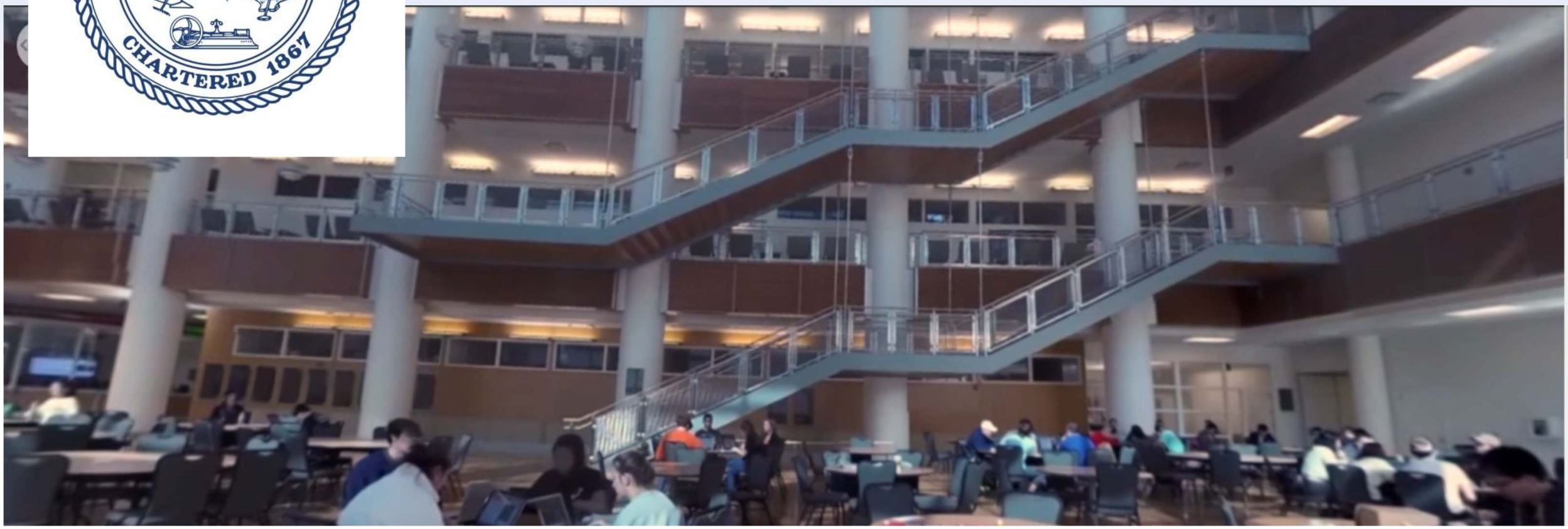
Form Groups, Select Projects

- Groups of 3-5 for projects.
- Form groups by Sep 18, answer piazza@21
- Project ideas: supervised vs unsupervised
- Project teams and abstracts due on Oct 2 in class

Virtual Tours of UIUC Campus!

"THE ILLINOIS EXPERIENCE"



https://www.youtube.com/watch?v=1OesJmY-6yc

Contact: wang518@illinois.edu, Mia Wang
prof. Michelle Nelson, department of Advertising
vice chancellor Robin Kaler

Virtual Tours of UIUC Campus!

Project goals:

