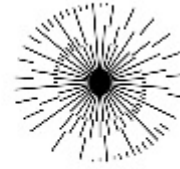




UNIVERSITY OF SILESIA
IN KATOWICE



POLISH NATIONAL AGENCY
FOR ACADEMIC EXCHANGE



GAME LAB

Tokyo University of Technology, Japan



TOKYO
UNIVERSITY
OF TECHNOLOGY

Koji Mikami, Kunio Kondo

Motonobu Kawashima, Kazuo Sasaki, Hirokazu Yasuhara,
Akinori Ito, Takashi Ohta, Taichi Watanabe

STUDENTS TEAM

1. Scifi_wabisabi : Motonobu Kawashima

Robin Mariančík(Czech. R) u20017@student.osu.cz

Michal Náhlík(Czech. R) u20018@student.osu.cz

2. Character-making : Kunio Kondo, Kazuo Sasaki

Helana Chojnacka(Poland) hehehelios22@gmail.com

Olesia Chirkovskaia(Czech. R) U19070@student.osu.cz

Sabina Akhmetova(Czech. R) u19086@student.osu.cz ,

Botakoz Temirkhan (Czech. R) u19075@student.osu.cz

3. Game and Sound Design : Hirokazu Yasuhara, Akinori Ito, Koji Mikami

Matthew Kounchongprasert(USA) Z1825302@students.niu.edu

Romane Rakotovao(TUT exchange students from France)

Enhancement of User Experience and Sustainable Game Development

• Research for...

Efficient Character Making (Kunio Kondo)
Innovative Game Design (Koji Mikami, Hirokazu Yasuhara)
Interactive Technique / XR (Takashi Ohta, Koji Mikami)
Visual Design (Kazuo Sasaki, Motonobu Kawashima)
Sound Design (Akinori Ito)
High-end Graphics (Motonobu Kawashima)
Game AI and Engineering (Taichi Watanabe)

Team Project and Lecture

TEAM Project

1. Scifi_wabisabi : Motonobu Kawashima

Robin Mariančík, Michal Náhlík

2. Character-making : Kunio Kondo, Kazuo Sasaki

Helana Chojnacka, Olesia Chirkovskaia, Sabina Akhmetova, Botakoz Temirkhan

3. Game and Sound Design : Hirokazu Yasuhara, Akinori Ito, Koji Mikami

Matthew Kounechongprasert, Romane Rakotova

Lecture

Lecture from specific area from Professors.

- Game AI, Game Design, Realtime Graphics Technique, Interactive Technology, Sound Design, Storytelling, Stylized Anime Methodology and so on

Tokyo University of Technology, Japan

1. Sci-fi Wabisabi team
Motonobu Kawashima

30th April, 2021

Progress of Sci-fi Wabisabi team

Creating 3D Asset

Character, Background and Props

Implementation on UE4

Developing scene and adjusting lighting and materials

Design Documents

Characters

The game itself won't really have any characters, but because it will be an environment of a fictional character it is necessary to establish who the character should be and what he should look like.

The reason for this is so that the environment will make sense. What needs to be established is for example the characters height and his hands as this will reflect upon the room and the tools in it.

The character will also probably have his own photo perhaps with his friends or family in the room which will most likely be done as a digital painting.



Level Design

The workshop will need to be a pretty small room. That's because there is only two of us working on the project and we want to focus on the quality of individual assets rather than quantity.

Also it is necessary to not make the final workshop look too barren and by making the room fairly small we are setting a realistic goal for ourselves that we can finish.

The room itself will need to be at least partly underground with at most a small window. That's because by doing that we can focus mostly on the interior itself and not care about the outside too much. The small window will only serve as a source of natural light and because it will be at the top of the wall it'll be easy to mask the surrounding by maybe placing some grass around it and exposing only the sky.

Because the scientist will be of an alien form with some differences between the human physiology it will be necessary to show that in the environment. For example if he'll only have 3 thick fingers it wouldn't make any sense for his computer to have a keyboard same as the humans use.

