TAKING ROOT

Pass through mind bending worlds with distorted spaces and twisted laws to find a new home where you can take roots again!

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Summary

"Taking Root" is a PC Game which depicts the emotional experience of escape on an abstract level. Its purpose is to encourage players to empathize with people having experienced such a journey in their lifes.

The protagonist is a stone creature that lives in a closed symbiosis with a plant. Both the plant and the protagonist depend on each other and reflect their mutual feelings. After their formerly pristine homeland turned into a concrete covered metropolis, they had to leave in order to find a new home.

The Player controls the protagonist from a third-person perspective and has to solve a multitude of non-Euclidean space puzzles along the way by understanding and applying new laws in each area. Examples of such architecture that don't conform to Euclidean rules would be spaces that are bigger or smaller on the inside than they look from the outside, gateways that lead to different areas depending on how you enter them or never-ending staircases. To see through these tricks it will sometimes be necessary to look at it from a different perspective or think outside the box.

The Game World is based on a 3D stylized Art Style, the colors in each Area as well as the soundscape represent the emotional state of the protagonist.

Game Description

The player accompanies a small loving stone creature with a deep connection to a young seedling. They are fleeing their birthplace in order to find a new home where they belong. In order to overcome the various challenges ahead, they have to adapt to the upcoming area's surreal environments.

With "Taking Root" we want to create an emotional experience of escape on an abstract level. We do not find ourselves in the position of depicting this subject in an autobiographical or explicit way. Nevertheless we find it important to tackle this topic and to encourage players to empathize with people having experienced such a journey in their lifes.

Our focus is on the protagonists feelings which are reflected in the environment as well as in the condition of the plant, that the protagonist is carrying the whole game. To reproduce the feeling of being a stranger in a foreign place in an abstract way, we utilize different concepts of non-Euclidean space. The game consists of 3 areas, each of them having individual rules of physics and space. In order to pass through each level, the protagonist has to understand and apply these foreign rules. The goal of this mechanic is to represent the challenges of adapting to new languages, new social rules and new bureaucratic sytems.

Features

Non-Euclidean spaces:
The game will include geometry puzzles that do not conform to our natural and logical understanding of the world.

Abstract escape theme:
The topic of fleeing is represented in a abstract manner throughout the game.

Stone creature and plant symbiosis:
The Player can put the plant down in order to gain strength in its proximity.

Interactables:
The Player can interact (push, pull, pick up) with different objects, like levers, boxes or doors.

Gameplay Highlights

On their way through the different areas of "Taking Root", players will come across a multitude of abstract puzzles, which need to be solved for further progression. To simulate a feeling of distance and non-belonging, most of the environments along the player's path will use some form of non-Euclidean geometry and follow different, unfamiliar rules they temporarily need to adapt to by reevaluating their current situation and understanding of their surroundings. To see through the tricks of this unwelcoming world it will sometimes be necessary to look at it from a different perspective or think outside the box. The controls of the game are fairly simple. Players will control the protagonist from a third-person perspective. They can walk or run around, jump, and interact with objects near them. These interactions include pulling levers, pushing boxes, and picking up objects, among others. In order to interact with their surroundings, the player will need to temporarily put down the plant they are carrying.

They can put it down or pick it up whenever they please, but since their species lives in a symbiotic co-existence with their personal plant, they gain power by being near it, so if they move too far away from it, they will notice a significant drop in strength and, for example, not be able to push heavy objects anymore. Additionally, if put down, the plant can only emit its strengthening aura if it is standing somewhere with warm enough temperature, like in the sunlight.

Tech Highlights

As previously mentioned, the in-game areas will contain different forms of non-Euclidean geometry and perspective-based puzzles, that intend to trick the player's mind. Examples of such architecture that don't conform to Euclidean rules would be spaces that are bigger or smaller on the inside than they look from the outside, gateways that lead to different areas depending on how you enter them or never-ending staircases. To simulate this, a mixture of visual and geometric tricks need to be applied, like using multiple cameras to render different perspectives onto objects and seamlessly teleporting the player from one place to another.

