

Schizophrenia Simulation

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CS 4624 - Multimedia/Hypertext - Dr. Fox

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Outline

- Recap
- Timeline
- Completed Work
- Future Plans
- Acknowledgements
- References

Recap

- VR simulation focusing on a character experiencing schizophrenia symptoms
- Designed to create awareness and address stigma around the disease
- Based off Janssen Pharmaceuticals research on schizophrenia



Dr. James Ivory

Professor of Communications
Founder of VT G.A.M.E.R Lab



Objective & Deliverable

Objective:

- To create a VR simulation that recreates the symptoms of schizophrenia

Deliverable:

- VR Simulation, user can experience effects of disease
- Visual hallucinations
- Auditory hallucinations

Timeline

February ✓

March ✓

April

May

Research

Development &
Testing

Refinement & Testing

Showcase

Decide on simulation
type

Research tools and
topics

Create storyboard

Completed alpha
version by end of month

Begin meetings with
professionals

Beta version refinement

Production version by
end of month

Continued meetings

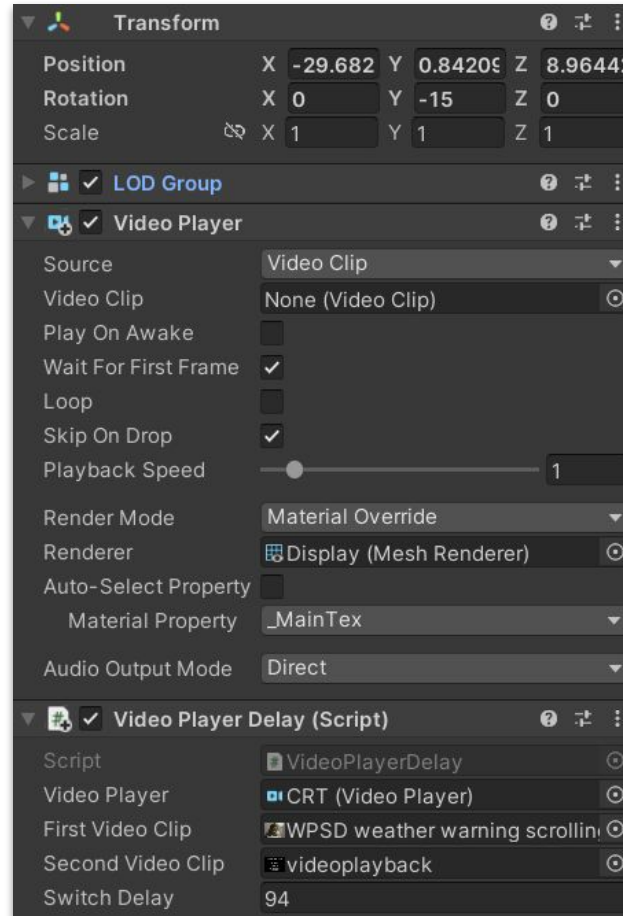
Present finished
product, presentation,
and report



Completed Beta

Implementation - Beta

- Visual scripting API vs. C# implementation
- Character design
- Scene elements
 - Auditory hallucinations
 - Visual hallucinations
- Design consequences