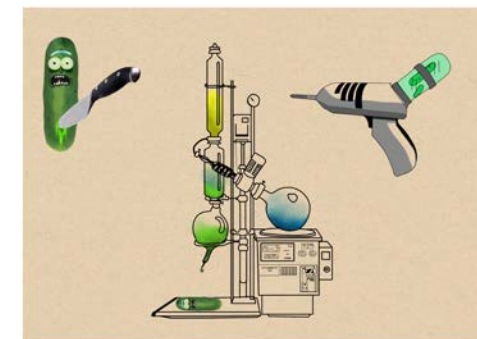
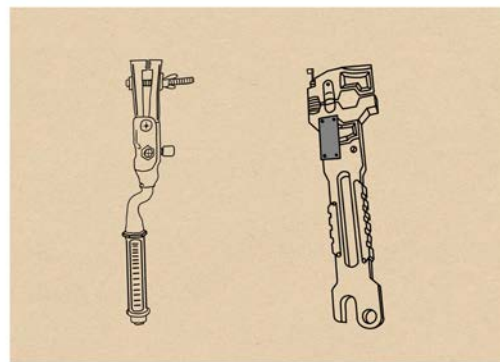
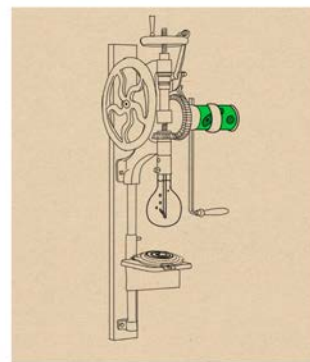
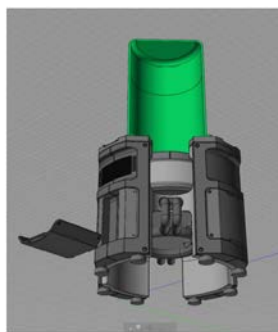
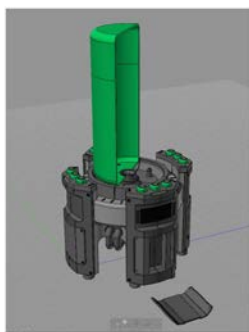
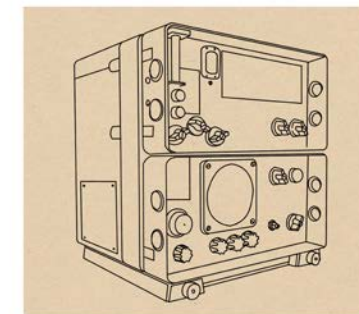
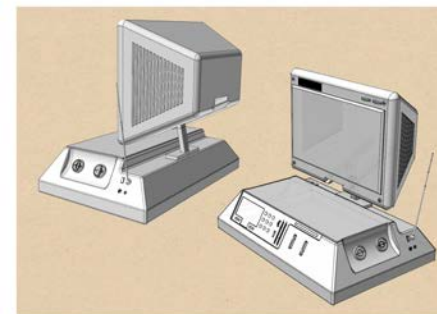
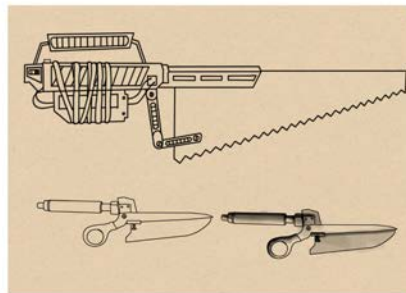
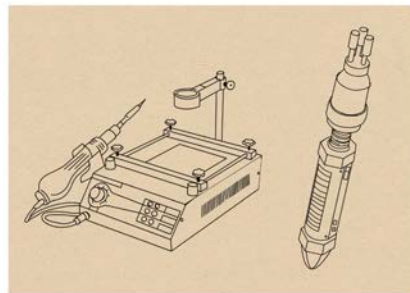
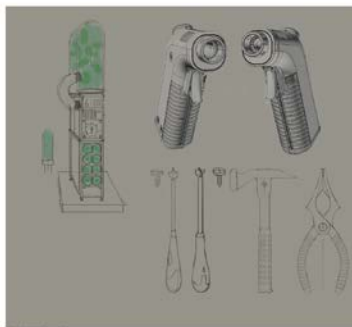


Design Documents

Art Style

Even though the story and the character will be pretty comical the art style will be fully realistic. As the setting is in a sci-fi world of a mid-class scientist the assets themselves will have a certain amount of realism. As for example some of the tools he uses can be made from different brands. But still the diversity should not be too big so that the environment looks believable.