Puzzle Example
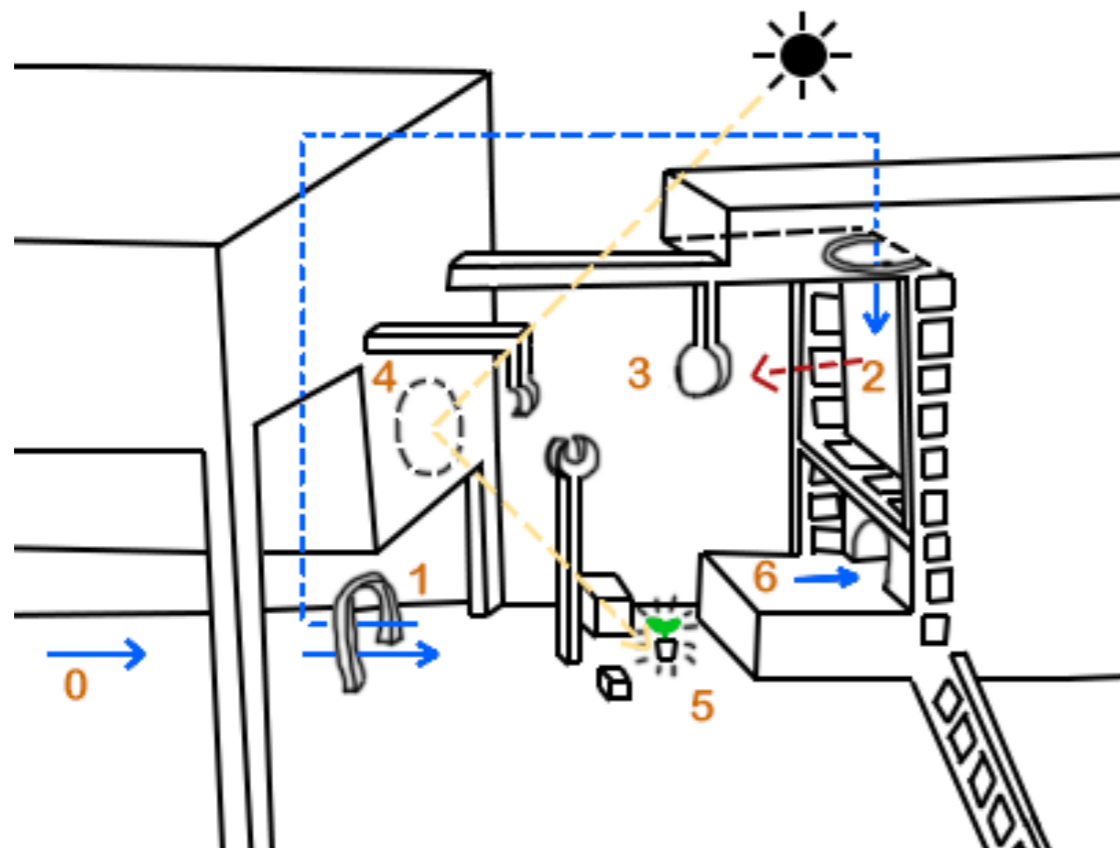
Note: This is only a theoretical concept of a puzzle and not indicative of how the game will look like, especially since the game will be played in third person during actual gameplay.

The player enters this puzzle from the left (0). They are then supposed to examine the gateway (1) in front of them, which they can normally go through without anything weird happening. If they pass the gate and enter it from the other side though, they will enter a different part of the level (2). In this section the gravity will be flipped sideways, and the player will stand on the wall. From there they should look upwards to discover a forced perspective puzzle, in which they need to align their view in order to put pieces of the level together to form an emblem. This emblem will then become real on the wall "above" the player (4). They can then proceed to go back through the gateway and see how the sun reflects off the new emblem and onto the ground. Next, they should place their plant on the ground that is exposed to sunlight (5). Now that they aren't carrying anything anymore and the plant is giving the player in proximity strength, they can move the blocks nearby and build themselves stairs to the puzzle exit (6).

