



VIRTUAL REALITY (VR) AND OPEN ACCESS: A BRIEF OVERVIEW

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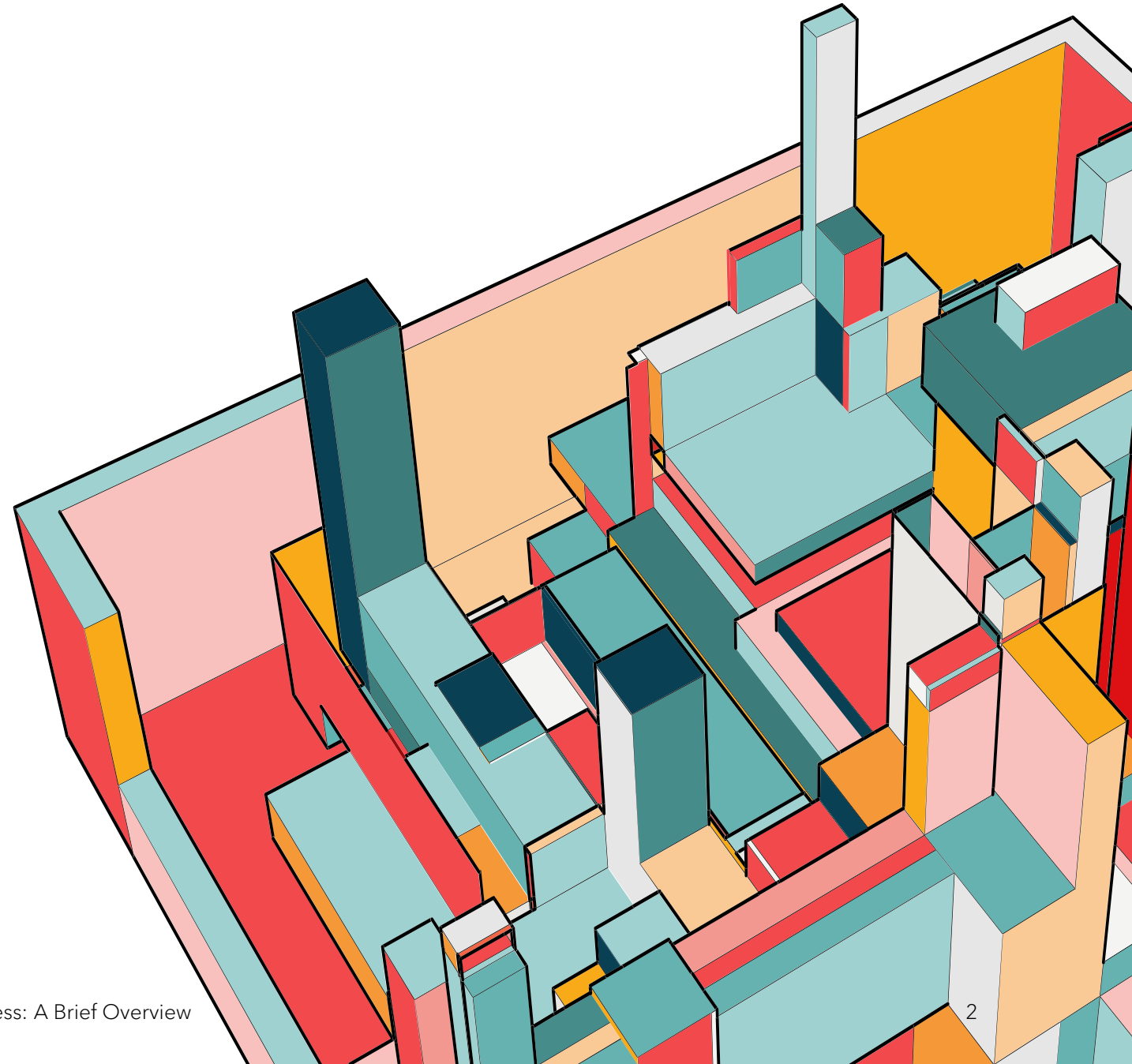
Quillen College of Medicine Library

East Tennessee State University

Johnson City, TN, USA

TYPES OF VR

- **Non-immersive**
 - Hardware and software programs separate from the user's personal and physical experience
 - Example: Traditional video games
- **Semi-immersive**
 - Hardware and software programs that allow a user to view and interact with 3d graphics although the viewer is not physically in the virtual environment
 - Example: Virtual anatomy dissection tables
- **Fully-immersive**
 - Hardware and software programs that fully surround an individual with a virtual environment that they may interact with
 - Example: Virtual reality headsets and related software
- More information: <https://heizenrader.com/the-3-types-of-virtual-reality/>