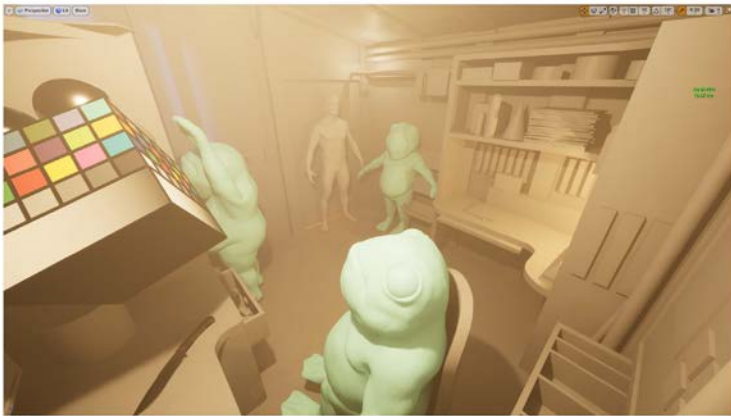
The assets need to feel used, maybe have some wear and tear, but most of the tools and the environment itself should look like it has been there for a while. Hence the used style.



Assets



UE4 Implementation



Tokyo University of Technology, Japan

2. Character-making team Kunio Kondo

30th April, 2021

Progress of Character making team

From Sabina Akhmetova

We decided to make **2D animation**, but we will be using some **assets in 3D** in the animation as well.

Helena progress :

For example, some parts of **the background**. I believe, Helena works with 3D models right now and will be able to show final models until **7th of May**.

Botakoz and Olesia progress:

We are waiting for the response from Botakoz and Olesia to help with animation, but for now we are also **drawing some assets** that will be used in the animation itself.