Art Design

The artistic representation of the game is done in a stylized Art style and the colors of each area represent the emotional state of the protagonist.

Area 1

Our protagonist starts in an unwelcoming desaturated city, with no plants. The starting area is a dark place with tall buildings and the ground is covered with concrete. There is only one small square left where a piece of ground is not covered with concrete, where our protagonist picks up their plant. This area has the prominent colors of grey, dark brown and black, with the only contrast of the protagonist and the plant themselves.

Area 2

The protagonist leaves their concrete covered homeland with their plant and find themselves in a cold, snow covered icescape. The Area has a lonley feeling to it, due to its seemingly endless realms and out of place Geometry that are reminders of a long forgotten civilisation. As they go further they find tall buildings that are carved in stone. This area is still desaturated, but the colors change to a blueish tint, the most prominent colors here are white, grey and blue.

Area 3

The last area is just a small valley enclosed with mountains too high to climb. It has lots of familiar looking foliage and is warm and welcoming because here the colors are saturated. The area has plants that look exactly like the plant the protagonist is carrying. In the middle of the valley is a shrine made out of the same stone the protagonist is made from. Godrays hit the shrine and dust particles dance in the air. The Area has a lot of colors, because small and very big colorful stones are covering the area, but the most prominent color is still green.
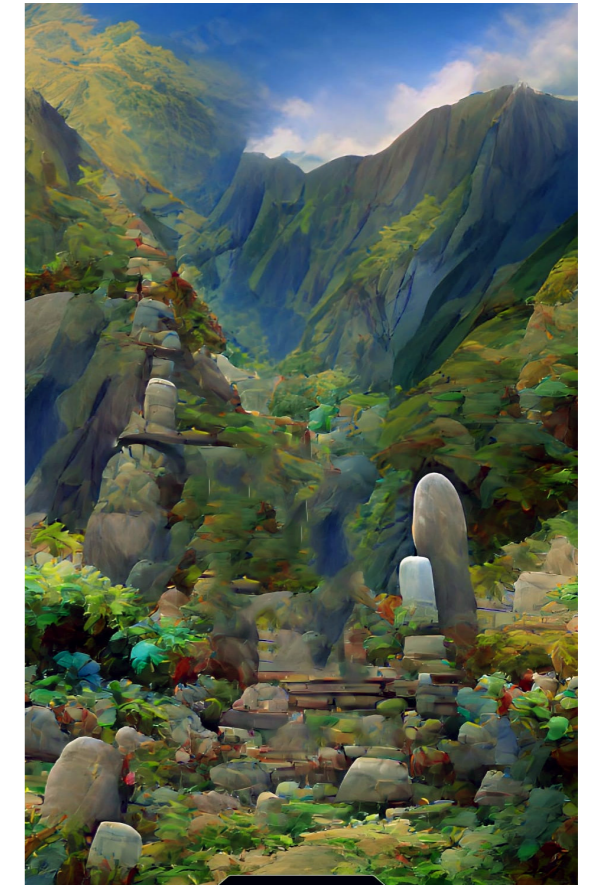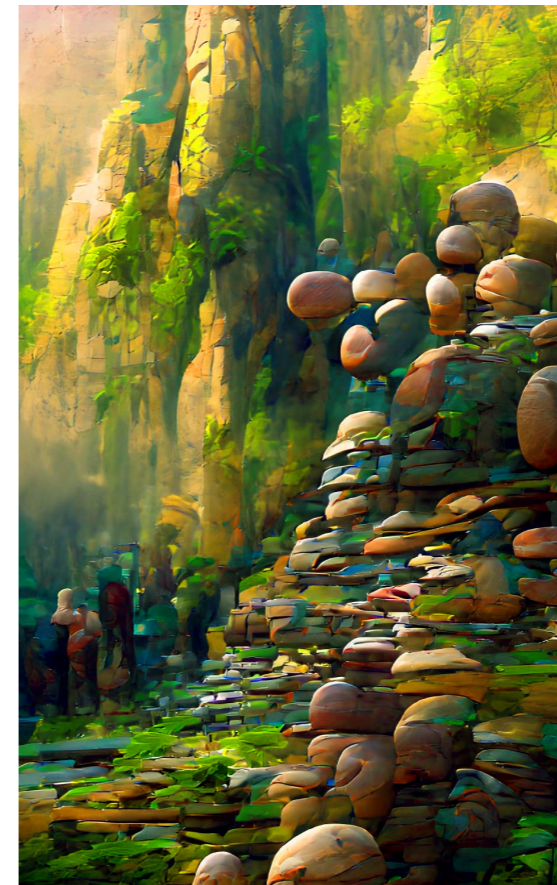
Area 1 Mood

