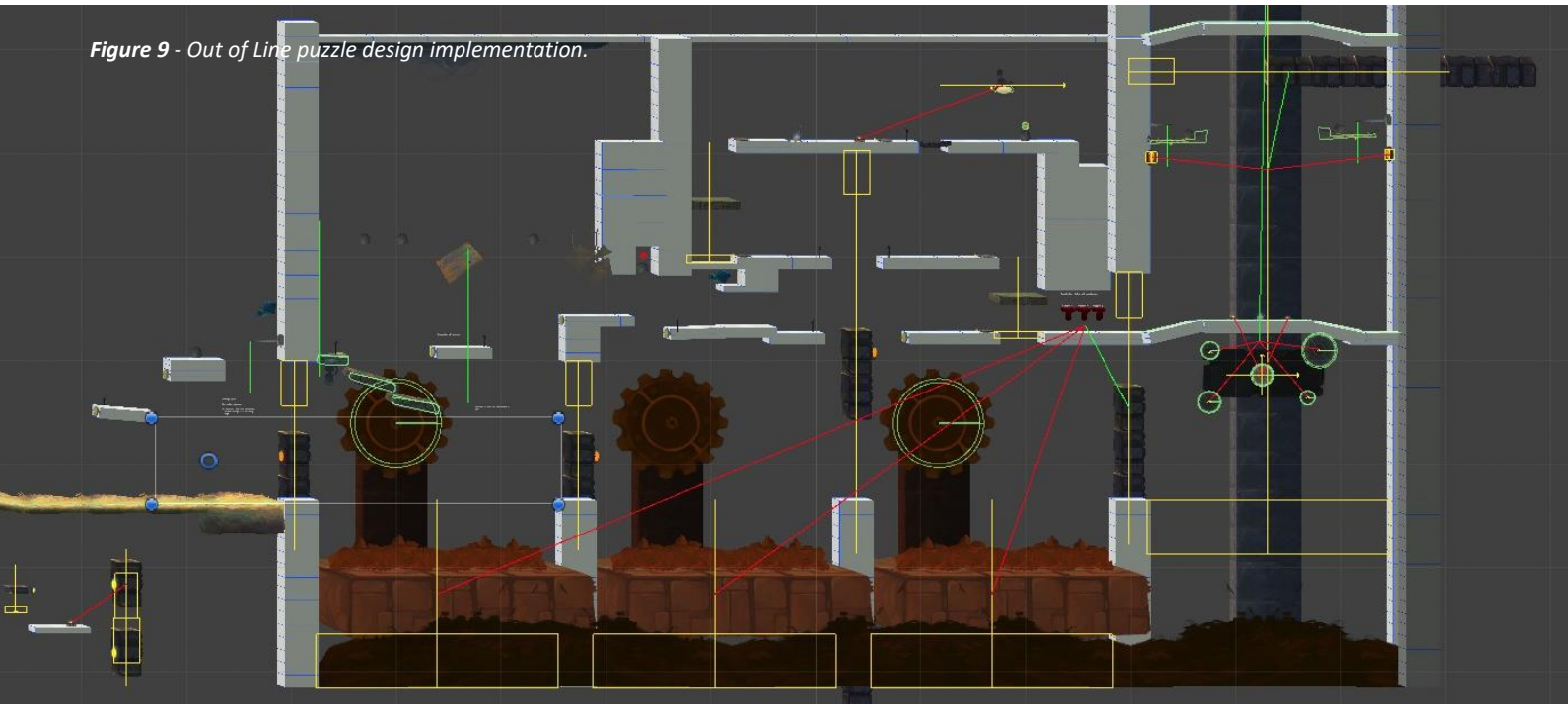


Figure 9 *- Out of Line puzzle design implementation.*

How

- Look at puzzles and their complexity:
- What is the number of steps to solve
- The number of moving parts the player must keep track.
- Different mechanics used.
- Size:
- Does it span across several “rooms” or is it self-contained in a single area that the player can see all the once?
- This can influence complexity because the player must remember the puzzle’s state.
- Group them by type of mechanics they’re using.
- Within those newly formed groups:
- Arrange the puzzles by order of complexity.
- Identify missing logical steps.
- Plan to fill in these logical steps by going back to step 4 through 5 and sketch more puzzling situations;
- Deploy the puzzles within previously defined level layout and make changes where it makes sense.

Playtest

Lowlight

We faced significant challenges given the limited playtesting opportunities due to the pandemic, and the team struggled to adapt to this situation. If I already valued playtesting, this experience underscored how critical it is to conduct playtests in the same room as the testers, to see how they play, observe their body language and hear them talk during the puzzles they encounter. Although not enough, we managed to conduct some online playtests and had a couple of external companies test the game, arranged by the publisher.

General Playtest Tips

- You should be always playtesting the game as much as possible.
- Physically is orders of magnitude better than remote playtesting;
- Watching the way people look at your game, and especially in a puzzle game the order they read the game elements on screen is very important.

Conclusion

Even though this process was developed for Out of Line, I would like to summarize the key main points that I learned and applied to other projects after this one and that you can also apply to your own projects:

- Be mindful of your iteration cycle, ask yourself how much time it is taking to complete a full cycle, identify the bottlenecks and understand what is causing them. Find ways to deal with these issues and make the iteration more efficient, it will make or break your production.
- Custom Tools need to be cared for and improved upon, because they will impact the pace of content production greatly. If your project is smaller and doesn’t have custom tools, look at the tool chain/pipeline, maybe some export is taking too much time, one of the tools is not playing well with the others or there is a quicker way of using a certain tool. Whatever the case, take excellent care of these tools and their usage, invest and improve them because they significantly impact the pace of content creation.
- Working on a game with a team is always a unique experience and a great opportunity to develop your soft skills and cultivate new friendships, be professional but also have fun.
- You too can design your own process, one that suits your specific project needs, be flexible and prepared to adapt to the circumstances.

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THE ECONOMICS OF VFX: FROM CONCEPT TO DELIVERY

NIKOLETA WOOD, *VFX coordinator in London, ENGLAND.*

Abstract

Delve into the financial intricacies of VFX production in this presentation, where we explore the journey from concept to delivery. By emphasizing the crucial role of effective financial management, the talk navigates pre-production challenges, production phase dynamics, and post-production considerations. From the importance of accurate budgeting and crew management to workflow optimization, we'll uncover some of the key factors essential for ensuring successful project delivery — both on time and within budget constraints.

Participate in the dialogue, as we address the nuances of managing client expectations and underscore the irrefutable connection between economics and achieving VFX excellence.

Keywords

VFX, Cost estimation, 3D assets, Collaboration, Budget management, Generative AI.

Introduction

The scope of VFX has expanded significantly over the past few decades. Initially, VFX was limited to simple tasks like background changes and character animations. Today, VFX includes a wide range of applications, from cosmetic fixes to complex scene creations.

Key Decisions in VFX Production:

1) **Script Assessment and Cost Estimation:**
   a) VFX producers and supervisors assess scripts for VFX requirements.
   b) They estimate associated costs, balancing resources and expectations.
2) **Choosing Between 2D and 3D Assets:**
   a) Decisions on whether to use 3D assets or 2D elements depend on cost-effectiveness.
   b) Example: Using CG fire versus shooting real fire against a black screen.
3) **Collaboration and Budget Management:**
   a) Effective teamwork between VFX producers and supervisors is crucial.
   b) VFX departments are involved from the early stages to the final delivery.
   c) They manage their own budgets and justify costs throughout the project.
4) **Tools and Techniques:**
   a) **Spreadsheets and Schedules:**
      i) Tools like lighter and texture photography schedules help optimize resources.
      ii) Efficient use of sets and actors can save significant costs in post-production.
   b) **Database Management:**
      i) Maintaining a detailed database of shots, feedback, and version numbers is essential.
      ii) This helps streamline the workflow and avoid costly mistakes.
5) **Vendor Selection:**
   a) **In-House vs. External Vendors:**
      i) In-house teams offer agility but need careful time management.
      ii) External vendors might provide tax incentives but can pose collaboration challenges.
6) **Future Trends:**
   a) **Real-Time Rendering and AI:**
      i) Technologies like real-time rendering engines and generative AI are transforming VFX.
      ii) These innovations can reduce costs and improve efficiency but require significant initial investment.
7) **Conclusion:**
   a) Balancing cost and creativity is at the core of VFX production.
   b) Effective communication and resource management are key to success.
   c) The demand for VFX is growing, integrating more deeply into all stages of film production.

The economics of VFX

Have become increasingly important as the scope of VFX has expanded massively over the last few decades. In the early days, VFX was limited to specific use cases such as changing backgrounds using a green screen or animating characters. Nowadays, VFX can touch on many aspects, from cosmetic fixes to actors, de-aging, and cleanups. Consequently, the budgets for VFX have increased greatly.

The economics of VFX is crucial as it provides a framework for making strategic decisions while balancing creative vision and financial realities. Key decisions in VFX production include assessing the script for any VFX requirements and estimating the associated costs. This is usually done by the VFX producer and VFX supervisor, involving a conversation about resources versus expectations or cost versus benefit.

- The scope of VFX has increased over the decades.
- Originally used for specific use-cases – greenscreen backgrounds, animated characters.
- Now in present-day production used for many more purposes – cosmetic fixes, de-aging, shot clean-ups.
- VFX budgets have grown over time.
- The economics of VFX is important to understand – it provides a framework to make strategic decisions.

Almost any shot can be done in many ways, but it is important to consider whether it is worth spending more money on something that can be done for less. A classic example is 3D assets versus 2D elements. For instance, deciding between creating CG fire or shooting fire against a black screen and using it as a 2D element.

A good relationship between the VFX producer and VFX supervisor is crucial to making the most of the resources. In terms of the budget, one of the coolest things about working in VFX is being part of the project from the early stages until the last shot is delivered. VFX is one of the few departments involved from beginning to end.

Because of the specific skills in VFX, it is the only department responsible for allocating its own budget. This means it is often questioned by many people, so it is important to always be prepared to justify costs. Unlike other departments, studios often won't see what they've paid for in VFX until after the shoot finishes and we're well into post-production. It is helpful to think about what upfront costs can reduce costs down the line.

- Done by VFX producer with VFX supervisor – resources vs expectations.
- Cost vs benefit equation.
- Shots can be achieved in many ways – e.g. 3D vs 2D elements.
- Good relationship between VFX supervisor and VFX producer is crucial – they should work as a team.
- Both have significant roles in assembling a budget.

Production companies can be reluctant to spend more time and money setting up screens during the shoot, but this can reduce the need for root in post and avoid more expensive issues. The budget is mostly managed by the VFX producer, but VFX coordinators and assistants can do a lot to make the most of resources. This is where spreadsheets come in handy.

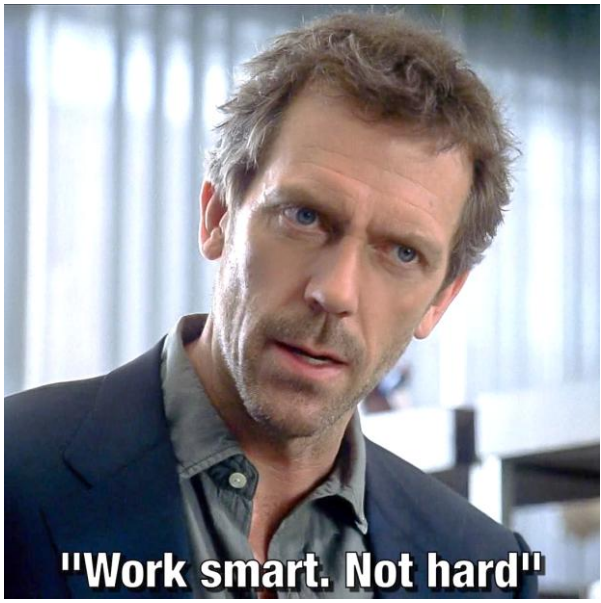
- The VFX department operates throughout the whole existence of a project.
- It’s the only department responsible for allocating its own budget.
- VFX budgets tend to be questioned – be prepared to justify spends.
- Studios won’t see results from VFX until post.
- It is helpful to consider when upfront costs can reduce other costs.

One useful tool is the lighter and texture photography schedule, which helps efficiently use sets and cast. Informing the production designer in advance can help hold a set for a few extra days instead of dismantling it immediately. The same goes for talking to the 1st AD. You can cyber scan actors during takes when they're not needed on set, saving thousands in post-production.

- Lidar and texture photography schedules.
- Green/blue screen requirements document.
- VFX plates summary.
- Database is the most important – it contains information about all shots.

Green screen and blue screen lists inform everyone about specific screens at specific places, eliminating confusion and allowing crews to prepare screens in advance. A VFX play summary is useful for VFX supervisors and the onset crew as a checklist to ensure all necessary assets are captured. It is crucial to have a working database with information about all shots, status, feedback, and version numbers.

Having a well-maintained database makes life much easier. Marking changes in red and noting what needs to be done by different departments helps us keep track of everything. LIDAR and texture photography schedules are live documents with multiple versions. It is important to mark where LIDAR scans are needed and when VFX split sheets are happening.



GS / BS VFX DETAILS - V2 - 19APR (Subject to change)

SEE GRIPS FOR LIST OF TRAVELING GS / BS PACKAGE

CONSTRUCTION TO PROVIDE ADDITIONAL GS / BS AS LISTED BELOW IN RED

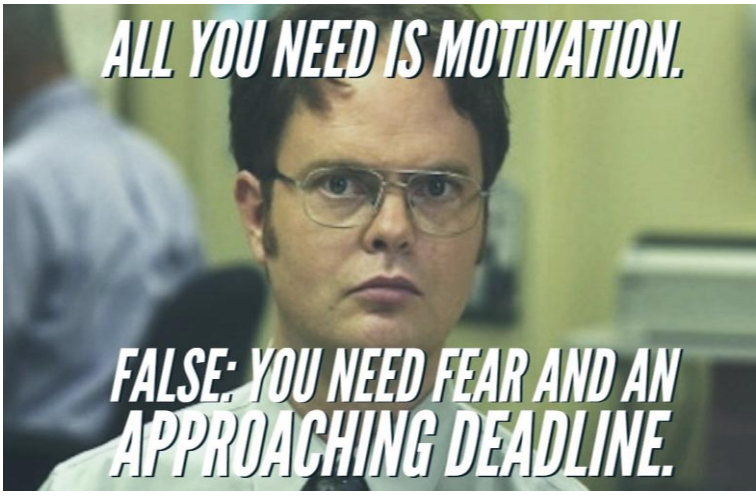
INT / EXT	SET	TIME	LOCATION	ART DIRECTOR	NOTES	SC #	GS / BS	BS / GS NOTES
INT	TRAIN STATION	N	STAGE W	CAROLINE	CROWD WAITING FOR THE TRAIN	18		POTENTIAL CEILING EXTENSION BUT ASSUME NO GS / BS REQUIRED
EXT	GADE AVENUE - BOMBED	M	MEADOW ROAD	EDWARD	MATT WALKING TOWARDS JACOB	112	✓ BS	40FT BS AT ENDS OF ALL STREETS (3x) TO BE PROVIDED BY ART DEPARTMENT / CONSTRUCTION
EXT	JAMES HOUSE	M	SHERATON MEWS	SAM	JAMES, LILY AND ELLA COMING IN / LEAVING THE HOUSE	3, 16, 27, 98	✓ GS	20X20 GS ON THE TOP OF ART DEPARTMENT BRICK WALL DOWN THE END OF SHERATON MEWS STREET TO BE PROVIDED BY CONSTRUCTION / ART DEPARTMENT - SEE REF 2

LIDAR & TEXTURE PHOTOGRAPHY CALENDAR - V4 - 19 APR (BASED ON SHOOTING CALENDAR DATED 14 MAR) - Subject to change

Monday	Tuesday	Wednesday	Thursday	Friday	Saturday	Sunday
21 PREP	22 PREP	23 PREP	24 PREP	25 PREP	26	27
			LIDAR & TP EXT COFFEE SHOP (CASSIOBURY PARK)		REST DAY	REST DAY
LI / NA	LI / NA	LI / NA	LI / NA	LI / NA		
28 DAY 1	29 DAY 2	30 DAY 3	1 DECEMBER DAY 4	2 DAY 5	3	4
STAND BY ON SET	TBD VFX PLATE SHOOT DAYS		CYBERSCANNING GABY	STAND BY ON SET		
EXT JAMES HOUSE	EXT COFFEE SHOP	EXT COFFEE SHOP	LIDAR & TP INT TRAIN STATION (STAGE W)	INT TRAIN STATION	REST DAY	REST DAY
		TRAIN STATION - REH	EXT COFFEE SHOP		OFFICE - REH	
Sheraton Mews	Cassiobury Park	Cassiobury Park	Cassiobury Park	Stage W		

Choosing vendors is one of the most important decisions in VFX production. In-house teams can be agile with turnaround times but need to be utilized efficiently. External vendors are paid by the shot, while in-house teams have day rates or are booked for certain periods. Tax incentives, like using Canadian vendors for UK productions, can provide significant rebates. However, working with foreign vendors can present challenges like time zones and language barriers.

