Schizophrenia Simulation

Katherine Fichera and Dillon Domnick

CS 4624 - Multimedia/Hypertext - Dr. Fox
Virginia Tech, Blacksburg, VA 24061
April 18, 2023
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

<table>
<thead>
<tr>
<th>February</th>
<th>March</th>
<th>April</th>
<th>May</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Research</strong></td>
<td><strong>Development &amp; Testing</strong></td>
<td><strong>Refinement &amp; Testing</strong></td>
<td><strong>Showcase</strong></td>
</tr>
<tr>
<td>Decide on simulation type</td>
<td>Completed alpha version by end of month</td>
<td>Beta version refinement</td>
<td>Present finished product, presentation, and report</td>
</tr>
<tr>
<td>Research tools and topics</td>
<td>Begin meetings with professionals</td>
<td>Production version by end of month</td>
<td></td>
</tr>
<tr>
<td>Create storyboard</td>
<td></td>
<td>Continued meetings</td>
<td></td>
</tr>
</tbody>
</table>
Completed Beta
Implementation - Beta

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

Reactive Figure Hallucinations
Completed Work - Design Elements
Completed Work - Design Elements

Mixed Audio/Visual Hallucination
## Completed Work - Unity Packages

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

MURF.AI

AI voices

Control how your voiceover sounds

Search

125+ Voices

Time it perfectly

Preview your output

Drive away your hunger pangs with Quikly!
Order your favorite meal from hundreds of restaurants in your neighborhood.
Delivered at your doorstep in 15 minutes or your next order is free.
Order your favorite meal from hundreds of restaurants in your neighborhood. Download the app today and get 20 percent off on your first order.

Quikly: The fastest food delivery for virtual hunger.
Audio
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]
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