Area 2 Mood

Area 3 Mood

Art Style Reference

Tuur Sangers
Texture / Environment Artist

Tuur Sangers
Texture / Environment Artist

Audio Design

Music

The music changes from area to area and represents the mood of the current area. In the first area the music is dark with a deep bass that should convey a feeling of danger and uncertainty. The second area has a inconspicuous soundtrack that is subliminal with some higher pitched notes that should convey the feeling of ice. In the last area the soundtrack changes to a calming tune, with some joyfull upbeat notes, it should convey the feeling of comfort and happiness.

Atmosphere

As well as the music, the atmosphere also changes from area to area. In the first area the Atmo only consists of hollow and dull noises. In the second area the Atmo changes to howling wind. In the last area the Atmo consists of leaves rustling, rippling rivers, insect and whistling noises.

Sound Effects

The sound effects include foley recording of footsteps, voice recordings for the protagonist that are synthetically altered, sound effects for interacting and a synthetically designed sound when a puzzle is solved. The footsteps differ from the ground, in the first area the ground is concrete, in the second are the ground is snow, ice and stone, in the last area the ground is meadow and stone. For the voice of the protagonist only sounds, like "hjua" and no actual words are needed.

Hardware

The game "Taking roots" will be a PC Game for Windows, which will be based on the game Engine "Unity". The game can be played with mouse and keyboard or with a controller.

Gameworld

Our protagonist grows up in a natural and pristine place. This idyllic spot is inhabited by small stone people, the so-called "Lithops". They value their environment and are responsible for its balance. Each of them lives in a closed symbiosis with a plant. Both the plant and the stone depend on each other and reflect their mutual feelings. As soon as one of these plants dies, their partner will lose their connection to life and nature. This is what happened to a couple of them some years ago. Over the course of industrialization they started to value money and consumption more than life and nature and finally even forgot about their botanic friends. When they neglected their plants, they turned away from sustainable and simple living and started to dedicate themselves to big buildings of metal and stone instead. Gradually, the former home of nature and beauty is replaced by gray cities made of concrete and steel growing higher and higher into the sky. These disrooted Lithops are constantly working on the expansion of their new civilization and seem to be gradually merging with it, becoming more and more dulled.

The mission begins

All the Lithops which were still connected to their plants already left their birthplace to find a new home. But one Lithops didn't lose hope. They couldn't believe that the others would really destroy nature and therefore their base of life. This Lithops stayed their waiting and hoping for change, yet one day had to accept, that this place where they grew up between plants and trees and bushes, wasn't the same anymore. There was not a single place left for plants to grow and the Lithops was afraid for their seedling to die and therefore to lose their connection to life and nature. That's why they decided to flee this place consisting of concrete and to find a new home.

The protagonist's highest priority is to protect the plant from any harm. The areas through which the character now wanders are foreign and bleak. The protagonist will face areas with odd physics which it has never seen before.

While the otherwise clumsy and reserved stone creature tries to resist the foreign influences of nature, it is forced to come out of its comfort zone. Its fears and insecurities are discarded during its journey. All of this happens for the sake of its beloved seedling. Taking care of it gives the Lithops a self-confidence and strength that it could have only dreamed of.