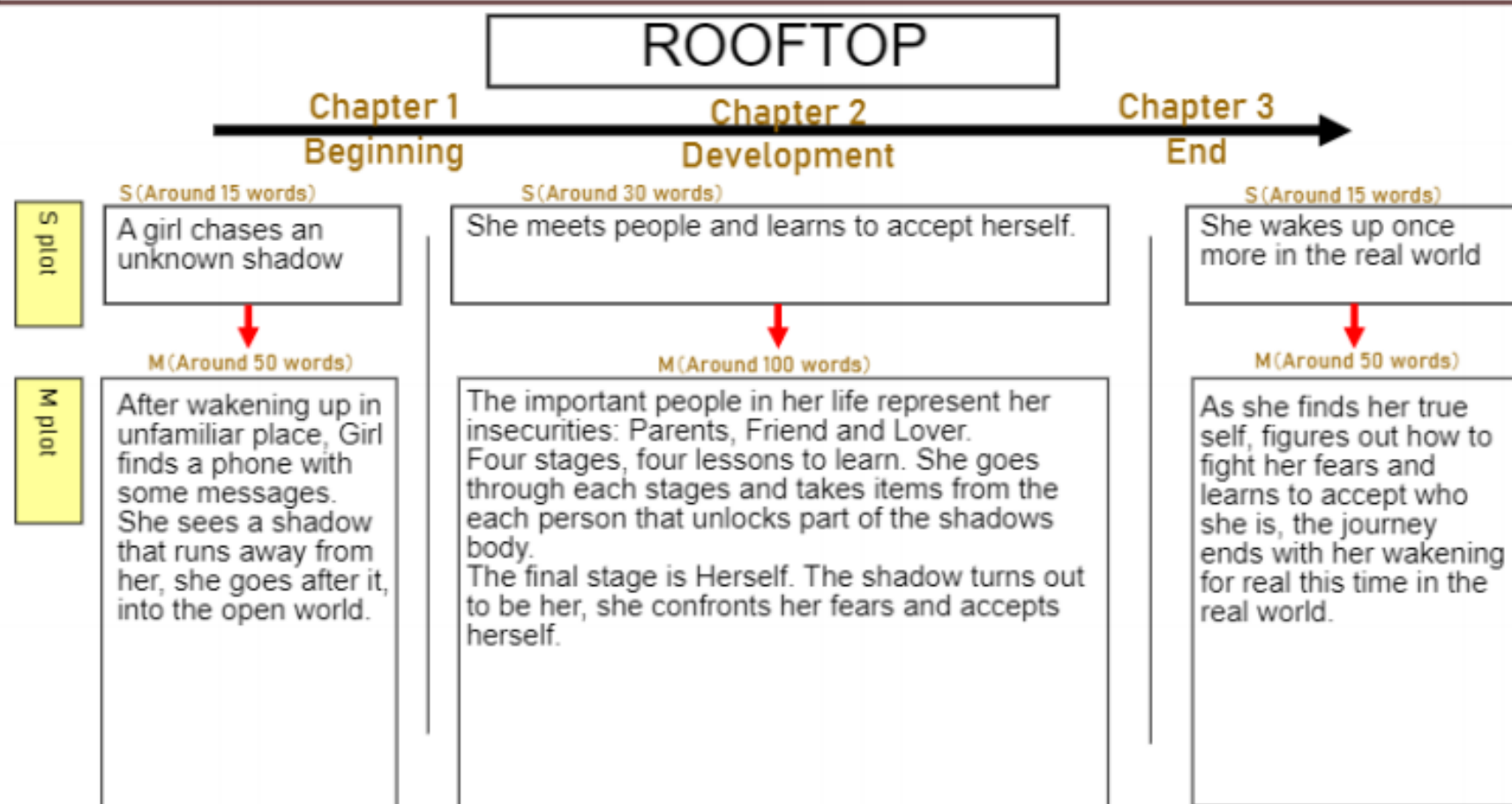
Check list of Character Making Progress

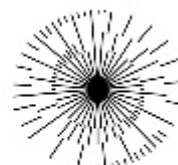
<i>2nd April</i>	[1] literal information [2] Visual Design of Characters [3] Visual Design and Character Setting [4] Posing and Facial Expression
<i>9th April</i>	[5] Character correlation diagram [6] Character List
<i>30th April</i>	[7] 2D Character Design
<i>7th May</i>	[8] Setting and background of Content (3D assets) [9] Storyboard, <i>Lighting and Camerawork</i>
<i>21st May</i>	[10] 2D Animation and 3D assets
<i>28th May</i>	[11] Summary and your comments Fill out the Character making template

1. literal info. (Content info.)

1 Content title	Rooftop
2 Character name	
3 Date & Time	3.23.2021
4 Production place	Game Lab TUT
5 Genre	Platformer + Visual novel
6 Content	
7 Purpose	To tell a story about self-discovery
8 Target	Teenager and young adults
9 S-plot (summary)	
Beginning	A girl chases an unknown shadow
Development	She meets people and learns to accept herself
End	She wakes up once more in the real world

1.10. S,M plot template





1.11. Character literal information (2.1 Character information)

Character name : Yana?

Role

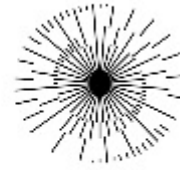
Main character

S setting (Around 15 words)

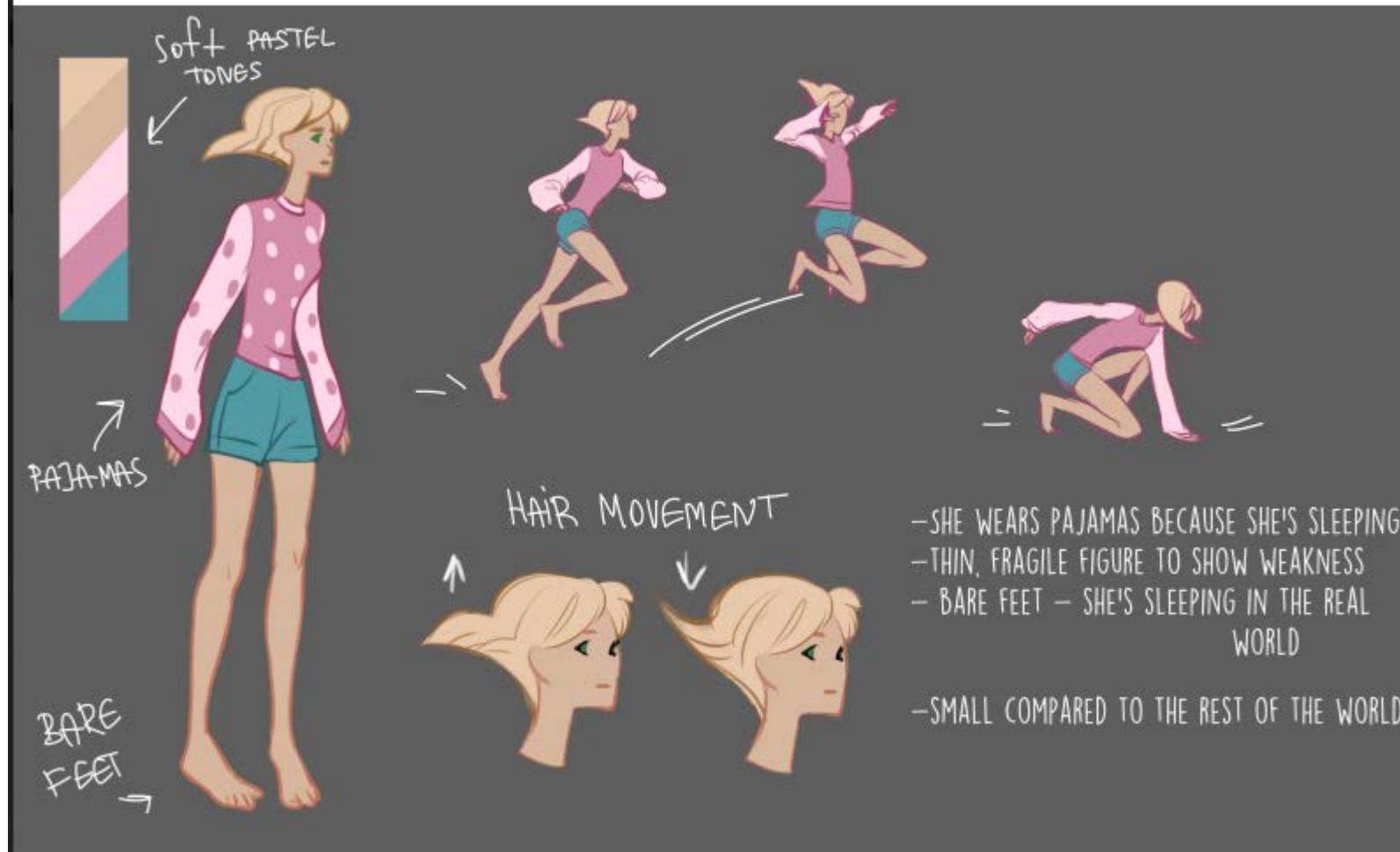
Chasing a mysterious shadow, she's on her way to self-discovery.