Visual Scripting

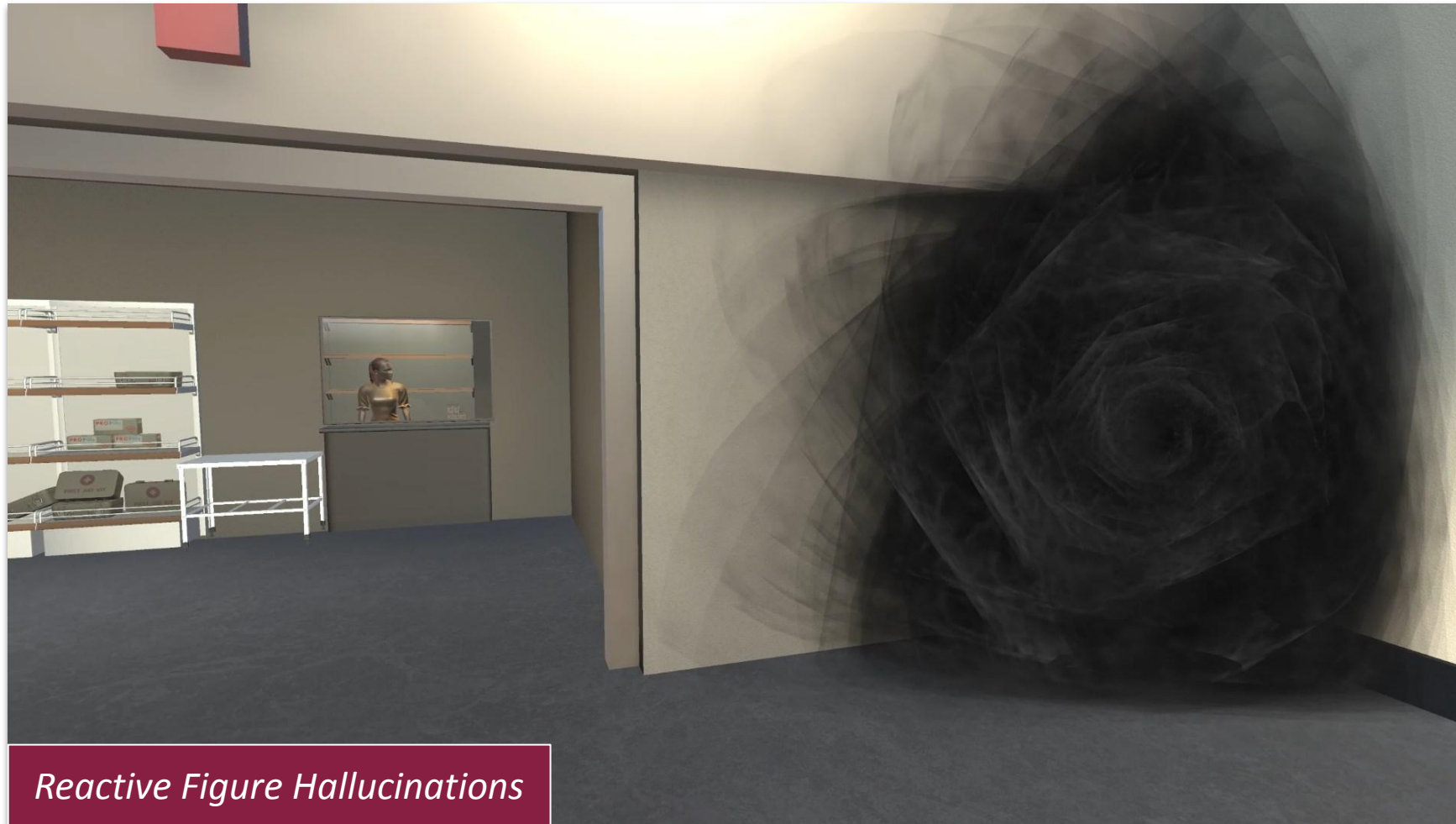
```

1  using UnityEngine;
2  using UnityEngine.Video;
3
4  public class VideoPlayerDelay : MonoBehaviour
5  {
6
7      public VideoPlayer videoPlayer;
8      public VideoClip firstVideoClip;
9      public VideoClip secondVideoClip;
10
11     // The delay before switching to the second video
12     public float switchDelay;
13
14     // Start is called before the first frame update
15     void Start()
16     {
17         videoPlayer.clip = firstVideoClip;
18         videoPlayer.Play();
19
20         Invoke("SwitchVideo", switchDelay);
21     }
22
23     // Switches the video to the second video clip
24     void SwitchVideo()
25     {
26         // Stop the current video
27         videoPlayer.Stop();
28
29         // Set the second video clip to play
30         videoPlayer.clip = secondVideoClip;
31         videoPlayer.SetDirectAudioVolume(0, 0.5f);
32         videoPlayer.Play();
33     }
34 }

```

C# Object Oriented Scripting

Completed Work - Design Elements



Completed Work - Design Elements



Pharmacist Scene

Completed Work - Design Elements



Completed Work - Unity Packages

Package	Justification
High Definition RP	HD scripting rendering pipeline used for project shaders and to light the character models
TextMeshPro	Provides improved control over text formatting for in-game elements
Unity UI	Used for developing UI elements
Visual Scripting	Visual, node-based behaviors to simplify development of non-scripted objects
Oculus XR Plugin	Provides display and input support for Oculus devices
OpenVR XR Plugin	Provides display and input support for OpenVR devices in Unity XR

Audio



MURF.AI

AI voices

Search

125+ Voices

Control how your voiceover sounds

Ken (M) | General | Speed 1x | Pitch 1x | Insert Pause | 4.9s | 6.0s

Driveaway your hunger pangs with Quickyl

Order your favourite meal from hundreds of restaurants in your neighborhood.