OPEN ACCESS IN VR

- In this presentation we are discussing open access in VR in terms of free apps or VR related materials.
- As VR headsets and software are still relatively new materials, there is not a wide variety of free software available; however, we will be discussing a few examples of educationally relevant VR software.
- We will not be discussing open-source hardware or software in this presentation. There is an open-source headset (OSVR) does exist for those who have interest in it.
- More information on OSVR:
https://en.wikipedia.org/wiki/Open_Source_Virtual_Reality

USING VR IN EDUCATIONAL ENVIRONMENTS

Instruction

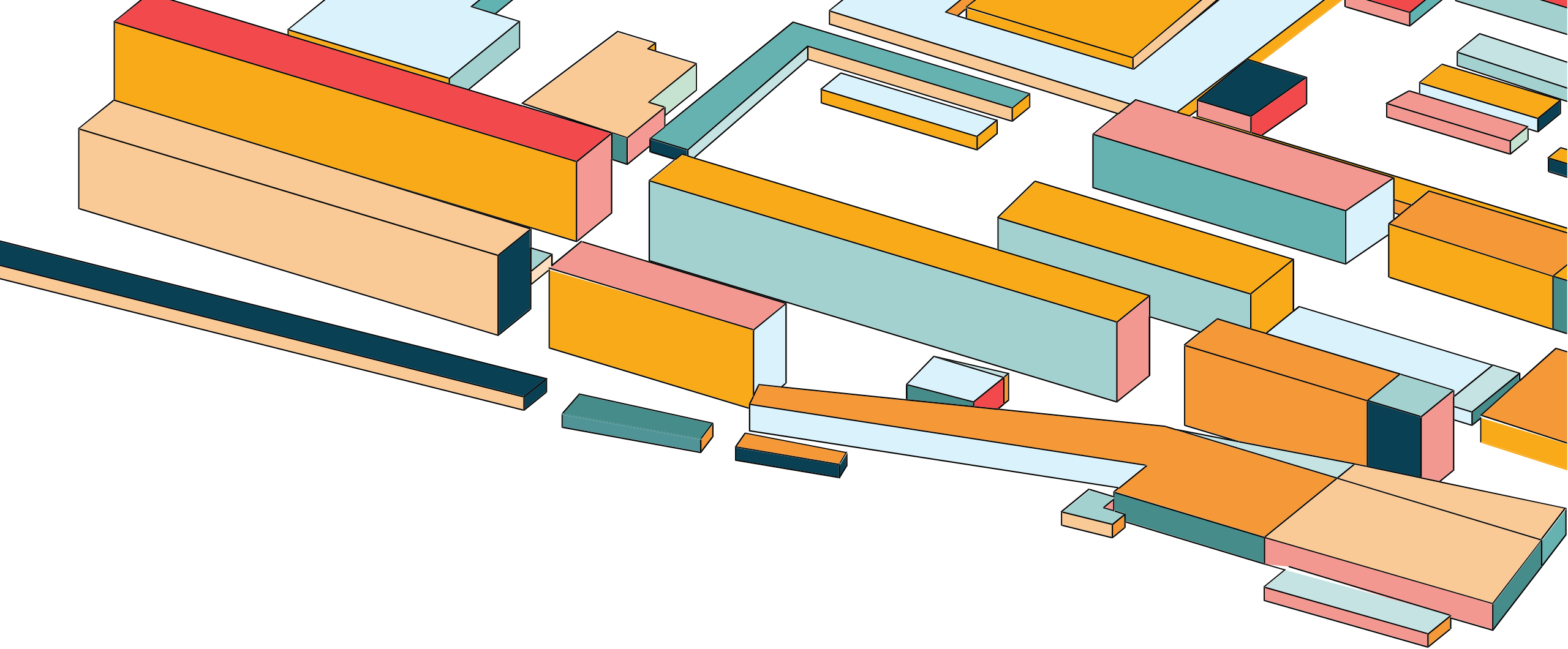
Our instructors use VR programs to screen record specific lectures for their classes. This allows students to hear their instructor's specific lesson and focus points combined with a 3D model for greater understanding.

Immersive Education

Our use of VR for immersive education includes allowing students to reserve time with virtual reality headsets. Most of our students opt to work in study groups where some may observe the program on an attached monitor while they take turns using the headset.