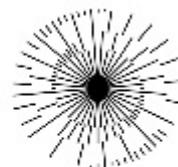
M setting (Around 200 words)

She wakes one day in a messy room with a phone by her side, with messages from unlisted numbers. She sees a shadow that she chases after. As she chases after the shadow she encounters items, notes and talks with the shadows of the people she knows. It is a journey of self-discovery. As she encounters each shadow she learns and accepts different things about herself.



The Protagonist of the story by Botakoz Temirkhan





by Helena Chojnowska

MAIN CHARACTER

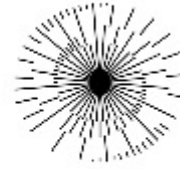




UNIVERSITY OF SILESIA
IN KATOWICE

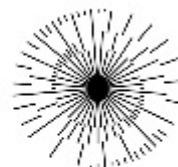


POLISH NATIONAL AGENCY
FOR ACADEMIC EXCHANGE



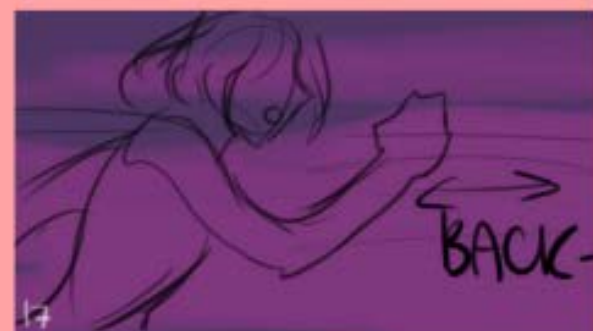
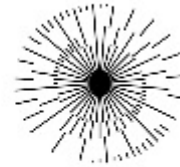
GAME LAB





First storyboard tryouts by Sabina Akhmetova





references



Tokyo University of Technology, Japan

3. Game and Sound Design team
Hirokazu Yasuhara and Akinori Ito

30th April, 2021

Progress of Game and Sound Design team

Survey References

A gamer's Brain: How neuroscience and UX can impact Video Game Design - Celia Hodent