- One of the biggest decisions the VFX department must make.
- Consider having an in-house team (quick turnaround times, useful for temps to get a firm direction agreed before bidding shots).
- Tax incentives are a significant deciding factor when choosing vendors.



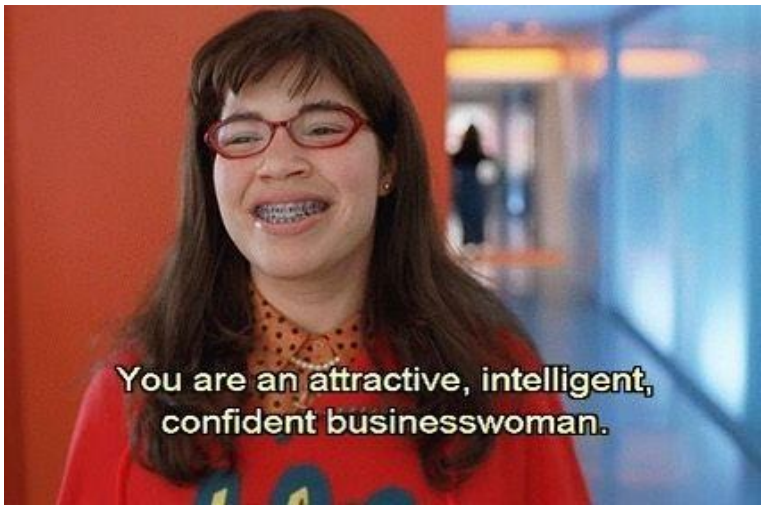
Deadlines and delivery are the most fun part of every project. Ensure all VFX crew have technical specifications from the beginning to avoid confusion and unnecessary costs. Clear feedback is essential to reduce delays caused by miscommunication. Never forward feedback or notes you don't understand; always check with your supervisor.

- Distribute and discuss tech specs.
- Redelivery due to incorrect specs adds time and cost.
- Clear feedback reduces delays.

Challenges and future trends include AI and real-time rendering engines like Unreal Engine, which can significantly reduce costs and time. Disney's virtual production screens on "The Mandalorian" are a great example of this technology. Generative AI is becoming a serious factor, offering both opportunities and challenges. It can reduce costs but also impact artist jobs.

- Rendering costs – real-time rendering reduces these and makes iterating on feedback quicker.
- Virtual production can decrease post-production costs, but initial investment is huge, it requires long-term planning and utilizing these technologies effectively.
- Generative AI becoming a serious factor – potential cost savings but at the expense of artist jobs.

In **conclusion**, balancing cost versus benefit is at the core of everything. Efficient use of resources and good communication are essential. The VFX industry is growing rapidly, and understanding the economics of VFX is crucial. The demand for VFX is higher than ever, and new technologies are integrating VFX into production more than ever before. VFX is growing faster than almost any other aspect of filmmaking. Understanding what you can achieve with your resources is essential. When things get overwhelming, remember that we work in film and games, and it's important to stay motivated.



- Balancing cost vs benefit is at the core of everything.
- As is being efficient with available resources.
- Be wise with spending but be prepared to justify.
- Good communication saves time and saves money – this applies to everyone in the hierarchy.
- Looking to the future, the film industry is growing - demand for entertainment is at an all-time high.
- VFX as a subset of the film industry is only going to increase as audience expectations grow with demand.
- New technologies mean VFX is being ever-further integrated into production rather than solely post – e.g. Unreal Engine for live CG environments in virtual production.

From a cost/budget perspective, VFX is growing faster than almost any other department or aspect of filmmaking, and so the economics of VFX are more important than ever.

Questions and answers

Q: How did you start your career in filmmaking?

A: I was at this school 10 years ago when I told my parents that I was dropping out of medical anthropology to study film. I moved to London, studied film production, and focused on documentaries. I did a documentary on refugee camps. Later, I met my husband, a VFX artist, and fell in love with VFX. I then studied production management, specializing in animation and VFX at the National Film and Television School.

Q: Do new technologies like real-time rendering engines and AI accelerate production?

A: Yes, but it depends on the scale of production. For period dramas with cleanups and set extensions, Unreal Engine isn't necessary. However, for projects like "The Mandalorian," setting up that infrastructure is beneficial. The initial cost is high, and there's a learning curve, but integrating game design and VFX workflows can reduce production costs and improve feedback times.

Q: How important is it to study management for a career in VFX production?
A: It's very important. I studied general production management at NFTS, which helped me understand the importance of managing resources effectively. Working on extra projects and collaborating with animators and game designers also provided valuable experience. Good VFX producers can find ways to allocate resources efficiently, which is crucial for successful production.

Q: How do you see the future of virtual reality in the film industry?
A: Virtual reality will be used more and more, depending on budgets. Smaller films are finding it useful to use virtual production screens. In the next few years, its use will likely grow.

Q: What should directors consider when planning VFX for a project?
A: Directors should understand the realities of VFX production. It's important for them to collaborate with VFX producers and supervisors during initial script analysis. Directors with less VFX experience may need more detailed concepts to understand the final look, while experienced directors can work more collaboratively with rough previews.

Q: Did you mention the importance of calls and benefits when judging the visual effects?
A: I think at the beginning of the project, the director has their vision. They see hundreds of shots, and then they meet the reality that they are not able to do it.

Q: What do you think are the variables or questions the director should ask? What visual effects or what shows are important and when the benefit of visual effects will be important and what should not. How do you see it?
A: Well, in the best-case scenario, that's when the director realizes the realities. To be honest, most of the time they just want those big CG shots, and they want them everywhere, even if it's not Marvel. But I think what is very important depends on the director you work with as well. It varies so much. Some directors are very keen to sit down with the VFX producer and VFX supervisor during those initial script analyses and try to work with them. With some directors, unfortunately, it's not as easy. It's also good to think about how much experience the director has with VFX. Because if you have a director who hasn't done much, for instance, CG set extensions or big shots, what you don't want to do is show them a very rough preview with grey scales and a lot of screens because it will freak them out. What you want to do with directors like that is to do a concept, maybe not show them a moving image, but show them how it will look at the end. With directors who have experience with VFX, it's so much easier because you suggest putting up a massive 20 by 20 screens, show them a concept of what you can put on the green screen, and they trust you. It's much more collaborative. I'm not sure if that answers your question, but it's so broad. It really varies based on the director. It comes back to relationships and is very political, in my opinion. You must know, as the VFX producer and VFX supervisor, how to talk to directors, and everyone is different.

CONFERENCE CONTRIBUTION - 5, DAY 2

28 YEARS LATER. OVERVIEW OF CAREER, FROM TRADITIONAL ANIMATION STUDIOS TO VISUAL EFFECTS AND WHAT IS HAPPENING RIGHT NOW IN THE FIELD WITH MORE DECENTRALISED WORK AND THE POTENTIAL DISRUPTIONS OF AI

PIETER VAN HOUTE, *Digital Compositor, Supervisor and Visual Effects Artist. BELGIUM/CANADA.*

Abstract

Pieter van Houte reflects on his extensive career in visual effects (VFX), spanning nearly 30 years. He began as a traditional animator at the Royal Academy of Fine Arts in Ghent, Belgium, where he transitioned from pencil and paper to computer graphics (CG). His pioneering CG thesis in 1996 marked the Academy's first CG-generated short film, challenging the institution's traditional film submission requirements.

The speaker's early career involved creating CG commercials and working with emerging technologies like Lightwave and Fusion. He recounts his journey from editing student films to producing commercials and eventually working on feature films. Notable projects include the children's movie "Plop" and the critically acclaimed "The Triplets of Belleville," where he integrated 2D and 3D animation, earning an Oscar nomination.

The speaker emphasizes the importance of adaptability and continuous learning in the VFX industry. He shares experiences of working with renowned directors like Terry Gilliam and Sylvain Chomet, highlighting the challenges and rewards of creative collaboration. The narrative also touches on the evolution of VFX technology, from early compositing techniques to modern AI-driven face replacement.

Throughout his career, the speaker has balanced working on large-scale studio projects with independent and creative endeavors. They discussed the founding of his own decentralized VFX company, which focuses on efficiency and artist-centric practices. Additionally, he mentions his involvement in the online Fusion community, fostering knowledge sharing and innovation.

The presentation concludes with reflections on the future of VFX, the impact of AI, and the importance of embracing new technologies while maintaining a creative and collaborative spirit.

Keywords

Visual Effects (VFX), Computer Graphics (CG), Animation, Creative Collaboration, AI in VFX.

Career

What I would like to do in this presentation, especially after spending a couple of days here hearing stories about the school, how the school's been set up, and what kind of environment you're all in now, is to share my own background and experiences. I realized that it made me think a lot about where I came from.

I am currently working in visual effects and have been for almost 30 years, but I started as a traditional animator, using pencil and paper, just like our friends upstairs. I studied at the Royal Academy of Fine Arts in Ghent, Belgium, which was an environment where people could individually express their ideas in a very protected and traditional setting. However, as I progressed through my studies, I encountered new technologies. Pixar was on the rise, and computer graphics began to interest me. I ended up doing my thesis in computer graphics back in 1996, creating the only CG-generated short ever to come out of the Academy. This required me to challenge the system, as the rules meant that these be delivered on actual film, which was financially prohibitive for me. By advocating for digital formats, I succeeded in changing this requirement, allowing me to graduate with top marks.

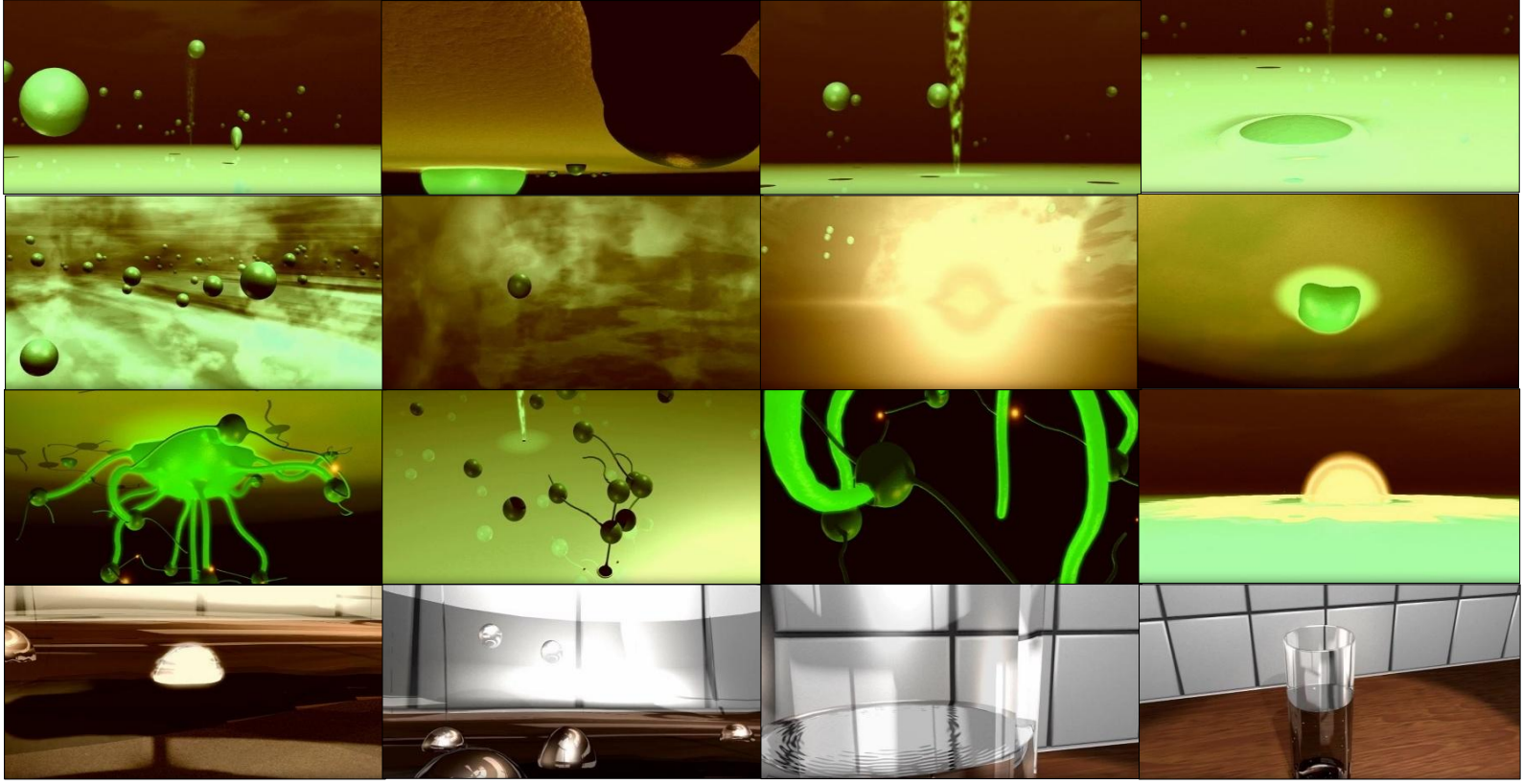


Figure 2: *JION,* https://www.avfx.sk/media/5684

CG commercials

Following my graduation, I was catapulted into making CG commercials in 1997. I got in touch with a company through my editing professor, who appreciated my editing skills. This company allowed me to use their software and hardware, mostly late at night, to work on my own projects. My first commercial project was a CD cover, which I completed in seven days. Despite having no idea what I was doing, the client loved it, and this experience led to further opportunities. Over time, I learned to use more complex software like Fusion, which allowed me to increase the complexity of my work.

Figure 2: *CS16,* https://www.avfx.sk/media/5680, CS12 https://www.avfx.sk/media/5681

I worked for about four years at that company, which eventually became more ambitious and wanted to work in films. We worked on a children's movie called "Plop", which was my first project on film. This experience involved a lot of learning and adapting to new technologies and workflows. Reviewing shots back then was not the same as it is now; we had to print them on film and drive three hours to a theater in Amsterdam to review them. This process was time-consuming and required a lot of patience.

Figure 3: *Grid,* https://www.avfx.sk/media/5674

Australia

After working on "Plop", I felt the need to see more of the world, so I went backpacking in Australia. During my travels, I visited a company called The Attic in Sydney, which did a lot of motion graphics and design. The creative director loved my work and offered me a job, but it took a long time to finalize the paperwork. In the meantime, I quit my job and was offered a short-term project in Montreal, Canada, working on the animated feature "The Triplets of Belleville." This project turned out to be much more than six weeks of work, and I ended up working on it for over a year, guiding teams in Montreal, France, and Belgium.

During this time, I also got involved creatively in the film after a big fight with the director, Sylvain Chomet. We eventually became friends, and I was made responsible for the integration of 2D and 3D in the film. This project was a significant milestone in my career, and to this day, it opens doors for me in the industry.

Based on my work on "The Triplets of Belleville", I was asked to work on Sylvain's next film, "The Illusionist." Through Sylvain, I met Richard Williams, the author of "The Animator's Survival Kit," and worked with him on his personal projects. I taught him how to use a computer and helped him create a video series based on his book. This involved filming thousands of drawings, timing them, and creating a tool to convert timing data into compositing software.

Figure 4,5: *Reel 2011, The animator´s survival kit,* https://www.avfx.sk/media/5675

I also had the opportunity to work with Terry Gilliam on "The Imaginarium of Doctor Parnassus", which was Heath Ledger's final film. This experience was a result of my persistence in contacting Gilliam's visual effects supervisor, Paul Docherty, for a year. Working with Gilliam was a dream come true, and it taught me a lot about the industry.

Anonymous

Throughout my career, I have been active in online communities, helping others learn and use visual effects software. This involvement led to opportunities like working on the film "Anonymous" in Berlin, where we developed new techniques for creating realistic water and atmospheric effects. These techniques were later featured in Cinefex magazine.