Delivered at your doorstep in 15-minutes, or, your next order is free.

Order your favourite meal from hundreds of restaurants in your neighborhood. Download the app today and get 20 percent off on your first order.

Quickly. The fastest food delivery, for instant hunger.

1:00 | 1:10 | 1:20 | 1:30 | 1:40

Driveaway your hunger pangs with Quickyl...

Time it perfectly
















Preview your output

Audio

+ Languages

Search by voice name

Apply voice to entire project

 Charlotte (F) Middle-Aged PRO NEW	 Lucas (M) Middle-Aged PRO	 Daisy (F) Young Adult PRO	 Millie (F) Young Adult PRO NEW	 Dylan (M) Middle-Aged PRO
 Edmund (M) Young Adult PRO	 Michelle (F) Young Adult PRO	 Wayne (M) Middle-Aged PRO	 Iris (F) Young Adult PRO	 Julie (F) Middle-Aged
 Ryan (M) Young Adult	 Thomas (M) Young Adult PRO	 Claire (F) Middle-Aged	 Naomi (F) Middle-Aged	 Rachel (F) Young Adult PRO

Rachel (F) ▾

General Pitch 0% Speed +10% Add Pause

Hi! how

Filter...

- General
- Angry
- Cheerful
- Excited
- Friendly

You ran

Of cou

Audio

“Versatile Video game Voice Overs that breathe life into your video game. Enhance the gameplay experience for your audience by adding rich emotions into your narrative with Murf’s versatile AI voices.” [1]



Audio Source

AudioClip project

Output None (Audio Mixer Group)

Mute

Bypass Effects

Bypass Listener Effect

Bypass Reverb Zones

Play On Awake

Loop

Priority High Low 128

Volume 1

Pitch 1

Stereo Pan Left Right 0

Spatial Blend 2D 3D 0

Reverb Zone Mix 0

3D Sound Settings

Doppler Level 1

Spread 0

Volume Rolloff Logarithmic Rolloff

Min Distance 1

Max Distance 50

Listener

The graph shows the listener's audio parameters over time. The x-axis represents time from 0 to 50, and the y-axis represents the parameter value from 0.0 to 1.0. The parameters are: Volume (red line), Spatial Blend (green line), Spread (blue line), and Reverb Zone Mix (yellow line). The Volume parameter starts at 1.0 and decays exponentially towards 0.0. The other parameters remain at 0.0.

Time	Volume	Spatial Blend	Spread	Reverb Zone Mix
0	1.0	0.0	0.0	0.0
5	0.5	0.0	0.0	0.0
10	0.25	0.0	0.0	0.0
20	0.1	0.0	0.0	0.0
30	0.05	0.0	0.0	0.0
40	0.02	0.0	0.0	0.0
50	0.01	0.0	0.0	0.0

14

Volume Spatial Blend Spread Reverb Zone Mix

Future Work

- Project was designed with further development in mind:
 - Testing and validation of simulation effectiveness
 - Further scene design
 - Voice acting vs. simulated voices
 - Covering more types of hallucinations
 - Production and distribution
 - Conversion to OpenVR project structure and Universal Rendering Pipeline

Acknowledgements

- Dr. Ivory
- Dr. Fox
- Dr. Clinton

References

1. AI Voice Generator: Versatile text to speech software: Murf AI. AI Voice Generator: Versatile Text to Speech Software | Murf AI. (2023). Retrieved April 17, 2023, from <https://murf.ai/>
2. Jordbugg. (2023, January 28). Character customizer: Game toolkits. Unity Asset Store. <https://assetstore.unity.com/packages/tools/game-toolkits/character-customizer-241861>
3. Mixall. (2022, June 2). Grocery store - parking and supermarket: 3D environments. Unity Asset Store. <https://assetstore.unity.com/packages/3d/environments/grocery-store-parking-and-supermarket-224033>
4. Murf.AI Video Games. Murf.AI. (2023). Retrieved April 20, 2023, from <https://murf.ai/voiceover/video-game>