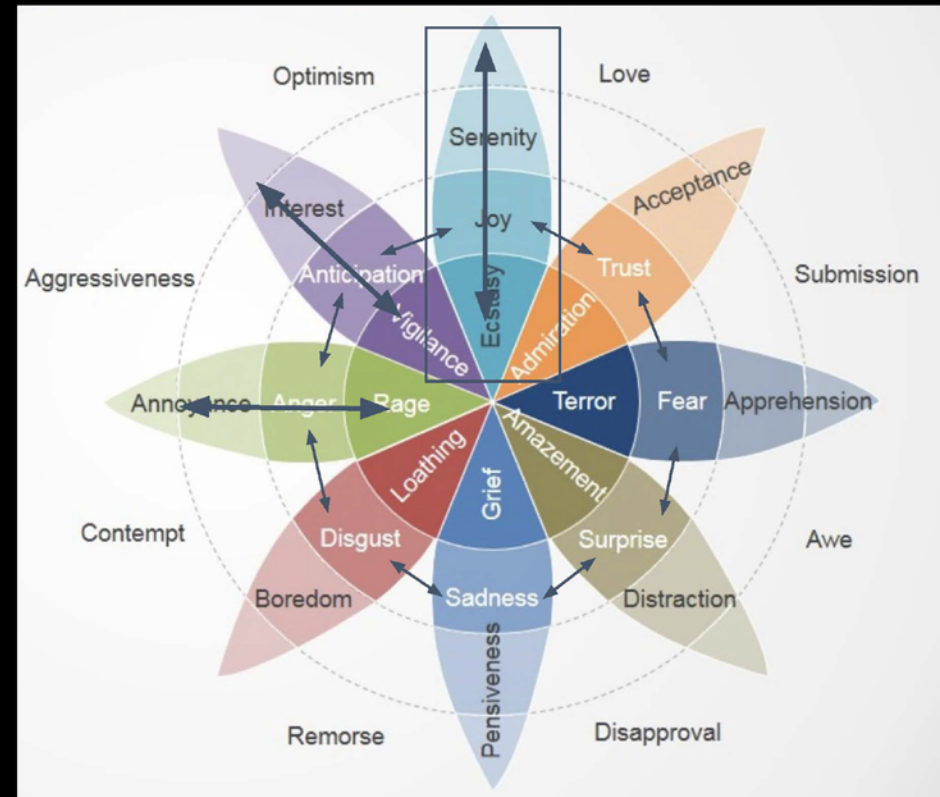
Game sound an introduction to the history, theory, and practice of video game music and sound design - Karen Collins

Survey Games

Analyze the actual game based on the references

Sound - Approaches to Dynamic Game Music

1. **Branching State-based Music**
 - a. Game Sound's takeaway
 - b. Application to existing games
 - c. Application to Understand You
2. **Variable Mix**
 - a. Game Sound's takeaway
 - b. Application to existing games
 - c. Application to Understand You
3. **Variable (Open) Form**
 - a. Game Sound's takeaway
 - b. Application to existing games
 - c. Application to Understand You



Sound Design - Branching State-based Music

Destiny 2 (2017):

- ❖ Using **State** (Ambient, Tension, Light Action, Action, High Action etc.) for ambient music
- ❖ Using **Wwise**
- ❖ Have transition between each state

In the demo from GDC, it transition by the order which is "Light Action > Action > Light Action > Action > Tension > High Action > End".



Sound Design - Variable Mix

Mario 64 (Nintendo, 1996):

- ❖ Changes in **location** result in changes in **instrumentation**

An electric piano is used while the character is on **shore**, strings are added in **underwater**, and bass and drums kick in at various places (ex. **near the goal**).



Sound Design - Variable (Open) Form

The Legend of Zelda: Ocarina of Time (1998):

- ❖ The Music of Hyrule field is made of sequences which were played **randomly**
- ❖ To maintain **interest** and **diversity**, during the time of running across Hyrule field

The music is build by about 40 sequences of 8 measures.



Sound - Function

1. Attention/Warning
 - a. Game Sound's takeaway
 - b. Application to existing games
 - c. Application to Understand You
2. Symbols and Lightmotif
 - a. Game Sound's takeaway
 - b. Application to existing games
 - c. Application to Understand You
3. Hints and goals through dialogue
 - a. Game Sound's takeaway
 - b. Application to existing games
 - c. Application to Understand You



Sound design - Attention / Warning

Dead by Daylight(2016):

- ❖ If the player is a survivor, the **heartbeat** begin to sound as they approach a certain distance from the killer.
- ❖ In addition, when the distance to the killer gets closer, it switches to critical music

Affects player decision-making, such as moving away from the killer or attracting the killer



Sound design - Symbols and Lightmotif

ENEMY ZERO(1996):

- ❖ It expresses the position of the enemy by increasing or decreasing the volume, pitch, change in sound playback interval, etc. (localization is not used)

If the player's own learning situation is shining, the positional relationship with the



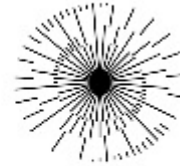
Sound design - Hints and goals through dialogue

Animal Crossing: New Horizons(2020):

- ❖ player and animals react according to their condition and feelings

Sound effects are used to express the emotions of the animals.





UX, Emotion & Motivation

1. **Emotion**
 - a. The Gamer's Brain's takeaway
 - b. Application to existing games
2. **Motivation**
 - a. The Gamer's Brain's takeaway
 - b. Application to existing games

UX design - Emotion

Until Dawn

Until Dawn is a good example of a game that demonstrates its emotional side through its dark and horror-like visual aesthetics and sound design. The user is constantly reminded about the idea of fear through these elements. Which can affect the user's choice throughout the game.