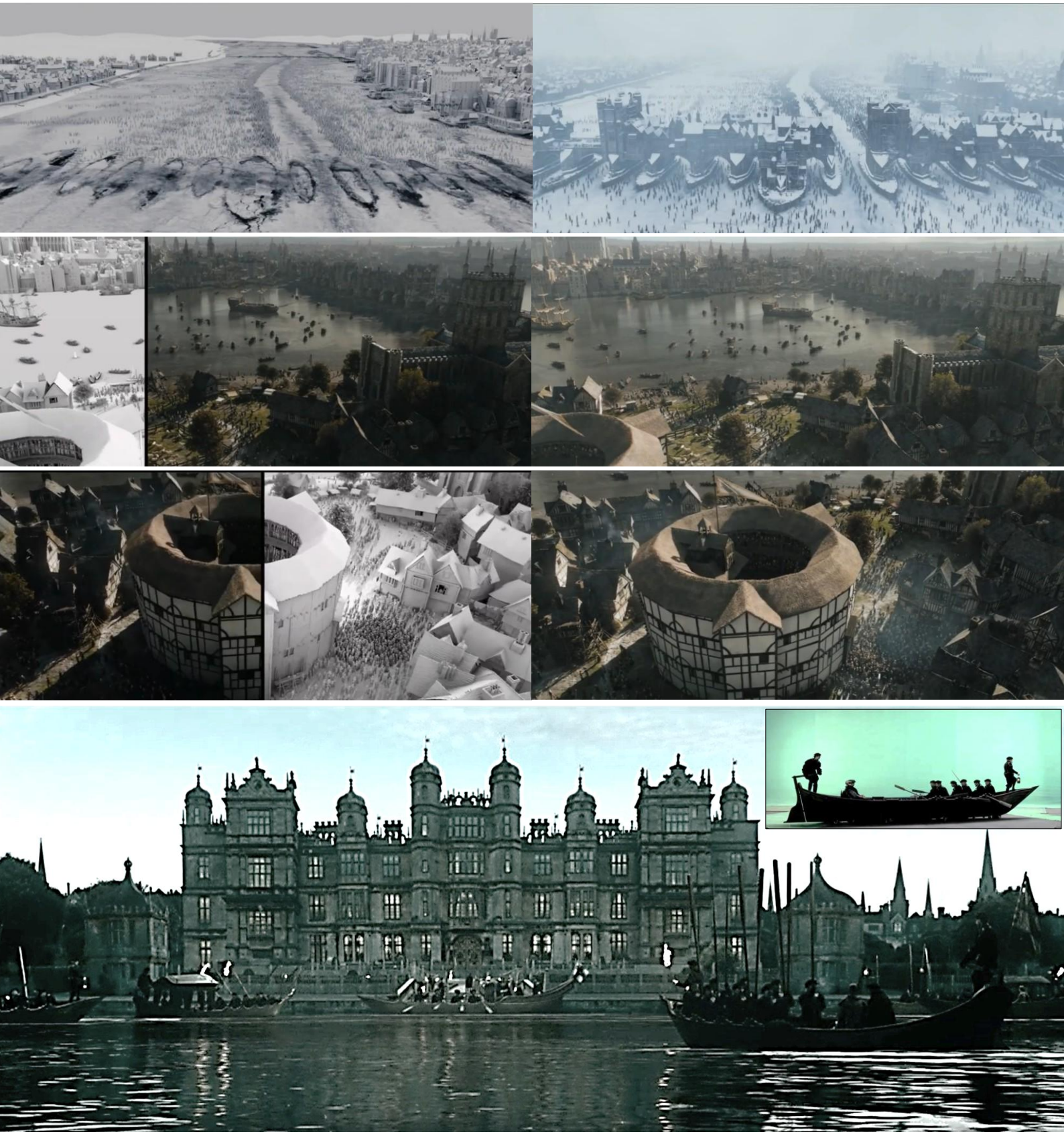


Figure 6,7,8,9,10,11,12,13: *Reel 2011,* https://www.avfx.sk/media/5675

Los Angeles

My journey eventually took me to Los Angeles, where I worked on projects like "Men in Black 3" and "The Amazing Spider-Man 2." Working in big studios taught me a lot about industry, but it also made me realize that I wanted to be more involved in the creative process. This led to the co-founding of a small, decentralized visual effects shop with a friend, focusing on efficiency and reducing overhead.

Figure 14,15,16,17,18,19,20,21,22: *Reel 2011,* https://www.avfx.sk/media/5675

About AI and how AI is gonna break everything.

It's going to kill everything. It's going to take away all our jobs. I want to show you something that we've done. This one here is a reel for face replacement using AI deep fake tech from 2021.

Figure 23,24,25: *Face Replacement Reel 2021,* https://www.avfx.sk/media/5676

A lot of what we're seeing today is revolutionary. It's not as new as you might think. The company that I started partnered last year with a company specializing in AI. They're not in visual effects at all, but they had very interesting technology and we're looking at making that available for visual effects. They've been working with AI for the likes of Microsoft and Google. They're quite big in their sector since 2010. None of this is new. A lot of worry and fear for AI is because of this sudden explosion of everyone using it and the fear of missing out. It's evolutionary. This is going to evolve for another couple of decades. Just jump on that train whenever you feel like, but don't ignore it.

Figure 26,27,28,29,30,31,32,33: *RealmFX Demo Reel 2023,* https://www.avfx.sk/media/5672

Korea and New York

The visual effects supervisor Eric de Boor who won the Oscar for Life of Pi. I was the onset supervisor for some of this one from the shots in the house. The guy in this suit is Steve Gleeve, a great animator. He was the animation supervisor. He spent like 5 months in Korea. Eric got married in the middle of production and asked me to go to Korea and New York to supervise two different sets. I could have said no, but I said yes, and I learned an awful lot. We wanted to avoid the use of green screens but in the end, beautiful results. We have a long listed, not shortlisted, long listed for the Academy Award for visual effects on this one as well. In our new reel, almost all the work has nothing to do with anything that I spoke of.

Figure 34,35: *RealmFX Demo Reel 2023,* https://www.avfx.sk/media/5672

Fusion community

In addition to my professional work, I started an online forum for the Fusion community, which has grown to almost 12,000 members. This forum has become a valuable resource for learning and sharing knowledge about visual effects.

Overall, my career has been a journey of saying yes to new opportunities, learning on the go, and constantly adapting to new technologies and challenges. I hope to continue this journey with my new venture and the online community I have built.

PROGRAM

TOBIAS FRÜHMORGEN
WILSON DE ALMEIDA
NIKOLETA WOOD
PIETER VAN HOUTE

MARIÁN FERKO
FILIP MATLÁK
ŠIMON MACHÁČ
MATÚŠ MENKE

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ANTON SZOMOLÁNYI
ĽUDOVÍT LABÍK
PHILOSOPHY
FOREWORD

ART VFX DISCUSSION

PIETER VAN HOUTE, *Digital Compositor, Supervisor and Visual Effects Artist. BELGIUM/CANADA.*
NIKOLETA WOOD, *VFX coordinator in London, ENGLAND.*

Abstract:
The workshop and extended talk feature discussions on various aspects of the visual effects (VFX) industry. The speakers address several key topics:

1. **Balancing Art and Commerce**: The speakers discuss the tension between artistic integrity and commercial demands in the VFX industry. They highlight the challenge of maintaining creative freedom while fulfilling the commercial objectives of studios, particularly in Hollywood, where profit often takes precedence over artistic expression.
2. **Working for Free**: A significant point made is the importance of not working for free. The speakers argue that working for free devalues the artist's work and sets unrealistic expectations for future projects. They share personal experiences and advice on how to navigate offers that promise future paid work in exchange for free labor.
3. **Communication and Collaboration**: Effective communication within teams and with clients is emphasized. The speakers stress the need for clear communication to manage expectations and explain the technical complexities of VFX work to non-technical stakeholders. They also discuss the importance of patience and understanding in these interactions.
4. **Impact of the Hollywood Machine**: The speakers criticize the Hollywood system, noting that its primary goal is to generate profit rather than create art. This has led to a sense of disillusionment among some VFX artists who feel they are merely employees rather than true artists.
5. **Remote Work and Industry Changes**: The transition to remote work during the pandemic is discussed, highlighting both the benefits and challenges. While remote work allows for greater flexibility and work-life balance, it also poses difficulties in terms of collaboration and mentorship, particularly for junior artists.
6. **Technological Advancements and AI**: The role of AI and other technological advancements in the VFX industry is explored. The speakers acknowledge that while AI can simplify certain tasks, it also introduces new challenges and opportunities. They emphasize the importance of staying informed and adapting to these changes.
7. **Personal Experiences and Advice**: Throughout the discussion, the speakers share personal anecdotes and advice on navigating the VFX industry. They touch on topics such as the importance of family support, managing stress, and finding a balance between work and personal life.

Overall, the workshop provides a comprehensive overview of the current state of the VFX industry, offering valuable insights and practical advice for both aspiring and experienced VFX artists.

Art discussion

Q: Working for a studio, don't you get the feeling that you are selling a piece of your soul when creating an app for money? And to, to which point you can combine like to do the things that you want, but still get the money for it?
Pieter: Do what you want and still get paid to do it. Some people get that. It depends on the person and who you are. It also depends on your definition of art. A lot of the visual effects industry and the entire Hollywood machine are not about making art, it's about making money. The main goal is to make money, not art. Hollywood produces movies because they make money. It's a large economy. In that sense, you could argue that you're not really an artist, but an employee fulfilling a specific task for a specific goal.

I like your question because I've found myself in situations where I was working on something I didn't like visually, or I didn't like the idea behind it, or the people I was working with. Not every team gets along. There's a lot of politics and personalities involved. When I do something, I don't enjoy, I imagine what I could be doing instead, which makes it worse for me. So, yes and no. Sometimes you can feel like you're selling your soul, but it helps to take a step back and ask yourself if making money is a valid reason for doing it.

One of the only things I regret in my career is working for free. Unless it's something you really want to be a part of, never work for free. People often promise future paid work, but once you work for cheap or free, they expect it again. A tip I got recently is to say, "I'll do the third one for half price. Pay me my fee now and next time. If you come to me a third time, pay me half price." I haven't tried it yet, but I'm keeping it in mind.

Working for free costs you time and money for something that wasn't yours. I felt like I sold my soul when I worked for free, spending time and money on something I didn't own, just because I felt I had to or was maneuvered into that position.

Q: I have a question for Nicoleta. When you work with people who don't understand how much time, work, and skill goes into VFX, especially directors or production people, how do you explain that complicated CGI shows aren't possible within a short timeframe? At this school, there's a high demand for VFX, and I had the same issue before I got involved. How do you explain the limits to production people and directors?
Nikoleta: When I started in VFX production, I didn't have much technical knowledge. Animators appreciated that I brought them coffee, sat next to them, and watched their work. To explain to someone, it helps to see it with your own eyes. Patience goes a long way, but at some point, you must draw a line. If someone doesn't understand the time and resources needed, you'll always have the same fight. Initially, try to have those conversations. Seeing artists' work helped me understand the effort involved. If someone isn't working with you, it will always be a struggle.

Q: Is it something you see that disappear in this progression that was like good, but because of this progress that everything is faster, better online, it's not so good?
Pieter: It's a double-edged sword because there are things you can do now in seconds that would take days before. However, there's a kind of complacency and impatience, especially in people entering the industry. They expect tools to work fast and do everything for them, leading to a lack of progression and carelessness.

Q: Do you have some tips and tricks to avoid this conversation as an artist with a supervisor who is trying to, you know, like because of this 1000 version that is extremely difficult?
Nikoleta: It's extremely difficult, especially in large VFX houses. The supervisor is in charge, and their style can be different. A good barometer is your teammates. If you feel like you're going endlessly back and forth, check in with your teammates to see if they have the same experience. Managing your own supervisor doesn't really work unless you build a level of trust with them.

Q: Would you suggest young professionals to be a big fish in a small pond rather than go to ILM and do roto for 10 years?
Pieter: It depends on the person. Some people are happy doing specialized tasks for years, while others want to get their hands dirty in more things. If you want to do more varied work, you might need the right project or get involved in different projects in your own time. There's no magic path; it depends on where you see your creativity.

Q: When you work with people who do not understand how much time, work, and skill goes into VFX, how would you explain that doing some complicated CGI shots is not possible within a short timeframe?
Nikoleta: Communication is key. It's important to voice concerns and explain the time and resources needed for certain tasks. Providing alternatives or breaking down the process can help others understand the limitations. It's better to address these issues early on rather than struggling to meet unrealistic expectations.

Q: Do you think the approach of making money rather than art is what affects the quality of Marvel films?
Pieter: It's a balance. While making money is a primary goal, it doesn't mean there's no artistry involved. However, the emphasis on profitability can lead to a lack of creativity and innovation. The numbers show that Marvel movies are not as profitable or exciting as they used to be, indicating that the focus on making money might be affecting the quality.

Q: Could you suggest something that could be done to like to reveal the drama back from the point that they are now?
Pieter: No, we can't do anything. Maybe after another cycle, you believe them if they die, and they die and stay dead.

Q: Could you suggest a solution for this universe? Like say you returned half of the heroes from the dead. Could you suggest something that could be done to reveal the drama back from the point that they are now?
Pieter: I'm not the right person to ask that question. Also, I didn't grow up in American comic book culture, so I don't really have enough familiarity with the whole universe to begin with. But I'd say for the time being, as long as it makes money, they'll keep making them, which is fine.

Q: Would you say maybe it's a bit of a studio's fault as well?
Pieter: I've seen amazing directors who have proven that they are incredibly creative. But they maybe happen to work with a studio who, if there's a problem, just throw money at it. Even the director then just kind of becomes, you know, there's no drive to come up with different things. If I know that they'll just give me more money if I want to do 300 versions of a shot because I can't make up my mind, it doesn't matter because they'll extend the schedule by 6 months.

Q: Could you suggest something that could be done to like to reveal the drama back from the point that they are now?
Pieter: No, we can't do anything. Maybe after another cycle, you believe them if they die, and they die and stay dead.

Q: We see huge progression from when you had to wait 3 hours to go to the cinema to now when everything is online. Is there something you see disappearing in this progression that was good, but now, because everything is faster and better online, it's not so good?
Pieter: It's a double-edged sword. There are things you can do now in seconds that used to take days. However, there's an inherent complacency, especially in people entering the industry. There's impatience and an expectation that tools will do everything quickly. People often use render farms carelessly, making many versions without much progression. This can lead to a loss of creativity and efficiency. With AI, people might run iterations hundreds of times instead of learning to craft a proper prompt, turning it into a lottery rather than working towards a goal.

Q: You mentioned two types of supervisors: one who gives specific advice on what to focus on and another who critiques every part of the image. Do you have tips for dealing with a supervisor who makes you do 1000 versions?
Nikoleta: It's difficult, especially in large VFX houses where the supervisor's style is set. A good way to gauge this is by checking in with your teammates to see if they have the same experience. If it doesn't work out, you can ask to work on a different project. Managing your supervisor is challenging unless you build a level of trust where you can discuss these issues. It's easier with confident and knowledgeable supervisors who are willing to teach.

Q: Would you suggest young professionals be a big fish in a small pond rather than go to a big company and do roto for 10 years?
Pieter: It depends on the person. Some are happy doing specialized work for years, and that's great if it suits them. If you want to get involved in more aspects of the work, you might need the right project or to engage in different projects on your own time. There's no magic path. I started as a generalist and still consider myself one. I love smaller, creative projects. The projects I'm most proud of are those I'm happy to show others. Creativity can be found in both artistic and technological aspects. If you want to be creative in technology, big VFX houses might not be the best fit due to their rigid pipelines.

Q: Just to give a big thanks to Peter. I discovered you made one of the funniest explosion scenes in "The Triplets of Belleville." That scene is one of the funniest in the history of cinema. I love that film and was happy to learn you had a role in it. Fantastic work.
Pieter: Thank you! That shot was crucial in my relationship with Sylvain because it took a long time to render. He had never seen a result he liked until that version, which saved the production from missing a deadline. Working with VFX in realistic images can sometimes be easier than combining different technologies in animation.

CONFERENCE CONTRIBUTION - 7, Appendix 1

BASICS FOR IMAGE COMPOSITION IN SPHERICAL PROJECTION

ANTON SZOMOLÁNYI, *university teacher, head of the Institute of Media Design, Faculty of Mass Media PEVŠ. SLOVAKIA.*

Alternative: Creation of a communication form for spherical 360-degree projections in the creation of a popular-educational documentary film with an emphasis on non-traditional communication procedures.

Abstract

Every innovative technique of graphic presentation inevitably leads to further development of our visual intelligence, which can be supported throughout life thanks to the elasticity of brain structures. Spherical 360° projections require new forms, in both content and dramaturgy, and are constantly open for engaging projects. In our research, we focused on the investigation of the system of shooting a popular scientific documentary for spherical projections regarding the creation of acceptable compositional forms for this type of projection. In the text, we will discuss the practical research of filming in a spherical cinema with a focus on the pre-camera statement. We will try to establish recommendations for potential creators regarding filming technology and methods of creating a unique composition for this type of projection considering the low-budget production of a popular educational documentary for spherical projection.