The goal of our protagonist is to maneuver through the foreign country with the help of creativity and skill and finally to arrive safely in the new home. Then the lithops and its seedling can live together in safety and harmony as before.
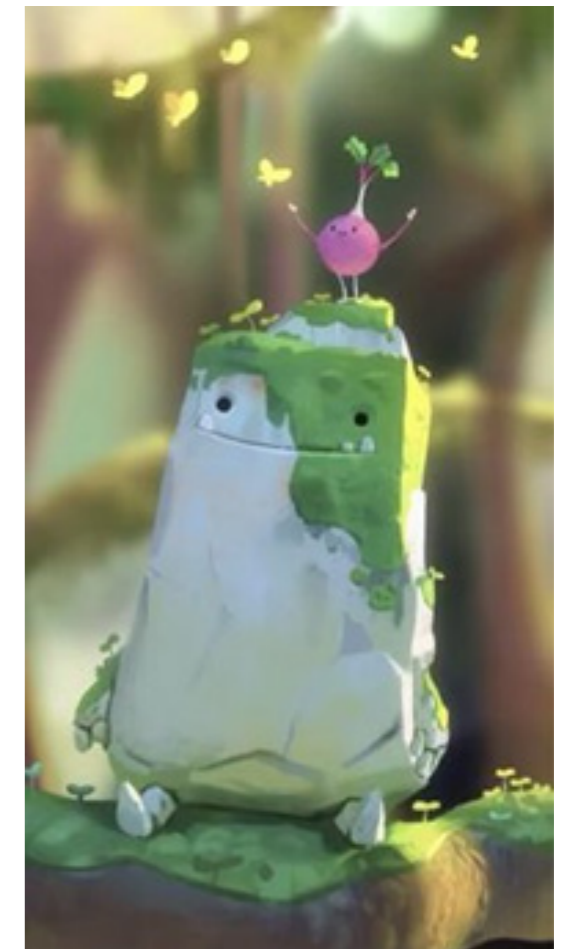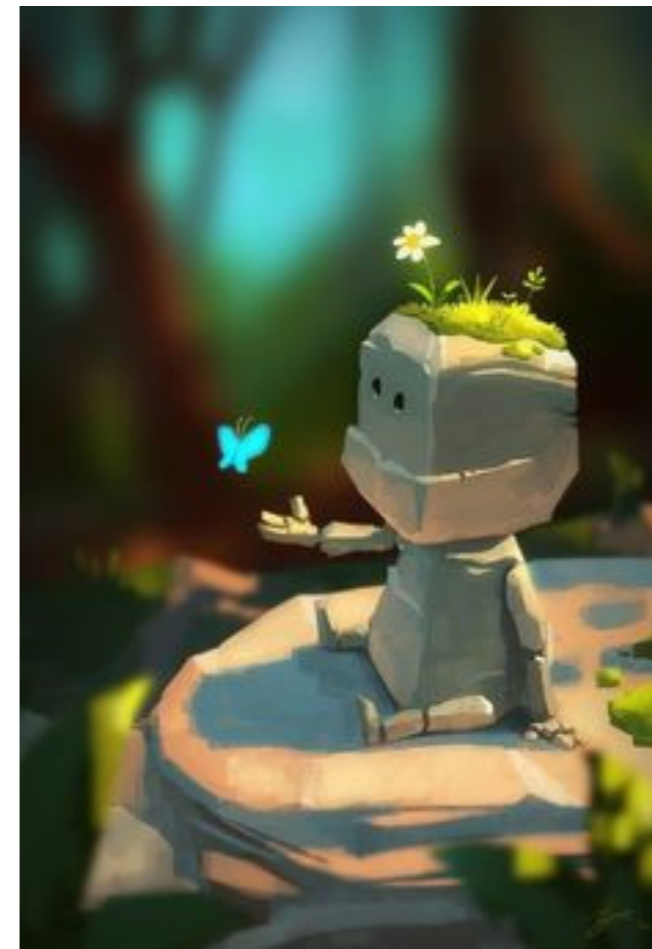
Productiondetails