Games and Relaxation

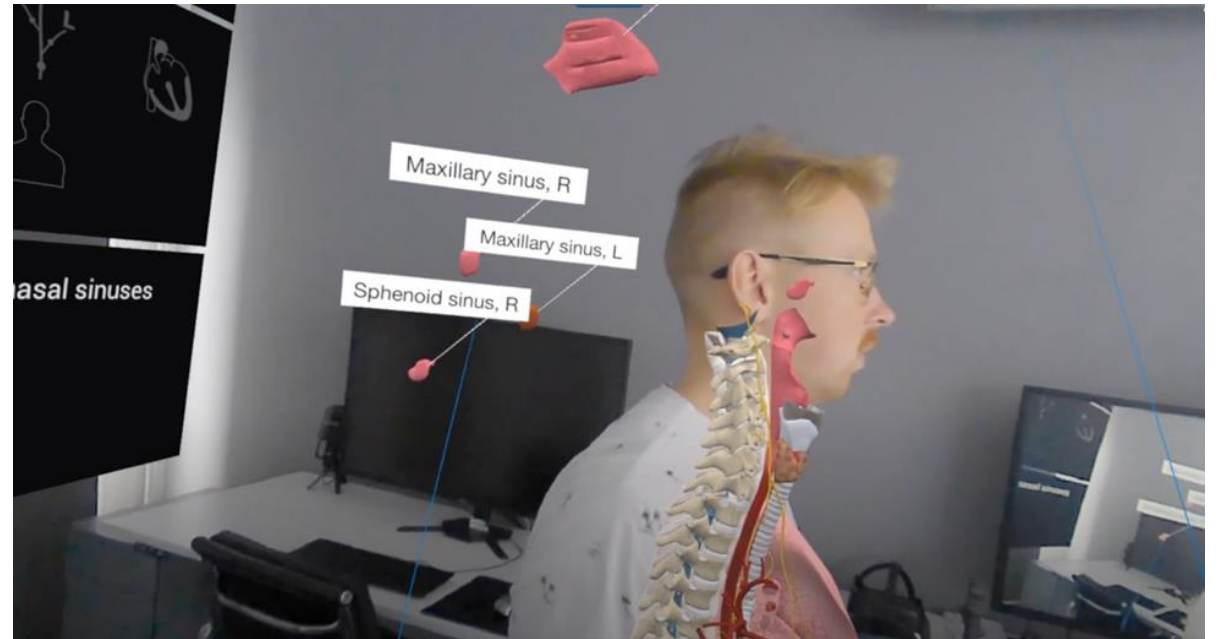
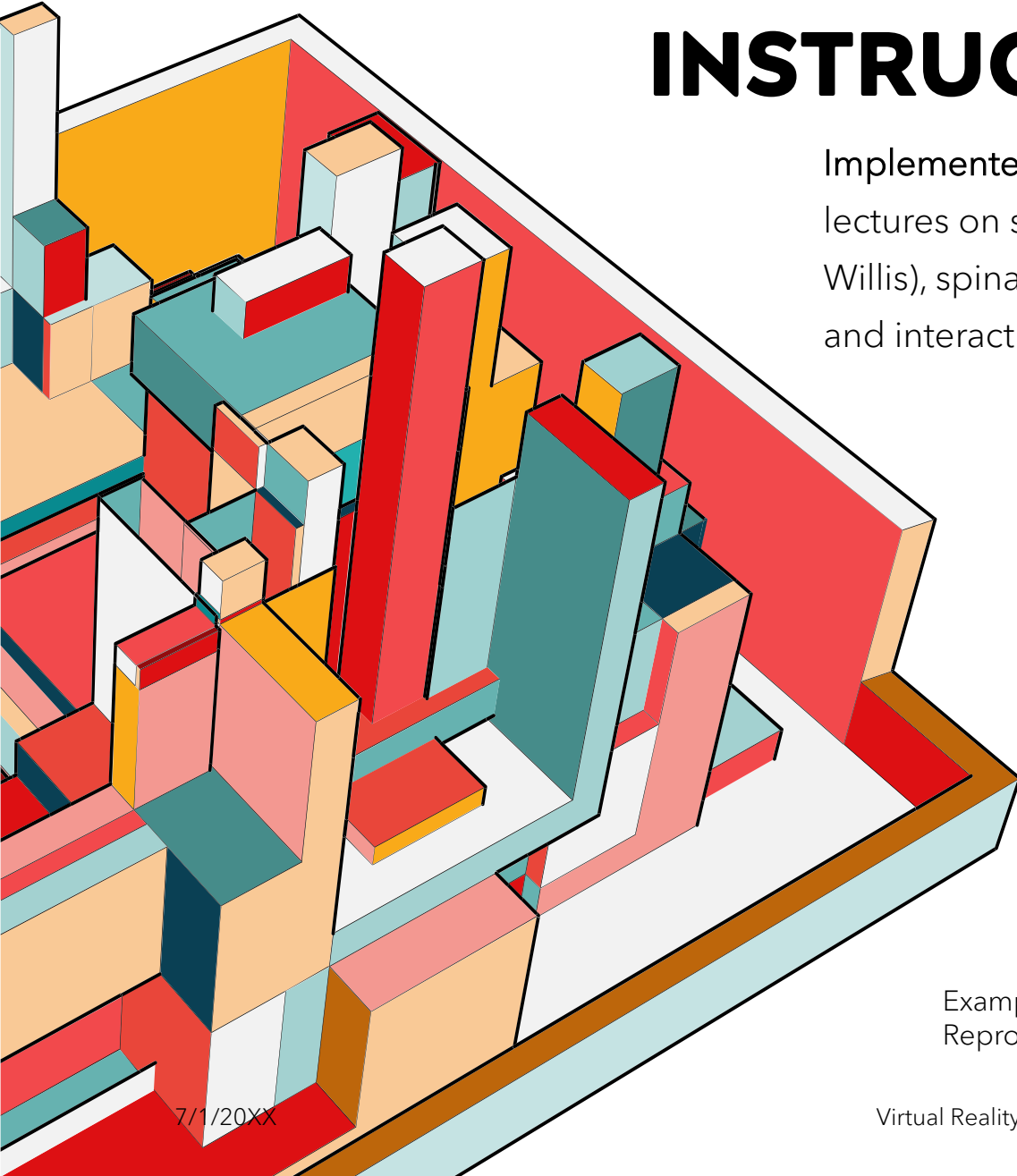
We frequently use VR games to encourage student collaboration and to provide students with study breaks.