Keywords:

Spherical composition, 360° filming, fulldome, composition line, interview.

Introduction:

The audiovisual work brings the viewer into a state of communication with the projected image. His perception is psychosensory. Sensory perception is basically just physical reception of image and sound without emotional and memory invention. An audiovisual recording creates an illusion of a new reality on the projection surface. We can experience the extreme forms of this illusion in the 360° spherical projection, which is known from the past as planetarium projection. Until recently, only projections of space themes were presented in planetariums. Recent developments show that many planetariums, which until now had a somewhat "dusty" coating, are suitable, in addition to traditional "space" themes, for new entertainment and other genres of educational formats, such as open compositions for example fulldome shows, or popular educational films educating in science and research. In many cases, an "old" star projector supplemented with fulldome technology will expand the use of planetariums. Spherical projections are equipped with modern technology, allowing them to bring new experiences in unprecedented presentational possibilities. However, the technical development of recent decades is still opening completely different ways of using the 360° space. It doesn't have to be a planetarium, but the 360° space itself - either as a dome, a cube or as a completely normal room. The novelty is the domes, which are mobile and therefore offer mobile places for playing 360° content. People do not have to sit in a 360° presentation, but in some installations, they can move and become a participant in the projection, become an actor and help to shape the projection. The peculiarity is that 360° development includes interdisciplinary work. Creators of 360° fulldome projections come from various fields and professions - screenwriters, film and game producers, designers, scientists, educators, software marketers, hardware manufacturers, sound engineers and other technical and artistic and creative industries.

The goal that the creators want to achieve with 360° productions is the creation of immersive experiences. Immersion in a fulldome projection can be described as "immersion into the virtual world using all of one's senses". The viewer who visits the projection perceives the content that remains in his subconscious as a long-term experience.[6] Educational projects in spherical projections are of great importance thanks to their presentational uniqueness and inimitability in

[6] SCHRÖDER, Gordian Overschmidt Ute B. *Fullspace-Projektion, Mit dem 360°lab zum Holodeck.* Berlin,: © Springer-Verlag Berlin Heidelberg, 2013. p. 375. ISBN 978-3-642-24655-5.

other forms of audiovisual creation. For these reasons, it is appropriate to deal with the aspects of content creation for this form of audiovisual presentation.
As a result of new technologies and a modern approach to education, hundreds of such projections are created in the world. Therefore, it is appropriate to deal with the creation of specific genres according to the demand for mainly educational programs, as historically planetariums are understood mainly as educational centers.
The spherical dome has been considered the perfect projection surface since the 20s of the 20th centuries, and at the same time in recent years it has become an extraordinary space because the viewer will experience visual 360° worlds in a completely different and immersive experience, which is irreplaceable by any classic surface projection with a limited projection format. Spherical projections are used as experimental laboratories for the presentation of art, culture and science. A classical (original) application of spherical projection is a planetarium. This is the usual presentation structure that is specific to a given single-purpose presentation intent. Modern projection and sound technology expand the use of the presented content. In this text we discuss how to create these contents so that they are as intense as possible, furthermore we mainly examine the possibilities of basic composing for a popular-educational documentary film.

The visitor sits slightly tilted upwards, and this allows him a view of the "sky". However, this is only a very simplified description of the function of a spherical cinema. In any case, it offers access to new experiences. What are the sensory-physiological and cognitive requirements for 360° productions and what new informational potential can they contain? With every single project, it is necessary to find answers to basic questions, how people perceive the visual composition of space in a fulldome environment and what affects the process of vision formation in the design of immersive 360° productions.

The difference brought by spherical projection is that the viewer is brought to the “stage”, they are becoming part of the projection space. The observer becomes an active designer of the project within his imagination. With his observational activity, often also physical – by moving his head, he selects compositional artifacts and composes his own content from them. However, this requires that the image and sound systems are comprehensible. The perception of space regarding the physiological preconditions of the viewer should be coordinated in such a way as to create new narrative structures that the viewer is able to perceive regarding the author's intention. Here we come to the fact that the forms of classical film language, which works mainly in a limited rectangular format, do not work.
In spherical projections, they are often presented from traditional movie format. For some genres, this is acceptable - such as pictures of underwater life, but the standard film, in which people appear, is transferred with only very dubious results.

Definition of fulldome projection

Audiovisual projection without a clearly defined format of the image field, bringing the viewer, who is in the projection stage, into the full projection space.
Historically, the dome was a space for spirituality, protection, connection between outside and inside, heaven and earth. It also served as a presentation of power and influence. At the same time, the dome has always represented an architectural challenge that inspired new technical solutions. Projections in the dome also require further development and completely new approaches, such as abandoning the central perspective, expanding the viewer's spatial experience and new forms of receiving information.[7]

Starting points for shooting spherical films

We experimentally verified the possibilities of shooting a documentary using a classic camera with a 4:3 sensor format. We shot in the 3:4 format with maximum use of the sensor area. Anyhow, there is a big loss of resolution, because we only use the circular slice from the 3:4 format. Nonetheless, the use of this technology is less demanding in terms of production. However, it is optimal to shoot with 360-degree cameras, which will bring an adequate resolution. In the case of an experimental spherical surface, it is possible to use up to 12K in a circular section - we used the Unisphere at the Physics Institute of the Silesian University in Opava /Czech Republic/ to check the footage. The projection itself has a section of the spherical surface of 170° and is tilted forward with respect to the direction of observation at an angle of 4°. With this type of projection, it is necessary to see that the observer perceives the image without any format

[7] SCHRÖDER, Gordian Overschmidt Ute B. *Fullspace-Projektion, Mit dem 360°lab zum Holodeck.* Berlin,: © Springer-Verlag Berlin Heidelberg, 2013. p. 375. ISBN 978-3-642-24655-5.

restrictions and feels as if he was on the set of the scene, or directly in the scene. The legibility of the details of the screen is completely natural for him.
When building the basis for shooting a thematically classical document, we assumed that full details of the image structure are not always desirable. For example, we do not want to see the cosmetic flaws of the face during the in-camera testimony. High resolution is like a microscope on one's face. We also tried to find a financially inexpensive production optimum, so that we could film the statements with a traditional camera with a standard creative approach - what you see is also what you get in spherical projection. For visually interesting and surprising shots for the viewer, it is also possible to film with a 360° camera, for example: Insta360 Titan. However, they are incomparably more time-consuming both during production and post-production.

The film itself has its own specifics regarding the full camera coverage of almost the entire space. It is necessary to lie under the camera, or hide in an object on the scene, because the camera takes up almost the entire space and it is not desirable to see the camera operator, crew members, or the technician behind the camera. In the case of a documentary testimony, where the editor is not visible as a result, but his presence during the interview is necessary for asking questions and fixing the subject's gaze in front of the camera, the latter must "hide" under the optical image of the camera.

What seems distorted in the case of a classical screen in a wide-angle view, in the case of a spherical projection, this distortion disappears, and the objects become natural. We were looking for a suitable lens angle for shooting regarding the so-called standard viewing angle. For a classic full frame, it is a lens with a focal length of 50 mm. For our experiment with the 4:3 format, the result was a lens with a focal length of 3.5 mm - a fisheye with a 210-degree angle of view. The projection is a 170° section of the sphere. We had to cut out the edges of the frame in post-production, as the poor quality of the lens is reflected in the edges of the frame. In this way, we obtained an optimal display in the projection without visible distortion. The fisheye lens, which was originally intended only for effect shots in standard shooting, is the basic lens in the case of spherical shooting. It captures an image that requires almost no adjustments for transfer to spherical projection. We arrived at this experimentally /not by mathematical calculation/ with the use of the dominant image field at the edge of the shot. During the research, we tried 18 types of wide-angle lenses. All other lenses with a longer focal length give an image that needs to be adjusted in post-production, at least by adding distortion - bending it into a spherical surface and creating a circular cutout from the full image.

Investigating the compositional optimum for a sphere

In classical film composition, the guiding lines of the division of the image into three sections, or the lines of the golden section, are used. In the case of fulldome projection, it is important for the project to determine these lines for the image form to be readable. It is not the intention of this research to determine the rules for art, but to look for a conventional compositional tool from which the creator of the image can reflect or accept it on a compositional basis. The technical, content and dramaturgical potential of 360° projections opens an experimental space in which we can create more realistic and fantastic worlds by breaking such conventions, by creating an exclusive form for the specific projection. We can solve more complex communication problems than with all known audiovisual media. Through an elaborate communication form unique to a specific work in a spherical projection, we get an illustrative expressive system. As a result, the processing of its spatial and visual data in the brain can be much closer to the observer's perception than in other available standard image formats.

Dominant compositional places for active perception

In the spherical projection, the format does not seem to exist. The image fills in the entire field of view of the observer. If we were to classically place objects in the entire sphere, for example in a third division, we would get compositional and content confusion.

It is necessary to distinguish central vision, on which the eye is fixed, from peripheral vision. Central or direct vision is provided by the function of the macula, while peripheral vision or indirect vision is provided by the function of the entire retina outside of the macula. In the area of the yellow spot is the largest concentration of sensory cells - cones on the retina. Towards the periphery, the number of rods continues to increase, and the retina differentiates the details of objects less and less. The periphery is not used for sharp vision, but mainly for orientation in space and for distinguishing contours. The cooperation between the center and the periphery is smooth with continuous changes in lighting. The

periphery of the retina is always ready to react to external stimuli. Central vision can also sometimes be less attentive, so at times it can happen that we look at things without seeing them.[8]
And that's why, for composing in spherical projection, we set the basic division of the image area into:

a) informational part – in the direct field of vision
b) experiential part - peripheral
c) unseen part - outside the field of vision

We chose this division specifically for the perception of spherical projection and it is based on the physiological properties of the eye.

a) In the informational area or part of the shot, there is a sort of optimum for the viewer's observation. In tests, this appeared just above the bottom edge of the image in the front of the sphere at a viewing angle of about 90 degrees in the horizontal direction. **Placing the dominant objects above the lower edge represents a compositional optimum in a spherical projection,** in which the viewer does not have to exert a lot of effort. In a classical film, it is an intervention in the so-called security territory, which is not considered at all in compositional activity. In this case, it turned out to be optimal for composing, which we can compare with the classic placement of the object in the line of the upper third of the image field.

b) The experiential part represents a space for peripheral vision, which orients the viewer in the space where the story takes place. As a result of dynamic changes, this space can become an informative or invisible part of the projection, mainly through dynamic changes – the movement of objects on the projection surface and the compositional guidance of the viewer.

c) The invisible part of the projection represents the part that the viewer cannot see at the given moment regarding his current perception of the informational and peripheral part. However, it is up to the viewer to decide which part of the spherical projection is invisible at that moment.

However, the standard viewing angle of 90 degrees – the angle of the basic lens above the lower edge of the sphere, is disadvantageous and very static for the cut of dominant objects in this projection. When shooting, it is necessary to consider the fact that the observer is also physically active and turns his head to the sides.

In the case of spherical projection, it is also necessary to look for a binding shot difference, but with the absence of, for example, semi-detail. Here we start with the basic compositional rule for editing, that two shots that are as different as possible are best connected to each other. This compositional principle of mutual connections of two successive shots is called the principle of compositional opacity.

Fulldome projection is a projection of the whole. For narrow shots, we must create a specific language for the given project, which the viewer will believe and accept as a new visual reality.

In the case of pre-camera narration, we can place the subjects in detail or semi-detail above the lower edge of the projection surface, while the projection is full of the space in which we are filming. In the case of the interior, we see the ceiling and the opposite walls. In the plot, we tried to connect several characters to each other by cutting, while we used the difference in the right-left orientation and possibly also the different sizes of the characters.

For close-up, the top of the sphere turned out to be optimal, where we could afford to show details with the least distortion - for example, shots of insects. We then tried to adjust the lower part of the image with the distortion tool to achieve a minimum of observable distortion.

[8] SCHRÖDER, Gordian Overschmidt Ute B. *Fullspace-Projektion, Mit dem 360°lab zum Holodeck.* Berlin,: © Springer-Verlag Berlin Heidelberg, 2013. p. 375. ISBN 978-3-642-24655-5.

When creating a film work as a communication unit intended for spherical projection, we must, just as in classical cinematography, create an image form - a specific compositional language for the given work. But here we don't have "frame edges" and simple resizing of frames.

Spherical projection is specific in that it lacks the perception of frame boundaries. The viewer can investigate almost the entire captured space. It is difficult or almost impossible to determine universal guidelines, such as three division lines, diagonal division lines, and the like. However, the creator should create a readable communication system in the shot sequence in such a way that the individual shots connect to each other naturally, without perceptible editing. The creation of a compositional form for this type of projection is unique. The readability of the image without format boundaries is specific to this type of image projection. A compositional concept for the entire editing sequence is important to maintain editing continuity and inter-shot connections.

Figure 1: *Unisphere at the Physics Institute of the Silesian University in Opava (Czech Republic).*

Figure 2**:** *Editing workplace with a spherical monitor.*

Composition line

For these reasons, we tried to establish a composition aid, which we called the composition line.
The compositional line is an imaginary guiding line for reading the dominant elements in the information image field. The height of the composition line from the bottom of the projection surface of the sphere can be optimally placed in the space of the viewer's most comfortable view. On the composition line, we place the dominant objects in two consecutive shots in opposite compositional placement. For example, in the case of a statement in the first shot, if we compose the person on the right side and in the subsequent shot on the left side. The composition line helps us, for example, with placing the height of the eyes.

When we placed the composition line too high and the subject was still in semi-detail or close-up, the exposure looked unnatural. The subjects had a "massive to overwhelming" expression.

We worked with the composition line in such a way that, during filming, we created a border of the active image field on the display monitor, which represented the resulting image for the projection - it is a circle inside which everything that we get on the projection screen can be seen. What was visible from this circle is the space that will not be considered and will be cut off. In the case of the fisheye - ultra-wide-angle 3.5 mm lens, white artifacts or unacceptable distortion appeared in this part of the image, especially in the case of lights in the image. We drew a composition line in the active image field, which was an aid for the appropriate placement of the subjects. It should be borne in mind that when shooting in this part of the image, the subjects are very distorted by pressing from above. Even a small shift of the subject up or down on the monitor during shooting represents big differences in the shift in the resulting projection.

Basic camera position

We consider the basic position of the camera during a classical in-camera statement to be when the camera is at eye level. When shooting spherically, it is optimal for statements to also determine the basic location of the camera in relation to the subject, and thus also the optimal view of the subject in relation to the camera. By default, the subject of a documentary testimony does not look into the camera, but next to the camera. The activity of his expression is given by the distance of the view from the axis of the camera - the axis between the camera and the subject. During this recording, the camera is in an unnatural position. It "looks" up - we need the subject at the bottom edge of the circular image field. However, the optimum was to place the camera lens at eye level and tilt the camera so that the subject's eyes are placed on the composition line. With optimal tilting, we should get to the inclination of the projection - that means 4 degrees from the horizontal plane. Then we determine the size of the subject in the image field only by the distance of the camera from the subject. With such a statement, it is possible to compose the subjects centrally, because the movement of the camera from side to side in a horizontal position can also be converted in post-production. We rotate the image centrally in a circular section, and this is a simple trick without loss of image quality with minimal time consumption.

Conclusion

Creating an image composition for spherical projection is a broad term. In this text, we have addressed only a partial problem – the composition of the subjects during the pre-camera statement and their mutual editing links. Theoretical starting points for image creation in this area are unexplored and little published. We determined the basic division of the image field according to the possible activity of the viewer while watching the spherical projection, through research we created an aid that we called the composition line, we determined the basic position of the camera, and we gave an example of a possible practical filming of content in this specific image form using a classical recording camera intended for shooting in a rectangular format. In further research, it is necessary to focus on the editing composition regarding the alternation of the horizontal lines of the whole and the creation of a detail. During the research, we also encountered the issue of creating a light space. The camera takes up the entire space and there is nowhere to place light sources. Here, it is appropriate to use mainly scenic light sources in combination with HDR or shooting in a curve. It is also possible to use lenses with other viewing angles - long focal lengths, but it is necessary to research the optimal distortion for the believability of the views in the final work.

Figure 3: *Composing a statement per page in minimal compositional activity.*

The technical, content and dramaturgical potential of 360° projections opens an experimental space in which we can create more realistic and fantastic worlds, create and solve more complex display problems than with all previously known audiovisual media. Through the spherical projection of information, we get an illustrative language system that creates a new, irreplaceable experience in an intense immersive sensation.