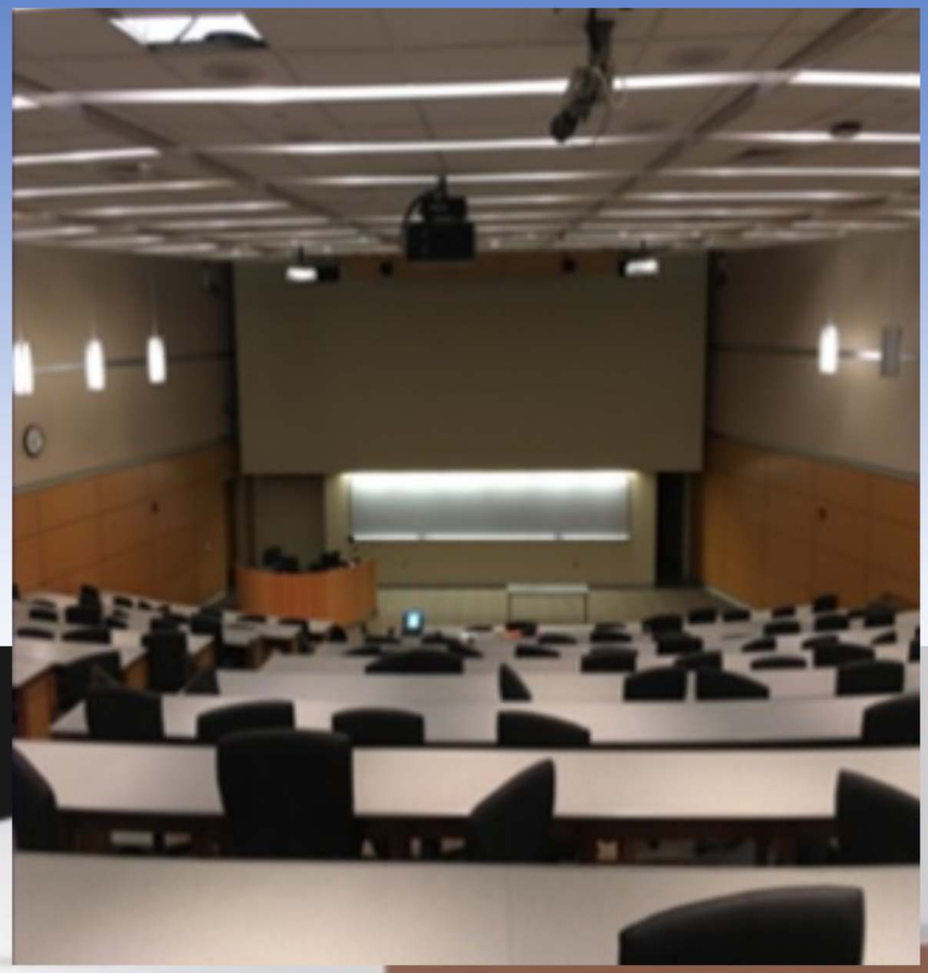
- Multiuser tours
- Film more locations
- Add interactivity with the content
- Model places on campus in 3D

- Help with research on perception of presence when touring campuses around the world
- Past research surprising results

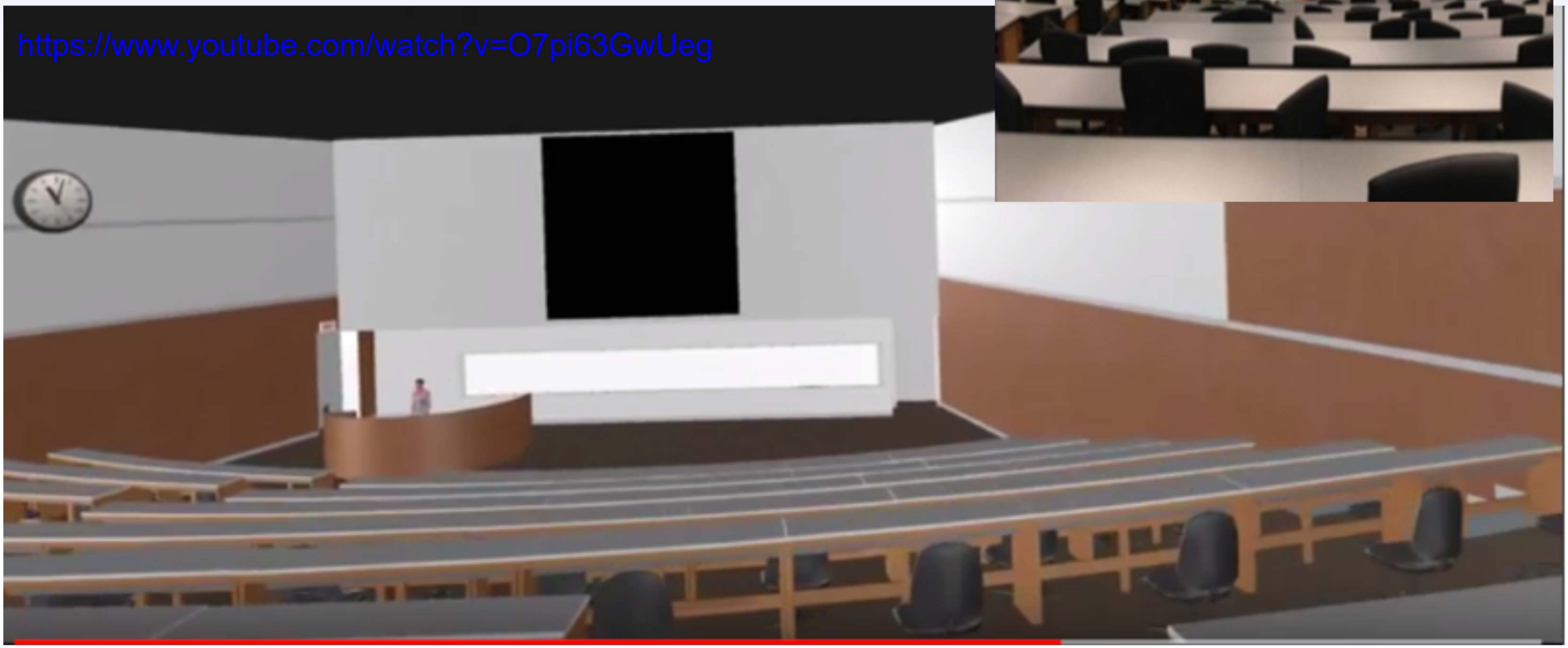
Contact: wang518@illinois.edu, Mia Wang
prof. Michelle Nelson, department of Advertising
vice chancellor Robin Kaler