Team

Helen Hinrichs:
MultimediaTechnology student at University of Applied Science Salzburg

Special skills:
Gameplay programming, software design patterns, QA, composing, audio editing

Sarah Hagleitner:
MultimediaArt student at University of Applied Science Salzburg

Special skills:
Concepting, Modelling, Texturing

Cedric Ferstl:
MultimediaTechnology student at University of Applied Science Salzburg

Special skills:
Gameplay programming, Shader programming, Puzzle conception

Benjamin Kunz:
MultimediaTechnology student at University of Applied Science Salzburg

Special skills:
Game programming, UI, Inventory system, Projectmanagement

Pascal Patrice Vincent Betsche:
MultimediaArt student at University of Applied Science Salzburg

Special skills:
Computer Animation, Modelling, Texturing, Shading, Rigging

Vivienne Estella Depauli:
MultimediaArt student at University of Applied Science Salzburg

Special skills:
Concept Art, Modelling, Texturing, Lighting, Environment Design

Cost planning

3 MMT students * à 12 ECTs à 25h -> 3 * 300h = 900 h * 16€/h1 = 14,400€
3 MMA students * à 21 ECTs `s 25h -> 3 * 525h = 1,575 h * 16€/h1 = 25,200€

Total salary for this project = 39,600€

To be sure, we should calculate with an additional buffer of ca. 500h
(and therefore an additional salary of 8,000€, which would lead to a sum of 47,600€ or 50,000€ with additional budget for investment in tools or e.g., audio editing services.)

(1: in our studio artists get the same wage as programmers, although we know that isn't often the case in the real world. The hourly wage is oriented on a starting salary of ca. 2,600€/month. Considering that we haven't finished our bachelor yet, we went down to 16€, which would sum up to 16€ * 4 weeks * 38.5h = 2,464€/month)

In the 5th semester each MMA student gets 8 ECTs (total of 200h) for MMP3 preparation and each MMT student gets 2.5 ECTs (total of 62.5h) for MMP3 pre-production.

In the 6th semester each MMA student gets 13 ECTs (total of 325h) for MMP3 preparation and each MMT student gets 9.5 ECTs (total of 237.5h) for MMP3 pre-production.

(In our opinion these calculated workload differences between MMA and MMT seem to be a little bit odd, nevertheless we will use it as a foundation for our project planning.)

	Pre-production	Production main phase
Time span	01.08. – 23.12.22	01.01.-15.05.
Total weeks	20	19
MMA ECTs	8 ECTs	13 ECTs
MMA total hours	200 h	325 h
MMA estimated hours/week	10 h/week	17 h/week
MMT ECTs	2.5 ECTs	9.5 ECTs
MMT total hours	62.5 h	237.5 h
MMT estimated hours/week	3.125 h/week	12.5 h/week

Project Plan

Taking Root

Preparation Phase
- Research about "Escape"
- Researching Non-Euclidean Space
- Prototyping Non-Euclidean Space
- Character Concept Art
- Starting Environment Concept Art
- Last Environment Concept Art
- Phase Feedback

First Low-Fidelity Prototype
- Last Environment Concept Art
- Character Block-out
- Character Rigging
- Character Modeling
- Prototype Block-out
- Programming First Prototype
- Testing Prototype + Art Feedback

First Playable Prototype
- 1st Environment Modeling & Texturi...
- Character Animation
- Character Modeling
- Blockout Prototype
- Programming Gameplay
- Testing + Feedback

Prototype with Assets
- 1st Environment Modeling & Texturi...
- Character Animation
- Character Texturing
- Integrating Assets into Prototype
- Bug Fixing
- Testing Prototype

Improving Prototype
- 2nd Environment Modeling & Texturi...
- Refine Character Animation
- UI Design
- UI Programming
- Bug Fixing & Optimization
- Testing Prototype

Vertical Slice
- Level Lighting
- 2nd Environment Modeling & Texturi...
- Composing & Integrating Music
- Level Design Vertical Slice
- QA
- Vertical Slice Build & Test