Figure 4: *Statement composed in the middle, composition line at eye level.*

Figure 5: *A more emphatic composition of the pre-camera statement in half close-up, the composition line is higher.*

Figure 6,7,8: *360° workshop of students of three universities at the Faculty of Mass Media PEU in Bratislava as part of the KEGA 010VŠMU-4/2022 grant, 360° reality in the media space.*
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CONFERENCE CONTRIBUTION – 8, Appendix 2

TENDENTIOUS CREATOR VERSUS DIGITAL SOFTWARE, THE NEED FOR THE FOURTH CATEGORY

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Abstract

The CILECT conference in Beijing, China, focuses on Artificial Intelligence. Participants from 100 schools across 60 countries discuss the current advantages and disadvantages of AI. Following numerous insightful talks on its potential, artists advocate that technically proficient artists, who master computer tools, outperform script-focused creators. This raises the questions, "What is the relationship between digital software and the artist?", "Are the current three categories of evaluation of student works sufficient to capture the essence of their creative activity during their studies?".

Keywords

CILECT, education, quality, evaluation, FTF VŠMU, visual effects, game design.

Introduction

This paper discusses two main topics:
1. The relationship between software and creators.
2. The recognition of new forms of media art within the traditional media structure, proposing a fourth category.
To fully engage with these issues, we will establish a theoretical framework relevant to the discussion.

College and university film education in the world is covered by the organization *CILECT*.[9]
As of 2024, there are 186+ film, TV, and media schools from 63+ countries on 6 continents that are members of CILECT (The International Association of Film and Television Schools).[10]

- Teachers and Staff: Over 11 000
- Students Trained Annually: More than 90 000
- Alumni Network: Over 1 600 000

CILECT supports creativity, diversity, and sustainable development, aiming to promote the highest standards of education, research, and training in film, television, and related media.[11]

Figure 1: *Member film school CILECT.*

[9] https://cilect.org/
[10] https://cilect.org/members/
[11] Copilot: „CILECT."

CILECT: goals, strategies, and organizational structure

Goals and Strategies

CILECT's mission is to promote best practices in film, television, and related media education, research, and training. The main objectives and strategies include:

1. Excellence in Education: Creating and advancing the best possible media, television, and film education through regional and international platforms for sharing best practices in management, pedagogy, art, and methodology.
2. Creativity and Diversity: Promoting creativity, diversity, cross-cultural thinking, and sustainable development as essential preconditions for human advancement.
3. Networking and Collaboration: Facilitating professional and personal growth for students, teachers, and staff through workshops, conferences, symposia, festivals, and co-productions.
4. Curriculum Development: Ensuring member schools have access to a wide range of teaching materials and best practices through the exchange or joint development of curricular plans and programs.
5. Recognition and Awards: Recognizing and rewarding excellence in film, TV, and media pedagogy through various awards, including the CILECT Prize and the Teaching Award.

Figure 2: *The CILECT conference in Beijing, China.*

Organizational Structure

CILECT's organizational structure is designed to support its goals and strategies effectively:

1. General Assembly: The highest decision-making body, consisting of representatives from all schools. It meets annually to discuss and decide on major issues and policies.
2. Executive Council: A smaller group elected by the General Assembly, responsible for implementing decisions and managing the day-to-day operations of CILECT
3. Regional Associations: CILECT is divided into five regional associations to facilitate more focused and localized activities:
    - GEECT *(Groupement Européen des Ecoles de Cinéma et de Télévision)*
    - CAPA *(CILECT Asia-Pacific Association)*
    - CARA *(CILECT Africa Regional Association)*
    - CIBA *(CILECT Ibero-American Association)*
    - NAFSA *(North American Film Schools Association)*
4. Committees and Working Groups: Various committees and working groups focus on specific areas such as curriculum development, research, and awards.

This structure ensures that CILECT can effectively support its member schools and achieve its mission of promoting excellence in film, television, and media education.[12]

CILECT's system for evaluating and awarding the best films

Awards for Best Films

[12] Copilot: „CILECT: Goals, Strategies, and Organizational Structure. “

The CILECT Prize is awarded in three categories: Fiction, Documentary, and Animation. The winners are announced at the annual CILECT Congress, where the films are screened, and the teams are invited to meet the CILECT teaching community.

Evaluation Process

CILECT evaluates student films through a structured and comprehensive process:

1. Submission: Member schools submit their best student films in three categories: fiction, documentary, and animation. Each school can submit one film per category.
2. Pre-selection: A pre-selection committee, composed of experienced educators and industry professionals, reviews all submissions to ensure they meet the competition's standards and criteria.
3. Screening and Voting: The selected films are then made available for screening to all CILECT member schools. Over 30,000 students and teachers participate in this process, watching films and casting their votes.
4. Scoring: Films are scored based on various criteria, including storytelling, technical execution, creativity, and overall impact. The scores from all participating schools are aggregated to determine the winners.

Categories of Awards

- Fiction: Recognizes excellence in narrative storytelling and production.
- Documentary: Honors outstanding documentary filmmaking that provides insightful and impactful perspectives.
- Animation: Celebrates creativity and technical skills in animated films.

Figure 3,4: *Award-winning filmmakers in the category of animated film and feature film. The CILECT conference in Beijing, China, 2024.*

Impact on the Awards

Winning the CILECT Prize is a significant achievement for students and schools, providing international recognition and opportunities for networking and collaboration. The awarded films are often used as exemplary teaching materials within the CILECT network, showcasing high standards of student work.

This system ensures a fair and thorough evaluation of student films, promoting excellence and innovation in film and media education.[13]

GEECT: member countries, schools, and organizational structure

Member Countries and Schools

GEECT *(Groupement Européen des Ecoles de Cinéma et de Télévision)* is the European regional association within CILECT. As of 2024, GEECT includes over 90 member schools from 30+ countries across Europe.

Organizational Structure

GEECT's organizational structure is designed to support its mission of promoting excellence in film and television education across Europe. Here is an overview:

1. General Assembly: The highest decision-making body, consisting of representatives from all schools. It meets annually to discuss and decide on major issues and policies.

[13] Copilot: „CILECT's System for Evaluating and Awarding the Best Films. “

2. Executive Committee: Elected by the General Assembly, this committee is responsible for implementing decisions and managing the day-to-day operations of GEECT. It includes a President, Vice-President, Treasurer, and other members as needed.
3. Working Groups and Committees: Various working groups and committees focus on specific areas such as curriculum development, research, and events. These groups ensure that GEECT can address the diverse needs of its members of schools effectively.
4. Regional Representatives: Representatives from different regions within Europe ensure that the unique needs and perspectives of various areas are considered in GEECT's activities and decisions.

This structure allows GEECT to facilitate collaboration, share best practices, and support the professional development of students, teachers, and staff across its member schools.[14]

Figure 5: *Some CILECT member film schools from the European GEECT group.*

Representation of Slovakia in GEECT

The current representative of Slovakia in GEECT is the ***Academy of Performing Arts in Bratislava (VŠMU)***. VŠMU is an active member of GEECT and regularly participates in various activities and programs organized by this European regional association.

Benefits of GEECT Membership for Slovakia

Membership in GEECT offers several advantages to Slovak schools and their students:

1. International Collaboration: Opportunities to engage in international projects, exchange programs, and co-productions.
2. Access to Best Practices: Sharing the latest pedagogical methods and teaching materials.
3. Networking and Professional Development: Participation in workshops, conferences, and symposia.
4. Support for Creativity and Diversity: Presenting unique perspectives and approaches.
5. Recognition and Awards: The chance to compete for prestigious awards such as the CILECT Prize.[15]

2024 CILECT Congress on artificial intelligence in Beijing

Overview

The 2024 CILECT Congress, themed "Artificial Intelligence and Film Education," was held at the Communication University of China in Beijing from October 21st to 25th. The event brought together leaders from over 100 film schools across more than 50 countries and 6 continents.

Participants

- Number of Participants: Over 100 film schools.

[14] Copilot: „GEECT: Member Countries, Schools, and Organizational Structure. “
[15] Copilot: „Representation of Slovakia in GEECT. “

- Countries Represented: More than 50.
- Continents Represented: 6.

Abstract of the Event

The congress provided a vital platform for knowledge exchange, networking, and the sharing of diverse perspectives on the challenges and opportunities presented by AI in film education. The event included a program of three days of talks, discussions, seminars, and workshops, plus an awards ceremony. It also featured a cultural trip to the Forbidden City and a day dedicated to CILECT business.

Program and Lectures

DAY 1:

- Opening Ceremony: Welcome by Professor Yu Ran.

Figure 6: *2024 AI Congress in Beijing. Opening Ceremony.*

- Screenings and Introductions: Showcasing student films and projects.

Figure 7: *2024 AI Congress in Beijing. Screenings and Introductions.*

Figure 8: *The 2024 CILECT Congress, reception.*

DAY 2:

- Keynote Presentation: Shaozheng Qin from Beijing Normal University on using AI to read human expressions for filmmaking.

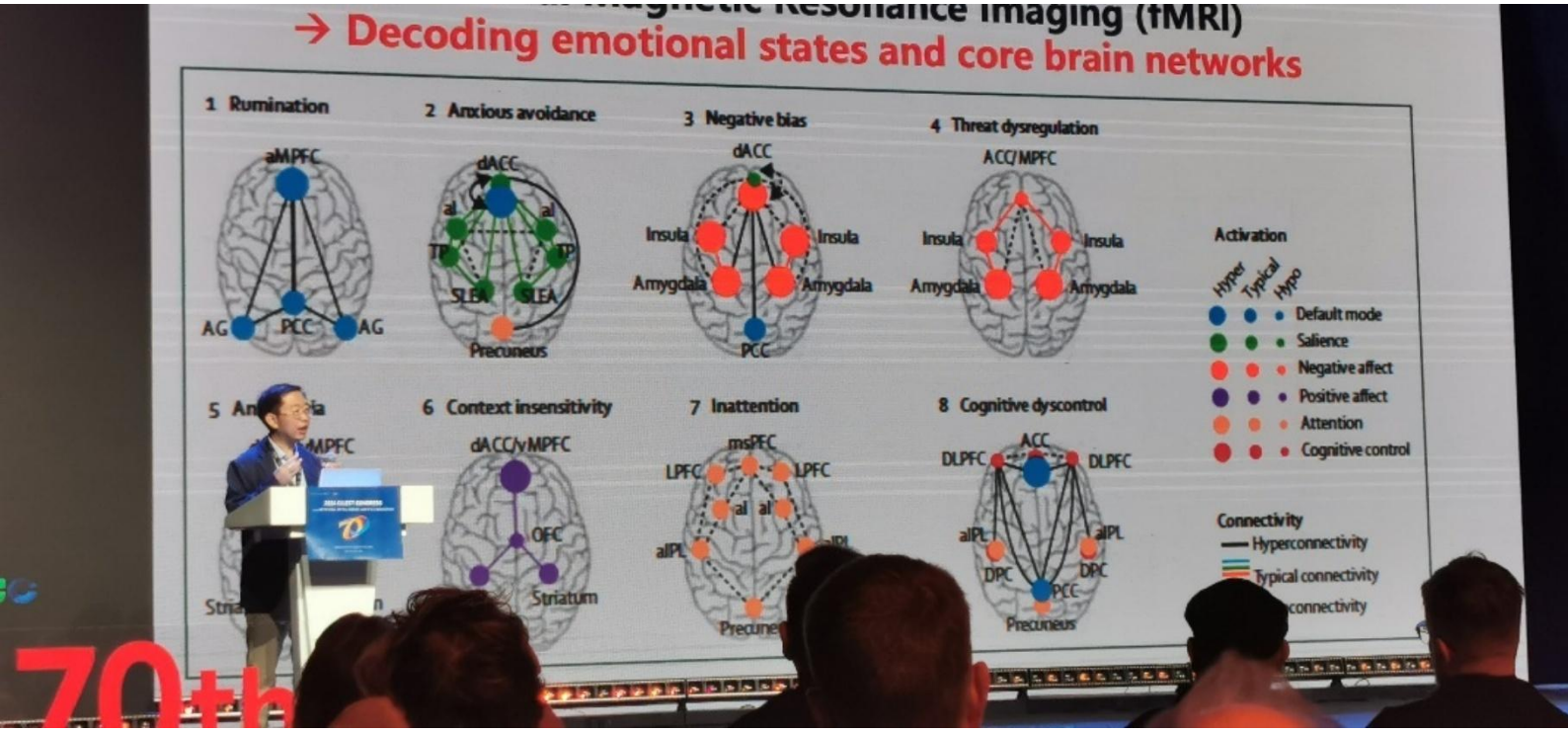


Figure 9: *Presentation: Shaozheng Qin from Beijing.*

- Panel Discussion: International film tutors discussed AI as a phenomenon, including historical perspectives and current applications.

DAY 3:

Figure 10: *Panel Discussion.*

- Presentation: Stine Helen Pettersen from Ræder Bing Law Firm on media, copyright, and contract law related to AI.

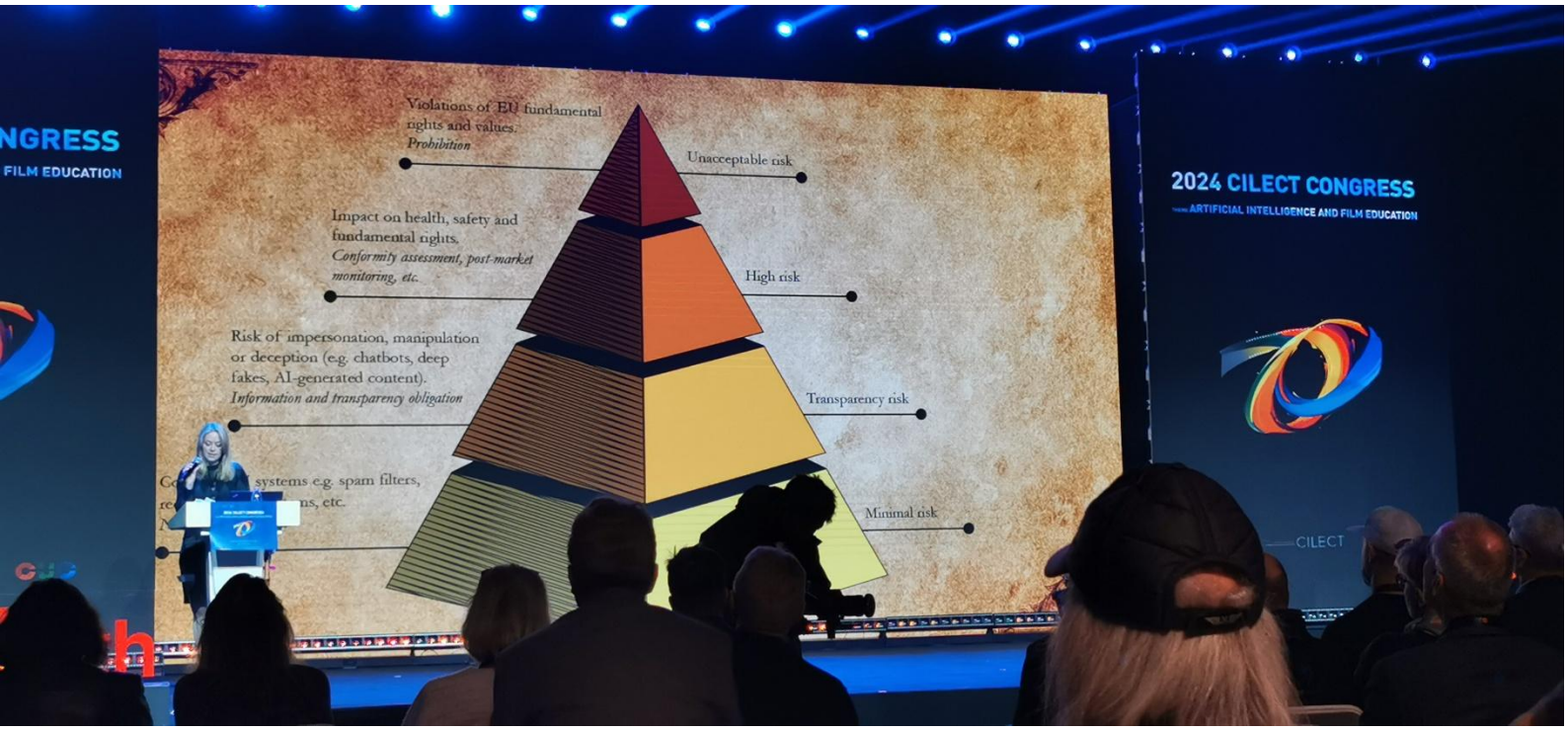


Figure 11: *Stine Helen Pettersen from Ræder Bing Law Firm on media, copyright, and contract law related to AI.*

- Workshops: Topics included AI in storyboarding, screenwriting, and film archives, as well as ethical considerations and the financial implications of AI technology.