IMPLEMENTATION AND EXAMPLES

INSTRUCTION

Implemented example: Our anatomy faculty use 3D Organon VR to record lectures on specific parts of the body such as parts of the brain (the Circle of Willis), spinal cord, and pelvic floor that may be difficult to discern and interact with during traditional dissections.



Example of 3D Organon VR Anatomy in use. © [3D Organon VR Anatomy, Medis Media Pty Ltd].
Reproduced by permission of Krystyna Siposova of 3D Organon VR Anatomy

IMMERSIVE EDUCATION

Implemented Example

After students watch lectures from their faculty on specific anatomy topics, they can book a time with the library to use the **3D Organon VR** program and interact with the models that their professors discussed directly. This means that not only do they see and hear about physical structures from their professors, but that they are also about to “touch” or interact with the structure in order to confirm their knowledge and understanding.

Paid Examples

3D Organon VR

- <https://ameliavirtualcare.com/virtual-reality-solution-psychology/>

Virtual Medicine

- <https://www.medicinevirtual.com/index.html>

VR Human Anatomy Pro

- https://play.google.com/store/apps/details?id=com.PrevisioStudio.HumanAnatomyPro3DVR&hl=en_US&gl=US

Amelia VR Psychology

- <https://ameliavirtualcare.com/virtual-reality-solution-psychology/>

Free Examples

Dementia simulations

- <https://alzfdn.org/afas-dementia-experience/>
- <https://www.awalkthroughdementia.org/>

Macular degeneration simulation

- <https://www.nei.nih.gov/learn-about-eye-health/outreach-campaigns-and-resources/see-what-i-see-virtual-reality-eye-disease-experience>

The Brain AR app

- <https://apps.apple.com/us/app/the-brain-ar-app/id680599952>

Many anatomy programs offer free trials.

GAMES AND RELAXATION

Implemented Example	Paid Examples	Implemented Example
<p>Keep Talking and Nobody Explodes is a game that we use to encourage collaboration and communication between students.</p> <p>This game requires students to defuse a virtual bomb by describing facets of the bomb to one another.</p> <p>It is a fun way to remind students that their peer may interpret things differently and that it can take practice to make sure everyone understands an assignment or procedure in the same way.</p>	<p>Keep Talking and Nobody Explodes</p> <ul style="list-style-type: none">• https://www.oculus.com/experiences/quest/2010043642376517/ <p>Guided Meditation VR</p> <ul style="list-style-type: none">• https://www.oculus.com/experiences/quest/3385318684883998/ <p>Beat Saber VR</p> <ul style="list-style-type: none">• https://beatsaber.com	<p>Sheaf Together EP</p> <ul style="list-style-type: none">• https://store.steampowered.com/app/1072530/Sheaf_Together_EP/ <p>Google Earth VR</p> <ul style="list-style-type: none">• https://store.steampowered.com/app/348250/Google_Earth_VR/ <p>The Marvelous Machine</p> <ul style="list-style-type: none">• https://store.steampowered.com/app/1000510/The_Marvellous_Machine/

THANK YOU

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