First Studiowoche: Build Start Level
- VFX
- SFX
- Level Design 1st Area
- Integrating Assets into Project
- Bug Fixing
- First Area Build & Test

Integrating User Feedback from St...
- Last Environment Modelling & Textur...
- VFX
- Integrating User Feedback into Art
- Integrating Assets into Project
- Bug Fixing
- Second Area Build & Test

2nd Level
- Last Environment Modelling & Textur...
- VFX
- SFX
- Level Design 2nd Area
- Bug Fixing
- Second Area Build & Test

2nd Studiowoche: Last Level

Project Plan

- VFX
- SFX
- Level Design Last Area
- Bug Fixing
- Last Area Build & Test

Integrate User Feedback
- Adding Features
- Bug Fixing
- Complete Build & Testing

3rd StudioWoche: Storytelling
- Integrate Environmental Storytelling
- Cutscenes?
- SFX Polishing + Story Focus
- Code Polishing
- Final Build & Testing

Competitors

Story

Because we want to address the topic of escape, we had to look on other games tackling this subject. Although "Taking Root" is supposed to evoke empathy by portraying the emotional experience of people escaping their home country in an abstract way, it is important to consult games being more explicit in depicting that topic:

Against all odds

"Against all odds" was a browser game played with Adobe Flash Player, which was developed in 2007 to increase students' awareness and knowledge about refugee situations by putting players in the position of a refugee. In the game intolerance was one of many obstacles the player was forced to overcome, others include interrogation, flight and language barriers. Divided into three categories - "War and Conflict," "Borderland" and "A New Life" - Against All Odds took players on a journey towards asylum, but also touched on issues of understanding and intuition in different environments. Along the way, players could learn more in the web facts section, where they could read stories and watch films about individual refugees. In addition to providing moving first-hand accounts, the web facts section offered a variety of other important refugee information articles and resources. Additionally, "teacher information" page was created to provides various lesson plans, learning activities, and other interesting educational resources that can be of use both inside and outside the classroom.

We could still find the game inside the web archive, but unfortunately Adobe Flash Player is not longer supported. So, it is not longer possible to play this game.
(source: https://www.unhcr.org/news/latest/2007/11/4731b5064/refugee-game-offers-fear-flight-safety-click-time.html)

Path out

"Path out" is an autobiographical adventure game that allows the players to experience the journey of Abdullah Karam, a young Syrian artist that escaped the civil war in 2014. It was developed by the Austrian game company "Causa Creations" together with Abdullah Karam himself, who can also be seen in some commentaries inside the game. The development isn't finished yet, but the first chapter was already released in 2017 and can be played on steam and itch.io.

The game was developed in RPG-Maker and follows similar (design) rules as old RPGs. The player can interact with some people and things, which can be found in the environment. It seems that some problems can be solved in different ways, but in general it seems like the focus of "Path out" doesn't lie on game play but on telling the story of Abdullah's escape from the Syrian civil war. And indeed - to play an autobiographical character and seeing the "original" Abdullah talking at some occasions, had an interesting impact on our interaction with the game. E.g., we didn't want to steel from other people and acted more morally in general, than we might have had in other games without autobiographical stories and commentaries.