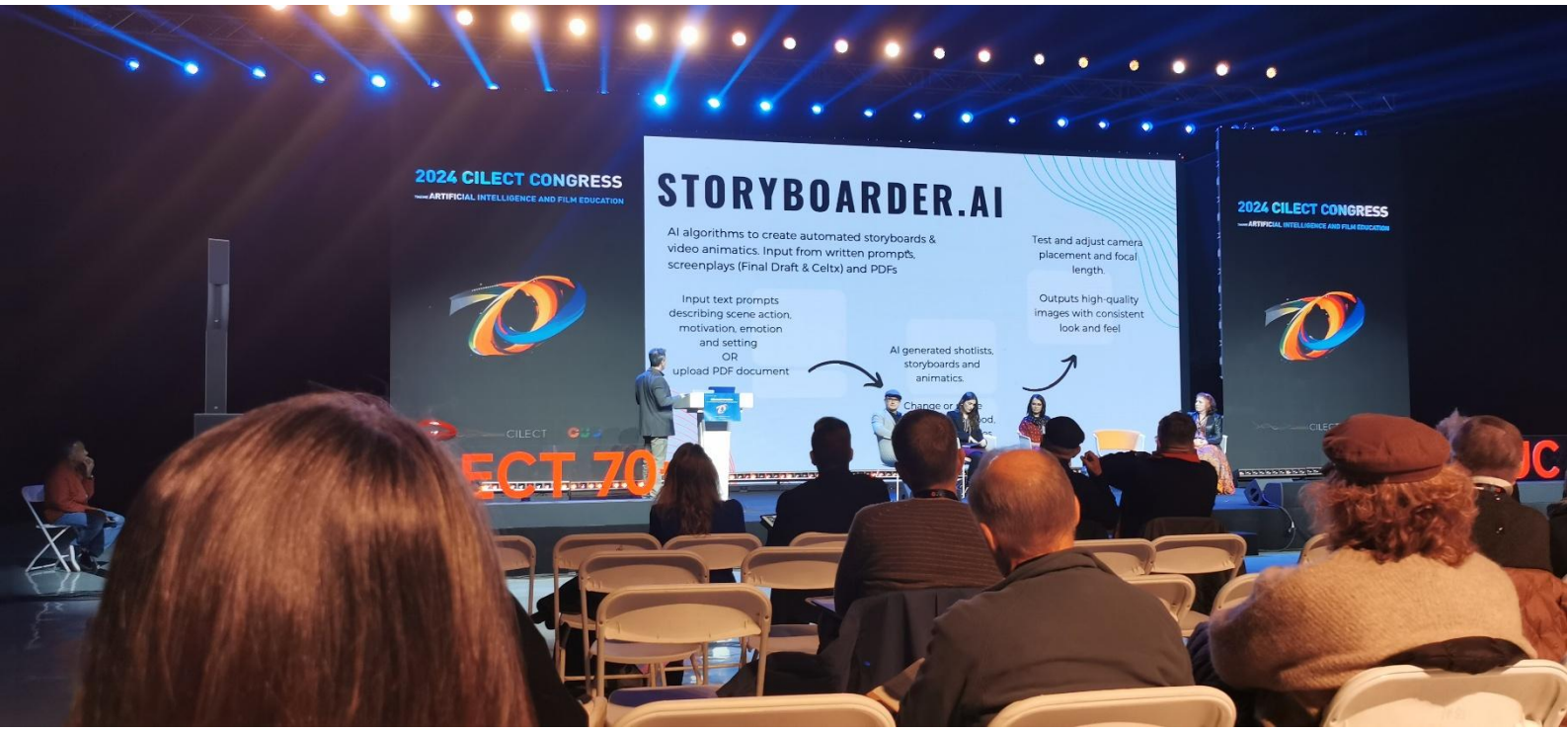


Figure 12: *Storyboarder AI.*

DAY 4:

- Cultural Trip: Visit to the Forbidden City.

Figure 13,14: *Cultural Trip: Visit to the Forbidden City.*

- CILECT Business: Voting on reports, organizational policies, and the appointment of new roles.

DAY 5:

Final Discussions and Summarizing the Congress

- Morning Session: The day began with a series of final discussions where participants summarized the key takeaways from the congress. This session provided an opportunity for attendees to reflect on the insights gained over the past few days and discuss how these could be applied in their respective institutions.

Figure 15: *The 2024 CILECT Congress. final discussions.*

Figure 16: *Manuel José Damásio was elected to president of CILECT while Barry Dignam was elected to the executive council and to GEECT regional chair, the European chapter of CILECT.*

Planning Future Initiatives

- Strategic Planning: Attendees engaged in strategic planning sessions to outline future initiatives and collaborations. This included setting goals for the next year, identifying potential projects, and discussing ways to enhance cooperation among member schools.
- Workshops: Interactive workshops were conducted to brainstorm and develop concrete plans for implementing AI technologies in film education. These workshops facilitated hands-on learning and collaboration among participants.

Awards Ceremony

- CILECT Prize: The highlight of the day was the awards ceremony, where the winners of the CILECT Prize were announced. Awards were given in three categories: fiction, documentary, and animation. The winning films were screened, and the teams were invited to present their work and share their experiences.
- Teaching Award: The ceremony also included the presentation of the CILECT Teaching Award, recognizing outstanding contributions to film and media education. This award celebrated educators who have made significant impacts in their fields.

Networking and Closing Remarks

- Networking Session: The day concluded with a networking session, allowing participants to connect with peers, discuss potential collaborations, and build professional relationships.
- Closing Remarks: The congress ended with closing remarks from the organizers, summarizing the achievements of the event and expressing gratitude to all participants for their contributions.

Key Takeaways

- AI in Education: Discussions on integrating AI into film education, including its benefits and challenges.
- Ethical and Legal Considerations: Addressing the implications of AI on copyright and media law.
- Global Collaboration: Emphasizing the importance of international cooperation in navigating the evolving landscape of AI in creative education.

1. Software and Creator Issues

Two significant occurrences for the Academy of Performing Arts' FTF occurred on the fifth day of the conference during the Final Discussions: Summarizing the Congress and Planning Future Initiatives program. This essay would like to address these events.

The following queries and factors were brought up in one of the panel discussions:

"What does digital software mean to its storytelling user?"
"Does the software favor the capabilities of its user over the non-user?"

These questions have piqued interest, and the conversation generally comes from the viewpoint of those artists who feel like they deserve to be considered artists because they have produced products that are accepted by society, but

who have never felt the need or desire to become proficient with computer software. With the ongoing development of innovative technological tools, including artificial intelligence today, the necessity to clarify the link between the creator and the program is growing.

"Is creative AI a tool, or is AI a creator and author?"
"Can AI replace humans and relegate them to the role of user and viewer now, in a short time, or in the future?"
"Does it make sense to protest, strike and protect your non-digital creative abilities acquired through a long study process in the face of a direct threat to AI using the whole range of such endlessly attractive possibilities of thought and visual creation?"

"Is creative AI merely a tool, or can it be considered a creator and author? Can it recognize and replicate human emotions?"
Though opinions on the matter differ, all considerations based on historical analogies suggest that AI is a formidable foe of humans. Let's look at a chess example.

History of Human vs. Computer Chess
The history of human vs. computer chess spans several decades, marked by significant milestones and technological advancements.
Early Beginnings

- 1956: The first computer to defeat a human in a chess-like game was MANIAC, developed at Los Alamos Scientific Laboratory. It played with simplified rules and defeated a novice in 23 moves.
- 1966-1968: Mac Hack VI, developed by MIT student Richard Greenblatt, became the first computer to win a game in a human tournament, achieving a rating of 1529.

Progress in the 1970s and 1980s

- 1970s: Programs like Chess 4.5 and Chess 4.6 began to show competitive strength, winning human tournaments and achieving ratings over 2000.
- 1981: Cray Blitz became the first computer to gain a master rating by winning the Mississippi State Championship.
- 1988: HiTech won the Pennsylvania State Chess Championship, defeating an International Master.

The Rise of Deep Blue

- 1996: IBM's Deep Blue made history by defeating World Chess Champion Garry Kasparov in a single game, marking the first time a computer had beaten a human champion in a formal match.
- 1997: In a rematch, Deep Blue defeated Kasparov in a six-game match, winning 3.5-2.5. This event was a landmark moment, showcasing the potential of artificial intelligence in chess.

Continued Advancements

- 2002-2003: Chess programs running on commercially available computers drew matches against top human players, demonstrating significant progress.
- 2005-2006: Programs like Fritz and Deep Fritz defeated World Champion Vladimir Kramnik, marking the last major human-computer matches.

Modern Era

- 2010s-Present: Chess engines like Stockfish and Komodo have become significantly stronger than human players, often winning matches even with material or time odds.

These engines run on commercial hardware, including mobile phones, and continue to dominate the chess world.
Key Matches and Tournaments

- Harvard Cup (1989-1995): A series of man vs. machine challenges where humans generally scored higher
- Aegon Man-Machine Tournaments (1986-1997): Annual tournaments in the Netherlands where humans and computers competed in a Swiss format.[16]

In addition to revolutionizing the game, computer chess' development has yielded important insights into machine learning and artificial intelligence. Chess engines are now essential resources for players of all skill levels, providing teaching, amusement, and analysis.

[16] Copilot: „What is the history of human versus computer chess. “

It was widely believed in 2000 that a computer could not create a chess move that it had not seen a human perform before. In the field of human chess competition, we now mock this notion and search for the most exact rules that guarantee the fight's accuracy. A person loses terribly and never wins again in the human-computer competition discipline.

What does this analogy tell us?
When considering the structure and style of a film, the author of the 2013 monograph Dramaturgy of Editing Composition stated that he believes the time will come when artificial intelligence would surpass humans in writing scripts. Many opponents have claimed that because scriptwriting allows for an infinite number of different inputs, this is not feasible. These days, such assertions are not quite certain of their stance and adopt a protective stance toward artists who, in their uniqueness, once felt indispensable. AI cannot feel, according to skeptics.

Emotion and AI

Is it possible for AI to identify emotions? AI's detractors firmly believe that as AI is incapable of feeling emotions, it cannot produce their hues. Although the following example is eight years old, it provides clear proof of the computer's capacity to recognize and appropriately apply emotions.

A novel request was made to IBM in 2016 to see if their AI, Watson, could edit a horror movie trailer. The movie "Morgan," a horror thriller about a botched artificial intelligence project, took on this challenge.

Figure 18: *Artificial intelligence working with motifs can identify emotions in a mathematical way.*
https://www.youtube.com/watch?v=gJEzuYynaiw

Process

1. Data Input: IBM's Watson analyzed hundreds of horror movie trailers to understand what makes them suspenseful and engaging. This involved examining visuals, audio, and compositional elements of each scene.
2. Analysis: Watson used machine learning and experimental APIs to identify the key moments that create tension and excitement in trailers. It looked at factors such as the tone of voice, music, scene composition, and lighting.

Figure 17: *Artificial intelligence working with motifs.* https://www.youtube.com/watch?v=gJEzuYynaiw

3. Selection: Based on its analysis, Watson selected the top 10 scenes from "Morgan" that it deemed most suitable for the trailer.
4. Editing: These selected scenes were then handed over to a human editor who assembled them into the final trailer.

Outcome

AI and human creativity worked together to create the final trailer, which demonstrated how AI can support the creative process. The "Morgan" trailer showed off AI's potential in film editing and was warmly received.[17]

[17] Copilot: „IBM received an order asking if their computer could cut a trailer for a filmed horror movie.“

The experiment proved the ever-improving ability of AI to define an emotion in a media work and then manipulate it.

AI Scenario Experiment and Its Implementation

The 2016 experimental sci-fi short film Sunspring was authored entirely by neural networks and artificial intelligence (AI). Ross Goodwin, an AI researcher, and Oscar Sharp, a filmmaker, collaborated on this project. Benjamin, the AI who wrote the script, was trained on a number of science fiction situations from the 1980s and 1990s.

Key aspects of the Sunspring project:

1. Scenario generation:
   - Benjamin, an AI bot, used a technique called Long Short-Term Memory (LSTM) to create the scenario. This technique allows AI to learn and generate text based on previous data.
   - The script featured dialogue and scenic instructions that were often incoherent and surreal, giving the film a unique character.
2. Making the film:
   - The film was shot as part of the 48-hour Sci-Fi-London Film Festival challenge, where the filmmakers had to create a film in two days based on the given props and replicas.
   - The cast, including Thomas Middleditch, Elisabeth Grey, and Humphrey Ker, had to interpret and adapt to the vague and often nonsensical instructions in the script.
3. Challenges and limitations:
   - The AI-generated script was often incomprehensible and required considerable interpretation from the director and actors.
   - This project showed the potential of AI in scenario creation, but also highlighted the current limitations of the technology, especially when it comes to the coherence and meaningfulness of the story.
4. Ethical and creative issues:
   - The use of AI in scriptwriting raises questions about the future of creative professions and how technology can affect human creativity.
   - There are also debates about copyright and ownership of AI-generated works.

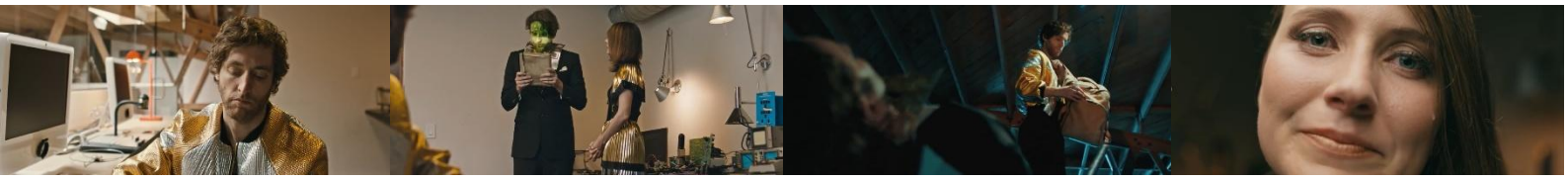


Figure 19: *Artificial intelligence writes a feasible scenario.* https://www.youtube.com/watch?v=LY7x2Ihqjmc

Conclusion

"Sunspring" is an intriguing illustration of how artificial intelligence (AI) can support creative processes, highlighting both the potential and current limitations of technology. The film, available on YouTube, provides a fascinating glimpse into the future of AI in the screenwriting industry.[18]

The experiment demonstrated that the human element of interpreting the script through acting and stylistic techniques determines the fundamental appropriateness of the outcome of a human and AI working together.

[18] Copilot: "Analyze and describe the issue of trying to write and execute a script with the help of AI: Sunspring."

Democratizing AI Scriptwriting

If in 2016 it was necessary to prepare a special computer for scenario analysis during the Sunspring project, in 2024 many online software directly accessible to the average user on the Internet are being developed. Many times, in the basic version for free. In a few years, there has been a huge shift in Machine learning.