Sound and animation have a movie quality to them, in length and treatment.

Color balance pushes the player's mind in an appropriate **mood**.

Later in the presentation, we will be talking about the interactions the user has with the game.

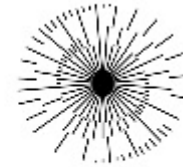


UX design - Motivation

Kindergarten

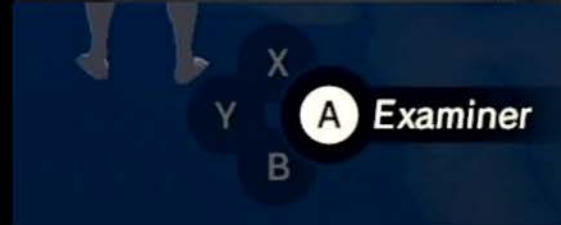
Kindergarten is a good example of a game that drives curious users with a wide sort of endings base on the actions that were done in the playthrough. This can be base on what items the user interacts with and which NPC they had talked to. Some endings can not be unlocked unless the user has met a condition on one of their previous runs.





UX - Signs and feedback

1. **Signs, Clarity and Affordance**
 - a. Gamer's Brain's takeaway
 - b. Application to existing games
 - c. Application to Understand You
2. **Feedbacks and Game Feel**
 - a. Gamer's Brain's takeaway
 - b. Application to existing games
 - c. Application to Understand You
3. **Signs & Feedbacks, Consistency and Breaking the promise**
 - a. Gamer's Brain's takeaway
 - b. Application to existing games
 - c. Application to Understand You



UX design - Signs, Clarity and Affordance

Dead Space:

Intradiegetic informative signs

- ❖ HUD and menu's existence is explained **in universe** (holograms, life suits, munitions)
- ❖ **Navigation** and **telegraphing** of potential danger is indicated by **blood** on walls

The signs are tied to the **functionality**, the **clarity** and the **meaning**. It won't break immersion and will be recognized easily for what it is.



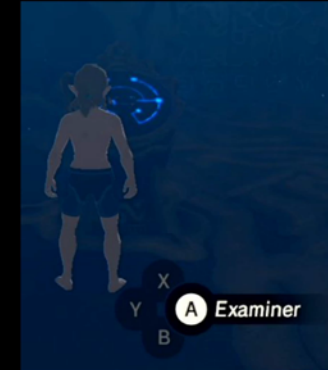
UX design - Signs, Clarity and Affordance

Zelda, Breath of the wild:

Systematic inviting signs

- ❖ Calls to action are shown **every single time** the user **can** do it
- ❖ Clear font, showing **corresponding button** on the device **in context** to other buttons

The player doesn't need to guess or remember the needed input, and doesn't need to look at their controller to get to press the correct one.

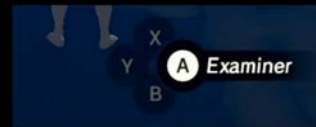


Signs, Clarity and Affordance

In **Understand you**, there is 4 type of interactions:

- ❖ Navigation
- ❖ Textbox dialogues and computer display
- ❖ Trivial interactions
- ❖ Communication through emotions

To get the best of all those features, applying clear and affording signs will be crucial, as the ambience of the game could be broken if the player doesn't understand what they can do and what situation they are in.



Signs, Clarity and Affordance

In **Understand you**, there is 4 type of interactions:

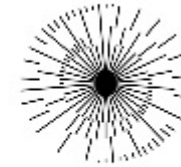
- ❖ **Navigation**
- ❖ Textbox dialogues and computer display
- ❖ Trivial interactions
- ❖ Communication through emotions

Navigation will set the mood of the closed spaces we have access to.



Use level design, lines of sight, environmental narrative to convey navigation information





Heavy Rain's mimetism

The controls in Heavy Rains ask the player to do the movements with a direction and a behaviour as close as possible than the real life equivalent of the avatar's gesture on the controller.

It uses it to give **weight to gestures** and t make a point about what you can control or not when you are depressed.



Hollow Knight: Geo bank mechanic

Millibelle the Banker's Geo Bank is presented as a **gameplay comfort mechanic**, as you can lose your geos when dying twice in a row in Hollow Knight.

After some time, using the bank, Millibelle's **disappears**.