Gameplay

Anti Chamber
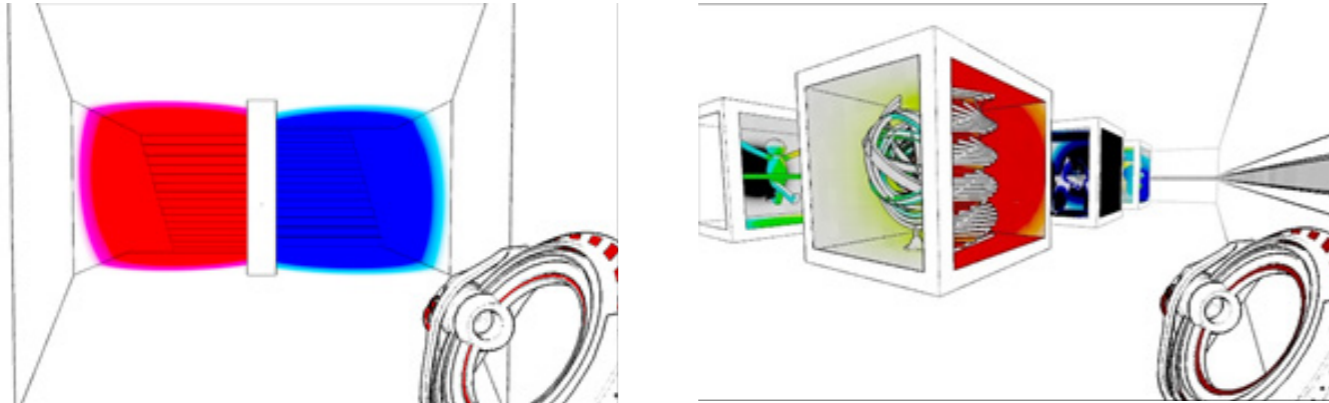
Antichamber is a first-person puzzle game in which the player needs to explore and traverse through a labyrinth of corridors and chambers. To do so, they are equipped with a so called "Brick Tool" (as can be seen in the screenshots above) which allow them to pick up and place certain small cubes, which are placed throughout the game. Although these cube puzzles can also be tricky at times, the real difficulty in progressing lies in the way the chambers and geometry of the game is built, since they often don't follow the typical rules of Euclidean space. To overcome these seemingly illogically structured rooms, the player needs to study their surroundings carefully, break down their own expectations and adapt by rebuilding them accordingly.

Monument Valley

In Monument Valley, players can manipulate architecture in order to guide a princess through multiple puzzles. The game plays from a 2.5D perspective, meaning the world itself is portrayed as 3-dimensional, while the player looks at it from a 2-dimensional perspective.

To solve the puzzles, it is necessary to see through a multitude of optical illusions. These illusions are created by making use of the player's perspective in order to simulate situations, in which the princess needs to traverse over impossible objects or along other strangely behaving geometry and physics, similar to those of non-Euclidean spaces. The game was made for mobile platforms and consists of 10 levels, each introducing a different central mechanic.

Superliminal
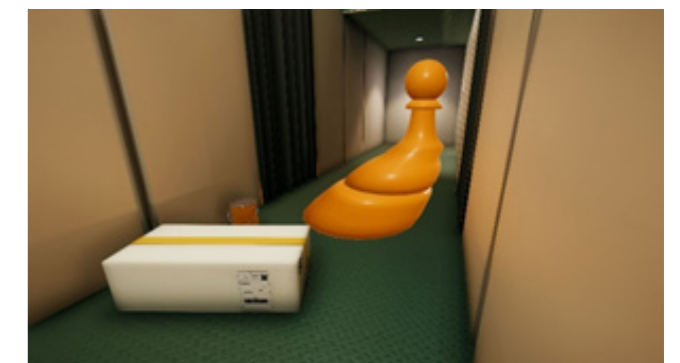
A
nother game that makes use of optical illusions and includes them into their gameplay to make surreal puzzles is Superliminal. In this first-person game, the player can grab objects and, depending on where they set it back down, it will be scaled differently. This scale always matches the current view of the held object, making use of the fact that objects, which are further away appear smaller than objects that are very close to you. Later, the game also makes use of different lighting tricks or situations, in which the player must view multiple segments of a painting from the right perspective, making the object on it come to life and become interactable. Overall, all the puzzles play around with the concept of perspective, especially forced perspective, in some way.

Puzzle USP "Taking roots"

"Taking Root" sets itself apart from other games, which make use of optical illusions and non-Euclidean spaces, by introducing these mechanics into an organic environment. Most games that try to trick the player's mind with techniques like these do so in an enclosed and seemingly man-made space. This is because the seemingly logical and relatively basic geometry of those spaces often make it easier to hide the technological aspect on how these tricks are simulated in the game's environment and make it easier for the player to notice when something is off as a result of the usually rather minimalistic world design.