A subfield of artificial intelligence (AI) called machine learning enables computers to learn from data and carry out tasks that would typically need human assistance. It builds models that can classify data and predict outcomes without direct human intervention by using algorithms that have been trained on datasets.
There are three main types of machine learning:

1. Supervised learning: Algorithms are trained on labeled data where the correct output is known.
2. Unsupervised learning: Algorithms work with unlabeled data to find hidden patterns or structures.
3. Reinforcement learning: Algorithms learn based on rewards and punishments, trying to maximize the overall reward.[19]

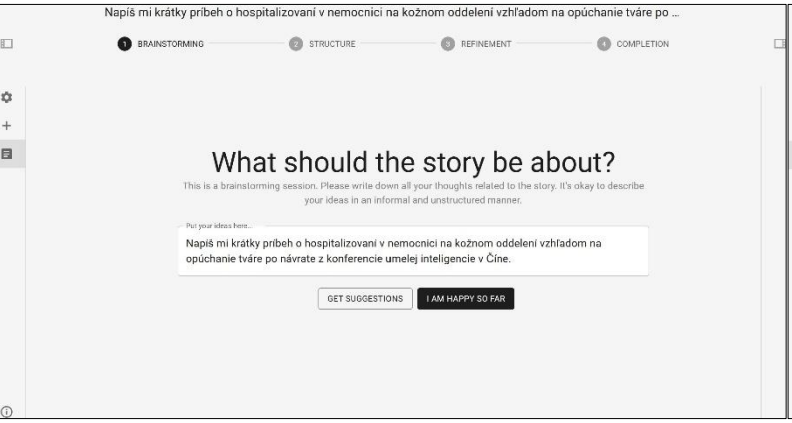
One of the democratized software usable after registration was presented at the CILECT Conference in Beijing by Anna Seidel from the *Munich School Hochschule für Fernsehen und Film München (HFF München).*

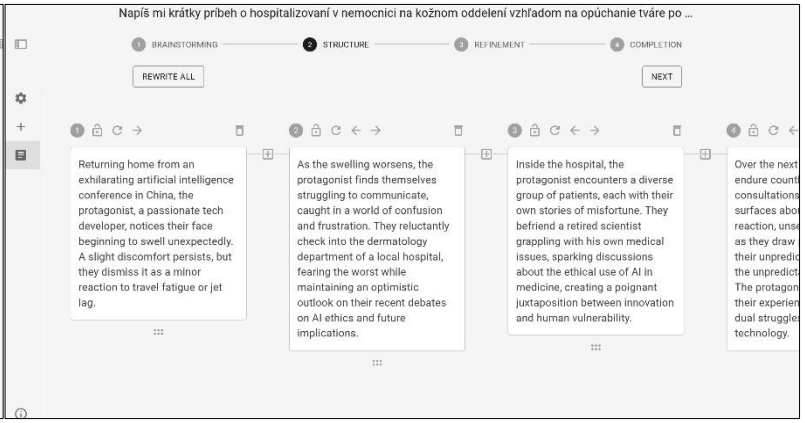
ScreenWriter Assistant
https://kilab.hff-muc.de/wraiter/

Figure 20: *Presentation of online Artificial intelligence scenario SW.*

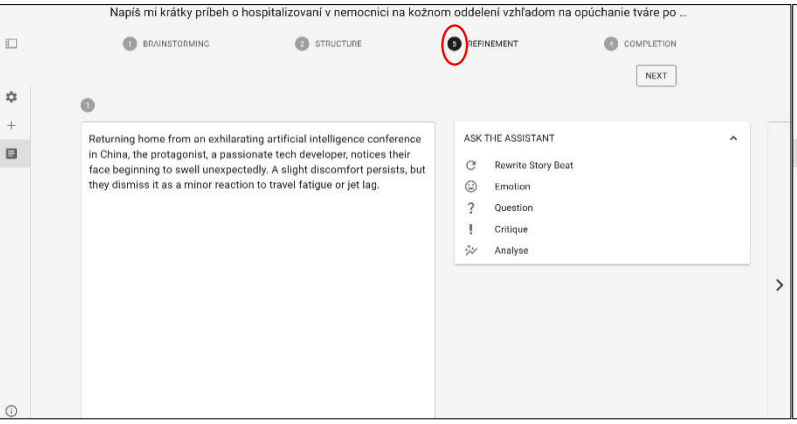
AI-assisted scriptwriting is a convenient career path that requires no formal education beyond the ability to write and read. It is a SW for nerds that can produce outstanding results right away without any prior planning. The outcome is solely dependent on the user's imagination and inventiveness because SW does not permit the user to make any formal or graphic errors.

The user has four main windows: the first is called Brainstorming, where we enter the story's basic information; the second is called Structure, where we edit the number and content of story twists after creating a basic sketch; the third is called Refinement, which provides an analysis of the story's transcription, emotions, questions about the story, and criticism; and the fourth is called Completion. It produces a script that can be used, its transcript, a script writing treatment, and an additional set of edit options.





[19] Copilot: "What is Machine learning?"



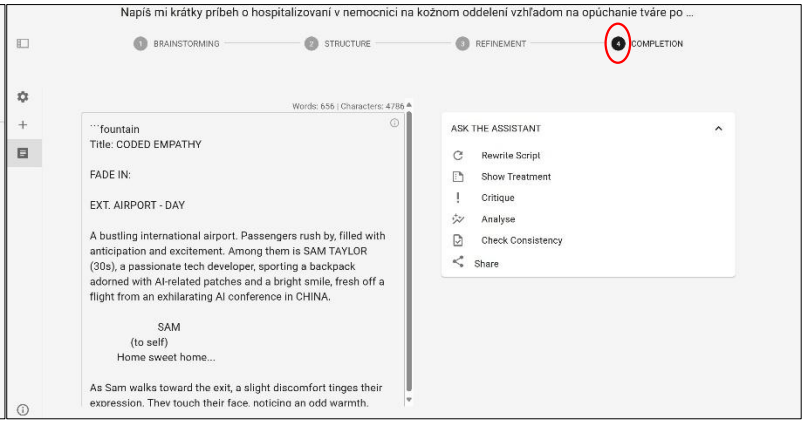


Figure 21,22,23,24: *AI scriptwriting software and its expanded four windows.* https://kilab.hff-muc.de/wraiter/

Like the current claim of originally start-up companies like Adobe or Autodesk, the continuous struggle of SW creators to develop the most innovative and efficient tool for writing AI scripts—beginning with graphics, user-friendliness, and concluding with content uniqueness—is a critical time for the ultimate success of SW entrepreneurs. Several AI scriptwriting programs will emerge from the existing pool and make a significant worldwide impact.

Other very useful AI tools to use for nerds:
https://kilab.hff-muc.de/tools

What is the essence of digital software supplemented with AI input for its user?

About the assumption of the approach of the consumer (user) of art, we have two aspects of looking at creative products. The one who Is

1. **mobile**

and, once it has been disseminated, it travels to one consumer or to another,

2. **static**

which is mechanically attached to the place of origin. Both creative products have the possibility of exceptionality and deep artistic experience[20], but the mobile one has a wider reach on recipients and can influence a larger number of recipients[21]. There are several forms between the two aspects, which are the intersection of both possibilities[22].

Today, no one doubts that paper **immaculate by pen or drawing is a challenge for the creator.** A screenwriter or a writer as a creator of an idea approaches blank paper and it is a fundamental challenge for them.

"Will this white paper be filled with something special?"
"Can the creator capture a fleeting moment on that paper philosophical attitude so uniquely that there is an experience of catharsis for its recipient?"

Playwrights, authors, musicians, engineers, architects, and others have long struggled with this issue. It is also the contemporary predicament faced by creators in every sphere of human life. There is no question that successful writers are makers and artists.

For its users, digital software is a blank canvas. Software presents the originator of an idea with a symbolic obstacle like that of white blank paper. Let's try to compare the common features of paper and digital SW.

[20] Architectural monuments, parks, natural scenery...
[21] Literature, DVDs, art in mobile phones, the Internet, television and other media...
[22] In the case of a theatre performance, gallery or concert, there is a limited number of spectators who are present at the artistic experience, if it is not disseminated through the medium of television or the Internet.

Since its inception, paper has appeared to us as natural, self-evident, and freely accessible. It is the most clear way to express ideas and is synonymous with the most basic things around us. Nonetheless, paper is the product of numerous technological processes, and the form that precedes the idea's inventor is the outcome of yet another inventive human creative process. Paper is difficult.

By spraying paint through the fingers in Chauvet's cave, where we registered a cave painting 31,000 years ago, we can compare paper with the inscription on clay tablets of the epic of Gilgamesh or the inscription on long-lasting natural material.

What's the difference? Verses about immortality on clay tablets are a different and at the same time comparable form of reproduction of ideas captured on paper, they are mobile, but they are difficult to reproduce and cannot compete with Guttenberg and his printing press. The message of immortality in Cueva de las Manos, in addition to being an original unique message without the possibility of spreading in its time, does not travel to its viewer, but on the contrary, the viewer must travel to it.

Figure 26: *Cueva de las Manos, Perito Moreno, Argentina. The art in the cave is dated between 13,000–9,000 BP, stenciled, mostly left hands are shown. An example of stationary art that is not able to travel to the viewer in its original form.*

A characteristic need for a successful work of art today or a symptom of a successful media, e.g. Internet work, is the greatest possible accessibility, individual and immediate address.[23,24,25] That's what the media and the mass media are for.

"What does digital software mean to its storytelling user?"

A user of software with the capabilities of artificial intelligence can be as gifted as the creator of an idea sitting in front of a white paper. Both paper and SW are the result of previous creative activity of man, and both types of creators, the one in front of the paper and the one accessing digital SW, face a comparable challenge. To capture a fleeting moment of information, entertainment or a philosophical message in such a way that they evoke an Aristotelian catharsis in their addressable consumer, to whom they send their emotionally filled mobile works.

The user of the software is the author and in the case of media success of the creation, he is the creator, and in the case of artistic success, he is the VFX artist.[26] Both types of creators, a screenwriter and a VFX author, have the same chance of becoming an artist in terms of percentage. Starting with the assumption of talent, diligence and getting an opportunity. Certainly not everyone who writes necessarily sells their work with the value of a work of art, and similarly not all VFX authors using SW for creative activity create a work that will be considered a work of art.

"*Does the software favor the capabilities of its user over the non-user?"*

Today, we are still on the verge of the artificial intelligence revolution, and after the paper (analogue) age and the digital age, the EPOCH OF ARTIFICIAL INTELLIGENCE is coming. Traditional creatives and artists are concerned about retaining work in traditional artistic disciplines. They see a way out in protests, strikes and in exaggerated questioning of the ethics of AI, fear of consequences and failure to meet challenges. They need to preserve the creative privileges they have had so far, they are in a difficult situation, but they collectively overlook one knowledge. The extremely rapid development of civilization has an evolutionary character, the main feature of which is adaptation to new conditions, the resulting

[23] You can't compete with the principle of TikTok.
https://www.tiktok.com/explore

[24] If a newly created blockbuster does not earn enough money in the first weeks after the premiere, it can additionally look for reasons for financial failure after the allotted days have passed.

[25] Specialized WEB companies intervene in the fight for viewers, using special algorithms to prioritize the dissemination of the required works.

[26] In the hierarchy of comparison of terms by the author, anyone could. For example, the author of the quote is a child on the street. A creator is a person whose frequent form of expression is a creative product that does not necessarily have to be socially accepted. The artist is the highest form of this hierarchy and denotes a socially successful creator.

need to respond to technological stimuli and learn. Any satisfaction with the level of creative abilities achieved is self-destructive. An analogy is the generation of creators in the media space who were unable to adapt to the digital age 30 years ago and failure to adapt meant leaving the media space for them. While current strikers may evoke empathy and achieve temporary victory and legislative protections, they cannot win this fight to protect the creative knowledge acquired in the past in the long run, or their lifelong or generational perspective.
The fight against the opportunities offered by AI, whether today or in the future, cannot be won. You can't underestimate the capabilities or envy the creators who master the SW. They are not *"just some technicians from the street".* They are full-fledged, talented creators comparable to those who once sat or still sit in front of a blank sheet of paper. "SW technicians" are starting to gain prestige, ahead of those who don't have the courage to learn new digital skills.

Q: *"Does it make sense to protest, strike and protect your non-digital creative abilities acquired through a long study process in the face of a direct threat to AI using the whole range of such endlessly attractive possibilities of thought and visual creation?"*
A: There is no point in fighting against the achievements of AI. It is necessary and necessary to jump on the wave of new unstoppable technologies as soon as possible, to accept and learn from them, and to hope that man will modify the legislation of AI in his non-self-destructive favor.

What will we do if AI is better at everything? The theory of hobbism

Q: *"Can AI replace humans and relegate them to the role of user and viewer now, in a short time, or in the future?"*
Q: *"What will it be like when, in the near or more distant future, man is unable to compete with computers even in the field of screenwriting and art in general?"*
A: The idea is that at some point, everything AI does will be better than any human attempt. Human performance will be inferior and unrivaled to the machine with its Machine Learning like what has happened in the current game of chess.

Q: *What will a human do, what will a person do, if everything a person does is worse than his AI competitor?*
A: One becomes a hobbyist! It will make a film as a hobby, just as chess players currently have chess as a hobby and have a separate category of "human chess" compared to the category of "computer chess", so filmmakers in the future will have a separate category of "human film" compared to the category of "computer film". In addition to the two currently existing film categories:

1. amateur film without education (characterized primarily by naive means of expression),
2. professional hobby film (characterized by intensive education and, above all, human input into the individual production components),

A computer film category will be added:

3. Computer film – characterized by the absolute dominance of the computer in all creative components of storytelling.

The democratization of the means of production is a result of the digital age, which is currently moving toward the age of artificial intelligence. Professional photographers can now technically compete with amateurs thanks to cameras, cinematographers can now compete with digital cameras, non-filmmakers can now edit films thanks to editing software, computer enthusiasts can now compose music, and amateur directors can now compete with professional directors in terms of technology. There are numerous instances. The competitive struggle became more democratic with the democratization of the means of production. **Nowadays, it is more difficult to sell a product than to produce**.

Q: *"Who will prevail before the absolute domination of Artificial Intelligence comes?"*
Q: *"Which creators could they be?"*
Q: *"The professional ones or the "street" ones?"*
A: Professional creators are always one step ahead because they have functional relationships in place. However, when it comes to creativity, there is an equal chance for amateurs and professionals.

Many renowned directors began their careers as amateur filmmakers, honing their skills through independent projects before achieving mainstream success. Here are a few notable examples:

1. Steven Spielberg: Spielberg started making amateur films as a teenager, using his family's 8mm camera. His early works included short films, and a feature-length film called "Firelight," which he made at the age of 17.
2. Quentin Tarantino: Before becoming a household name, Tarantino worked in a video rental store and made amateur films with friends. His breakthrough came with "Reservoir Dogs," which he wrote and directed.
3. Christopher Nolan: Nolan began his filmmaking journey with short films and his first feature, "Following," which was made on a very low budget with a small crew of friends.
4. Peter Jackson: Jackson started making short films with his parents' Super 8 camera. His early work included the horror-comedy "Bad Taste," which he made with friends over several years.
5. Robert Rodriguez: Rodriguez famously made his first feature film, "El Mariachi," on a shoestring budget of $7,000. He funded the film by participating in medical experiments.
6. Sofia Coppola: Coppola began her career with short films and music videos before making her feature debut with "The Virgin Suicides," which established her as a significant director.
7. Wes Anderson: Anderson started with short films, including "Bottle Rocket," which he later expanded into a feature film that launched his career.[27]

The possibility of a chance for human authors without AI to assert themselves in the field of acceptability of their stories by viewers before the onset of the Absolute Epoch of AI is achievable.

2. The issue of recognizing new forms of media art in the standard frameworks of the media structure, fourth category

The dissatisfaction of creators with the analogue-digital age when considering the boundless possibilities of creative software workers leads to their efforts to preserve the last possible advantages coming from the outgoing analogue era. It is a categorization that arose before the digital age, and which favors the classic form of media creation. This is a common division that has not undergone any modification for many years and does not reflect the needs either in the digital age or in the now emerging era of the Age of Artificial Intelligence.

Figure 27: *The decision on the creation of the fourth category will come from these representatives of CILECT.*

Categories of Awards

- **Fiction**
- **Documentary**
- **Animation**

Both the documentary and feature film categories have unquestionably defined and unambiguous definitions. Even the introduction of creative artificial intelligence won't significantly alter their classification. Then there is the category of animated films, which should cover everything. It is frequently non-traditional and experimental, interdisciplinary, and possibly even unclassifiable. It is currently used in media production and is also taught in film art schools all over the world. This division claims that movies featuring visual effects should be classified as animated films, however in reality, festivals that list animated films as their preferred genre do not allow short films that are similar. Their representation in the rankings of student work is insufficient. Everything becomes more complicated and multiplied when AI is introduced into the process.

Student films that heavily feature visual effects, game design, video mapping, drone story art, or short films that are heavily impacted by artificial intelligence development are not eligible for inclusion in this tri-categorization.
The inclusion of artificial intelligence in the creation process is problematic. from the concept and screenplay to the distribution administration, in every aspect of collaboration.

[27] Copilot: „Which important world directors started as amateur creators? “

Expanding the three groups by one or more is the answer to the problem.
We most likely won't be able to escape being compelled to choose between feature films with a large percentage of AI and those without.
A documentary film could be divided into two categories: a stylized documentary that incorporates artificial intelligence (AI) and a pure "cinema verité" documentary.

An animated film is a type of film that is created by sequentially capturing each phase of movement in order to create the impression of smooth movement during playback. This process is called animation.
There are several animation techniques, including:

1. Cartoon animation: Artists draw individual frames by hand.
2. Stop-motion animation: Puppets or objects are used that move and shoot in sequence.
3. Computer animation: It uses digital technologies to create moving images.

According to this definition, a film is not considered animated if it is not made by progressively capturing the stages of movement.
The Animation category is not sufficient to express the entire genre-formal spectrum of school filmmaking.

Q: *What about projects that work with smooth acting action, but do not feature films in the full sense of the word?*
Q: *How to approach creation that is created by outputs from software like the Unreal Engine?*
Q: *Do these art projects have the right to be evaluated, judged and appreciated?*
A: A positive answer to the questions posed is self-explanatory. Motivation of students and their positive competition with each other is essential.