- ❖ It robs you of geos
- ❖ It removes a mechanic from your usual routine, you have to do without

Psych of Play

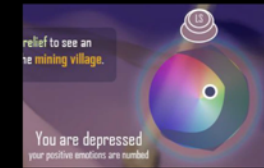


Feedbacks and game feel

In order to make the game **Understand you** as immersive as possible, we'll use the timing and the length of every feedback element to enhance the sense of belonging of the player inside the lab.

The mapping will try to **mimic** the actual **mental effort** we need to get through someones **emotions**.

- ❖ Sound Design to make input feedback clear even when reaction is abnormal. (flip light button)
- ❖ Immersion by ambiance
- ❖ Color palette
- ❖ No HUD



Engineer helplessness

Stéphane Bura's work on **engineer emotions**

- ❖ Establish routines programs
- ❖ Establish method of use for Core Loop
- ❖ Reverse the use of the mechanic to a new context to **create meaning**

- ❖ Get checklist
- ❖ Turn on the lights
- ❖ Turn on the machinery
- ❖ Get devices
- ❖ Laboratory's traversal
- ❖ Sit and "talk"
- ❖ Validate checklist

Elements of the list will go less and less as planned

Understand you - scenario

• Day 1 • Day 2 • Day 3 • Day 4 • Day 5



The list is used less and less as planned



**Koji Mikami, Kunio Kondo
Motonobu Kawashima, Kazuo Sasaki, Hirokazu Yasuhara,
Akinori Ito, Takashi Ohta, Taichi Watanabe**

STUDENTS TEAM

**1. Scifi_wabisabi : Motonobu Kawashima
Robin Mariančík, Michal Náhlík**

**2. Character-making : Kunio Kondo, Kazuo Sasaki
Helana Chojnacka, Olesia Chirkovskaia, Sabina Akhmetova, Botakoz Temirkhan**

**3. Game and Sound Design : Hirokazu Yasuhara, Akinori Ito, Koji Mikami
Matthew Kounechongprasert, Romane Rakotovao**

Asian Forum on Graphic Science 2021

6-8, DEC, 2021, HONG KONG

[HTTPS://AFGS2021.COM/](https://AFGS2021.COM/)

OUR Proposal of
the organized session and virtual gallery
on Monday, the first day of the conference.
Session are FS2 and FS4.

Presentation time of each university is
20minites with QA

Time	Dec 5 (Sun.)	Dec 6 (Mon.)	Dec 7 (Tue.)	Dec 8 (Wed.)
08:00-09:00		Registration		
09:00-09:30		Opening Ceremony & Group photo	Registration	Registration
09:30-10:00		Invited Lecture IL1	Invited Lecture IL5	Invited Lecture IL6
10:00-10:20		Coffee break		
10:20-10:50		Invited Lecture IL2	Full Paper Session FS5 & FS6 FS5 -Computer Graphics FS6 -Graphics Education	Full Paper Session FS7 & FS8 FS7 -Computer Graphics FS8 -Graphics Education
11:00-12:30		Full Paper Session FS1 & FS2 FS1 - Theoretical Graphics and Geometry FS2- Applied Graphics and Geometry for Art, Science and Engineering		
12:00-12:30		Lunch		
12:30-14:00		Lunch		
14:00-15:00	Registration	Invited Lecture IL3 & IL4	Half-Day Tour	
15:00-15:20		Coffee Break		
15:20-17:00		Full Paper Session FS3 & FS4 FS3- Theoretical Graphics and Geometry FS4- Applied Graphics and Geometry for Art, Science and Engineering		
17:00-18:00		Poster Session		
18:00-20:00	Welcome Reception		Banquet (out of Campus)	

AFGS2021 Important Dates (<https://afgs2021.com/schedule-and-deadlines/>)

- Submission of Abstracts: 30 June 2021 (30, May 2021) one month later.
- Notification of Abstract Acceptance: July 15, 2021 (15, June 2021)
- Submission of Full Paper: 31 July 2021 or 15, August 2021 (31, July 2021)
- Submission of Final Paper: September 31, 2021, 15, August 2021 (31, July 2021) two week later.

PAPER submission:

1. ABSTRACT for Papers

<https://afgs2021.com/submission/>

AFGS2021 Abstract Format Instruction (Word file)

<https://afgs2021.com/wp-content/uploads/2021/03/AFGS2021-Abstract-Format-Instruction.docx>

2. Submitting Full Papers

AFGS2021 Full Paper Format Instruction (Word file)

<https://afgs2021.com/wp-content/uploads/2021/03/AFGS2021-Full-Paper-Format-Instruction.docx>

The full paper must be original and unpublished anywhere else, ranging from 6 to 12 pages.

I recommend 6 pages with many images of students' work.