Solution.
A technical commission was required at the Beijing CILECT Artificial Intelligence Conference. Prior to the development of AI, such a commission was not required and did not raise any issues. A reasonable estimate of the lack of similar interest and experts was made at the first discussion on the issue of forming a technical commission with representatives of universities worldwide (more than 50 countries, more than 100 film schools). Following the discussion, school representatives showed a great deal of interest in this technical area of the technical commission, even going so far as to be remarkable. It has become clear that there is a common need for worldwide education to comprehend AI.

In addition to the three current categories, my first major suggestion for membership in the CILECT Technology Commission is to create a fourth arts-competitive category that supports all hybrid arts and includes it in the CILECT statute.

Proposed future new category of CILECT Awards

- Fiction
- Documentary
- Animation
- **VFX and Digital AI arts**

It is possible to become more receptive to the recognition of new technologies with new forms of expression and to make room for the development of artificial intelligence, which at this point in the art world's development needs to be governed and guided by humans. This can be achieved with the promotion of the fourth category in the establishment of art schools worldwide and in the future with further division into other sub-categories.

TOBIAS FRÜHMORGEN (GERMANY-PORTUGAL)

Tobias Frühmorgen is a filmmaker, film lecturer and film researcher. He teaches at Lusófona University Lisbon in creative production, project development, project tutoring and thesis supervision in the European Joint Master Program KinoEyes as well as the master film program, the cinema bachelors and Green Production / Green Consultant. He also works in research programs like Crescine, filmterm, future.film.education, C-Accelerate, Cyanotypes, Restart and FilmEU Wire. Since 2020 he has also part of the curriculum, pedagogy and artistic research development of FilmEU and FilmEU+ and coordinator for the joint research project on screenwriting with GTP-4. Since 2021 he has been researching on his artistic based PhD at the Filmuniversity Babelsberg (DE) on "Artistic Artificial Intelligence – Writing a screenplay with AI ". He publishes regularly on AI, storytelling, and pedagogy. Tobias works as a story analyst for international feature screenplays and is a certified Green Consultant for film productions. He is a member of the CILECT Committee for Sustainability.

His artistic works as a director, writer and editor include a variety of feature films, short films, television, art and music videos. His film Menschenkörper (2004) was screened at more than 25 festivals worldwide. Among his editing works is the restoration and re-editing for Yilmaz Güney's YOL – The Full Version (2017) which premiered at Cannes Film Festival in 2017.

VÍCTOR MANUEL NAVARRO REMESAL (SPAIN)

Víctor Navarro-Remesal is game scholar from Tecnocampus, Universitat Pompeu Fabra (Barcelona, Spain). He is a founding member and the president of DiGRA Spain and the co-president of the History of Games conferences. His last book as an editor is 'Perspectives on the European Videogame' (Amsterdam University Press, 2021). His research interests include player freedom, Zen-inspired games and slow gaming, regional game studies, and game preservation. He has taught Animation Cinema for years and collaborates as a critic of the medium in several radio stations and magazines. Currently, he's one of the two Principal Investigators of the project Ludomythologies: Myths and ideology in contemporary video games.

NIKOLETA WOOD (ENGLAND)

Nikoleta is an experienced VFX Production Coordinator based in London, originally from Presov, Slovakia, who thrives in the dynamic realm of visual storytelling. After completing an exchange program in the US, she moved to London to study film and eventually earned a Master´s in Production Management from the National Film and Television School.

She has a proven track record of bringing compelling film and TV projects to life — all while managing the intricacies of production with a genuine love for spreadsheets. She's had the privilege of working with industry-leading studios such as Apple Originals, Netflix and Amazon Studios, as well as collaborating with world-class directors like Steve McQueen and Alfonso Cuaron.

WILSON RODRIGUES DE ALMEIDA (PORTUGAL)

With a degree in Digital Animation from Universidade Lusófona (UL), Wilson Almeida began his career as a 3D artist in the cross-media project "Mourinho and the Special Ones" in 2012. He pivoted to Game Design and has worked on PC, console, and mobile games, while working for several studios such as Bica Studios, Nerd Monkeys, and ONTOP Studios. In 2014 he began coordinating the Game Dev Meet event and ever since that experience he has been an active member of the Portuguese game development community as an organizer of several other events, in collaboration with multiple companies, higher education and research institutions, namely Microsoft, Miniclip, IST, UL and the Champalimaud Foundation. He teaches Game Design at Universidade Lusófona.

PIETER VAN HOUTE (BELGIUM)

Co-Founder at RealmFX inc., Digital Compositor, Supervisor and Visual Effects Artist with a background in traditional animation and film making.

Experience in a broad range of projects, from commercials, educational and short films to feature film and animation both as artist and supervisor. Huge soft spot for artistic endeavours and classical animation. Specialties: Compositing, 2D and 3D animation, Visual Effects, Project Co-ordination, Supervision.
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MARIAN FERKO (AVFXGD, BRATISLAVA)

He studied at the Secondary School of Performing Arts in Bratislava, later obtained a Bc. degree at the AVFX FTF VŠMU. From 1993 to 1995 he worked for Gratex International, where he created many television soundtracks and commercials. He also created the music video The Ballad of Four Horses for singer Peter Lipa, for which he won the Music Video of the Year award. In 1996 and 2007 he co-founded Cauldron and Top3Line studios focused on professional production of computer games. From 2015 to 2020, he worked at Bohemia Interactive as a managing director. In 2015 he co-founded the Slovak Game Developers Association, where he became the chairman of the association. In 2020, he co-founded the Nine Rocks Games. Over time, he collaborated on the development of 26 digital games.
https://www.mobygames.com/person/272119/marian-ferko/credits/
https://scd.sk/hra/quadrax/https://www.avfx.sk/pouzivatel/ferko-marian-0

FILIP MATLÁK (AVFXGD, BRATISLAVA)

Student of the first year of the master's degree in visual effects at the FTF VŠMU in Bratislava.
He graduated from the department of animated creation at SUP Trenčín and subsequently obtained a Bc. degree in the study plan visual effects at FTF VŠMU in Bratislava. Currently, in addition to studying and creating visual effects, he works as a 2D compositor and 3D generalist in the PFX studio.
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ŠIMON MACHÁČ (AVFXGD, BRATISLAVA)

He studied advertising at the high school of art in Trenčín, later he received a Bc. degree at AVFX FTF VŠMU. Since 2018, he has been working as an independent designer, photographer and graphic artist. In the film industry, he mainly works with compositing and color grading. He is currently working as a freelance artist for various Slovak and foreign productions.
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MATÚŠ MENKE (AVFXGD, BRATISLAVA)

Student of the first year of the master's degree in visual effects at the FTF VŠMU in Bratislava.
Since childhood, he has been fond of digital art, creating illustrations and graphic design, thanks to which he gradually got into video production, film and the creation of visual effects. He graduated from the field of image and sound technology at the Karol Adler University of Applied Sciences in Bratislava. Here he strengthened his technical skills in the creation of audiovisual content and subsequently obtained a Bc. degree in the study plan visual effects at FTF VŠMU in Bratislava. Currently, in addition to studying and creating visual effects, he mainly focuses on filming and post-production of advertising content.
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MARI GALLET, (HOWEST UNIVERSITY OF APPLIED SCIENCES - DIGITAL ARTS AND ENTERTAINMENT, BELGIUM.)

Mari Gallet is currently finishing their studies at Howest DAE, Belgium, after working on a short film graduation project together with Theoni Fotoglou for a bit over 4 months.
Mari grew up in a very creative family in Belgium, who nurtured their love for drawing from a very young age. They attended a traditional art high school where they learned traditional techniques, and then later continued their studies at Howest DAE. Now, they're setting their first steps as a Concept Artist in the entertainment industry.
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THEONI FOTOGLOU, (HOWEST UNIVERSITY OF APPLIED SCIENCES - DIGITAL ARTS AND ENTERTAINMENT, BELGIUM.)

Theoni Fotoglou is currently finishing their studies at Howest DAE, Belgium, after working on a short film graduation project together with Mari Gallet for a bit over 4 months.
Theoni grew up in a small Greek town, struggling to find her niche in her home country. Moving to Belgium and study at Howest DAE was what lead to her falling in love with the 3D animation and gaming Industry. She found many passions when studying DAE, from character design to rigging, and 3D Character creation and ultimately securing an internship as a 3D Artist where she is excited to continue learning and growing in the field.
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SACHA DEEN (HOWEST UNIVERSITY OF APPLIED SCIENCES - DIGITAL ARTS AND ENTERTAINMENT, BELGIUM)

Sacha is currently finishing her studies in visual effects at Howest DAE in Belgium.
As a compositor, her area of expertise is integrating CGI into filmed footage, doing background replacement with keying and using tracking to paint and cleanup. She spent her weekends attending art school as a hobby. She eventually switched from studying chemistry to a course that allowed her to be more creative. Now she's completing an internship at VC Studios, delving into all the various aspects of compositing.
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DAYELL DE GRAAF (HOWEST UNIVERSITY OF APPLIED SCIENCES - DIGITAL ARTS AND ENTERTAINMENT, BELGIUM)

Dayell de Graaf is currently finishing his studies at Howest DAE, Belgium, after working on a short film graduation project together with Sacha Deen for a bit over 4 months. With a background in science and engineering, Dayell changed directions and started heading towards the more creative world of visual effects. Currently interning at a Virtual Production studio, he is immersing himself in the realtime capabilities of Unreal Engine for film and TV.
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AFONSO CUNHA (LUSÓFONA UNIVERSITY, LISBON, PORTUGAL)

Stemming from frequenting a previous engineering bachelor, a fermenting disgust with the idea of not doing something that would fulfill his future self, incentivized him to join GameDevTecnico - a gamedev student club. By reviving long gone artistic interests and taking gamedev as a now serious and viable career path, he later enrolled as a student at the Universidade Lusófona's Bachelor in Videogames. Now having a new and improved skillset, still learning the most he can about other software and mediums, yet with an eternal and special love for Pixelart (especially Character Design and Animation), for him, the idea of working could not be any funner.

HENRIQUE MONTEIRO (LUSÓFONA UNIVERSITY, LISBON, PORTUGAL)

Henrique Monteiro is currently midway through his studies in the Bachelor of Video Games program at Lisbon University. Despite initially considering a career in history and education, Henrique's profound love for video games has steered him towards a different direction. Throughout his academic journey, he has been deeply involved in exploring the diverse realms of game development, particularly focusing on game art, game design and narratives.

JÚLIA COSTA (LUSÓFONA UNIVERSITY, LISBON, PORTUGAL)

Now finishing her first year at Universidade Lusófona's Bachelor in Videogames, she learned a lot of new skills and gained experience participating in various game jams with her friends. She's passionate about all aspects of game development, despite not having all the skills she's willing to learn and cooperate with others to achieve her goals. Now she's focusing on learning more and more about programming, more specifically Unity/C#, and has created some small projects alone and with friends that you can see in her itch.io
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ANTÓNIO RODRIGUES (LUSÓFONA UNIVERSITY, LISBON, PORTUGAL)

Took part in two computer science courses before, where he made games as projects for both. Driven by a strong enthusiasm for gaming and programming, full of creativity but lacking in artistic skills, he chose game

development as his creative outlet. Now in the second year of Universidade Lusófona's Bachelor in Videogames, learning more and more about game dev, his passion only grows stronger by the day.

RICARDO LOURO (LUSÓFONA UNIVERSITY, LISBON, PORTUGAL)

Having originally enrolled in university for a journalism course, he quickly understood that he would require a more creative area to work in. Stemming from a lifelong love for videogames, he decided to pivot into Universidade Lusófona's Bachelor in Videogames to create experiences that others may enjoy. Currently attending the second year of said course, he is specializing in programming and creating various projects to deepen his skillset.

JOSÉ REIS (LUSÓFONA UNIVERSITY, LISBON, PORTUGAL)

José Reis, a graduate of Computer Games and Programming Skills from Lusófona University in Lisbon, has a passion for programming and is always ready to embrace new challenges. At CapyDigital he has helped develop some award-winning projects such as "Booby Trap" and "The Call". He is currently working on "Shades of Insanity" and "Deep Blue Dive".

MADALENA CAGIDO (LUSÓFONA UNIVERSITY, LISBON, PORTUGAL)

Madalena, a graduate of Computer Games and Programming Skills from Lusófona University in Lisbon, is a versatile 2D Artist at CapyDigital, an indie studio fueled by ambition and creativity. With a proven track record in game development, she has worked on various projects from 2D to VR games, earning recognition through awards nominations and fostering partnerships with local companies.

TIAGO BERLIN (LUSÓFONA UNIVERSITY, LISBON, PORTUGAL)

Tiago Berlim, a graduate of Computer Games and Programming Skills from Lusófona University in Lisbon, is a skilled 3D artist at CapyDigital. With expertise in modeling, texturing, and animation. He has hands-on experience with the Unity Game Engine and excels in Object, Environment, Lighting and Character modelling. Collaborative by nature, he works closely with other departments such as programming and design to ensure consistency and quality across games. With several online projects such as "Towers Call", "Booby Trap", "Alterpoint", and "CyberBreak". He is currently focused on "Shades of Insanity" and "Deep Blue Dive".

ANTON SZOMOLÁNYI (MEDIA DESIGN, FACULTY OF MASS MEDIA, PAN-EUROPEAN UNIVERSITY, SLOVAKIA)

Doc. Mgr. Anton Szomolányi, ArtD. works at the Faculty of Mass Media PEVŠ as head of the Institute of Media Design. He graduated from FAMU in Prague, Film and Television Camera program. He wrote 8 educational and book publications focusing on cinematographic image, contributes to professional magazines and lectures abroad. In his filmography, he has many original documentary films, the realization of more than 80 advertising spots using high-end technology, on which he worked as a producer, cameraman, screenwriter. He also worked as a cameraman on large revue programs such as Zlatý slávik, MISS, Aurel. He also works as a program designer and as a methodologist he also works with non-professional creators.

ĽUDOVÍT LABIK (SLOVAKIA) ORGANIZATION OF THE CONFERENCE, EDITING OF THE PROCEEDINGS OF THE CONFERENCE.

A writer, publicist, and cinema theory instructor. He is the creator of two Visual Effects and Game Design study programs at the Academy of Performing Arts' Faculty of Film and Television in Bratislava. When they were first established, there was no such program in the Central European region. For twenty years, he has been a lecturer and organizer at the Summer School. The dramaturgy of film narrative and the newest technology in game and film design are the focus of the study. He conducts 360° filming with students, arranges video mapping on urban architecture using two technologies, and believes that the biggest audiovisual challenge of the future will be incorporating stylistic dramatic elements of game design (interaction) into the film and vice versa (acting, transferring of live realistic body language in Unreal engine). He is on the committee for CILECT Technicians.

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IVGC 2024 - PREMENY FILMOVÝCH VIZUÁLNYCH EFEKTOV V

Príspevky z Medzinárodnej konferencie vizuálnych efektov a herného dizajnu 2024 - IVGC 2024

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Text vznikol v rámci grantu K-22-003-00 KEGA

MINISTERSTVO ŠKOLSTVA, VEDY, VÝSKUMU A ŠPORTU SLOVENSKEJ REPUBLIKY

www.avfx.sk, www.ahd.avfx.sk
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Vydala Vysoká škola múzických umení v Bratislave, 2024
Centrum umenia a vedy
Ventúrska 3, 813 01 Bratislava

Zostavovateľ a editor: Prof. Ľudovít Labík, ArtD.
Jazyková korekcia: UI Quillbot, Copilot
Recenzenti: RNDr. Andrej Lúčny PhD.
Prof. Ivan Finta, ArtD.
Redakcia: Mgr. Valéria Koszoruová
Grafický dizajn: Prof. Ľudovít Labík, ArtD.

1. vydanie
ISBN 978-80-8195-165-7

IVGC 2024 - TRANSFORMATION OF FILM VISUAL EFFECTS V

Proceedings of the International Visual Effects and Game Design Conference 2024 - IVGC 2024

Editorial:
Post authors:

The text was created within the framework of grant K-22-003-00 KEGA

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video recording

Published by the University of Performing Arts in Bratislava, 2024
Arts and Sciences Center
Ventúrska 3, 813 01 Bratislava, Slovakia

Compiler and editor
Language correction: AI Quillbot, Copilot
Reviewers:

Editor:
Graphic design:

1st edition
ISBN 978-80-8195-165-7

FTF FILMOVÁ A TELEVÍZNA FAKULTA VŠMU

ISBN 978-80-8195-165-7
9 788081 951657 >