Teaching Empathy - Bias in Education and Student Learning

VR Education



https://www.youtube.com/watch?v=O7pi63GwUeg



Contact: santo3@illinois.edu, Craig Santo
with prof. Anna Yershova

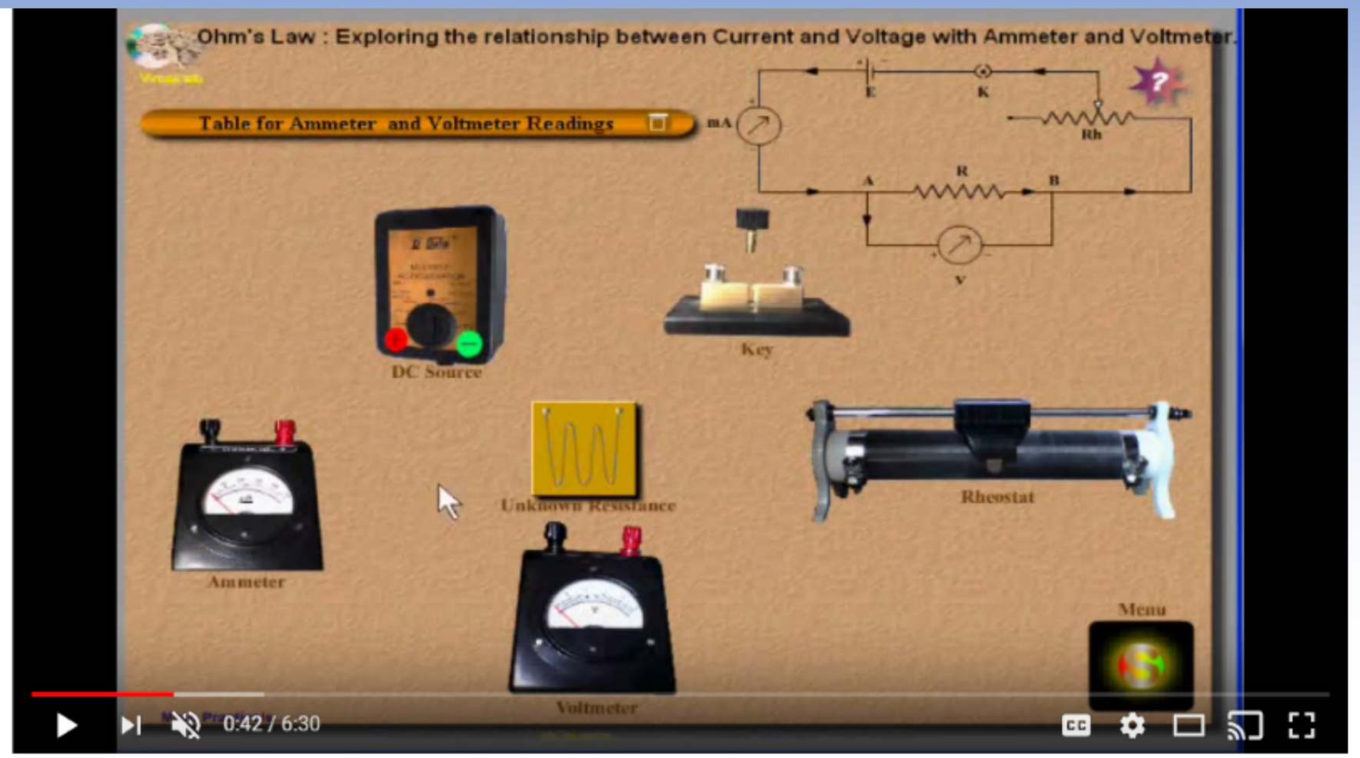
Virtual VR Education

Project goals:

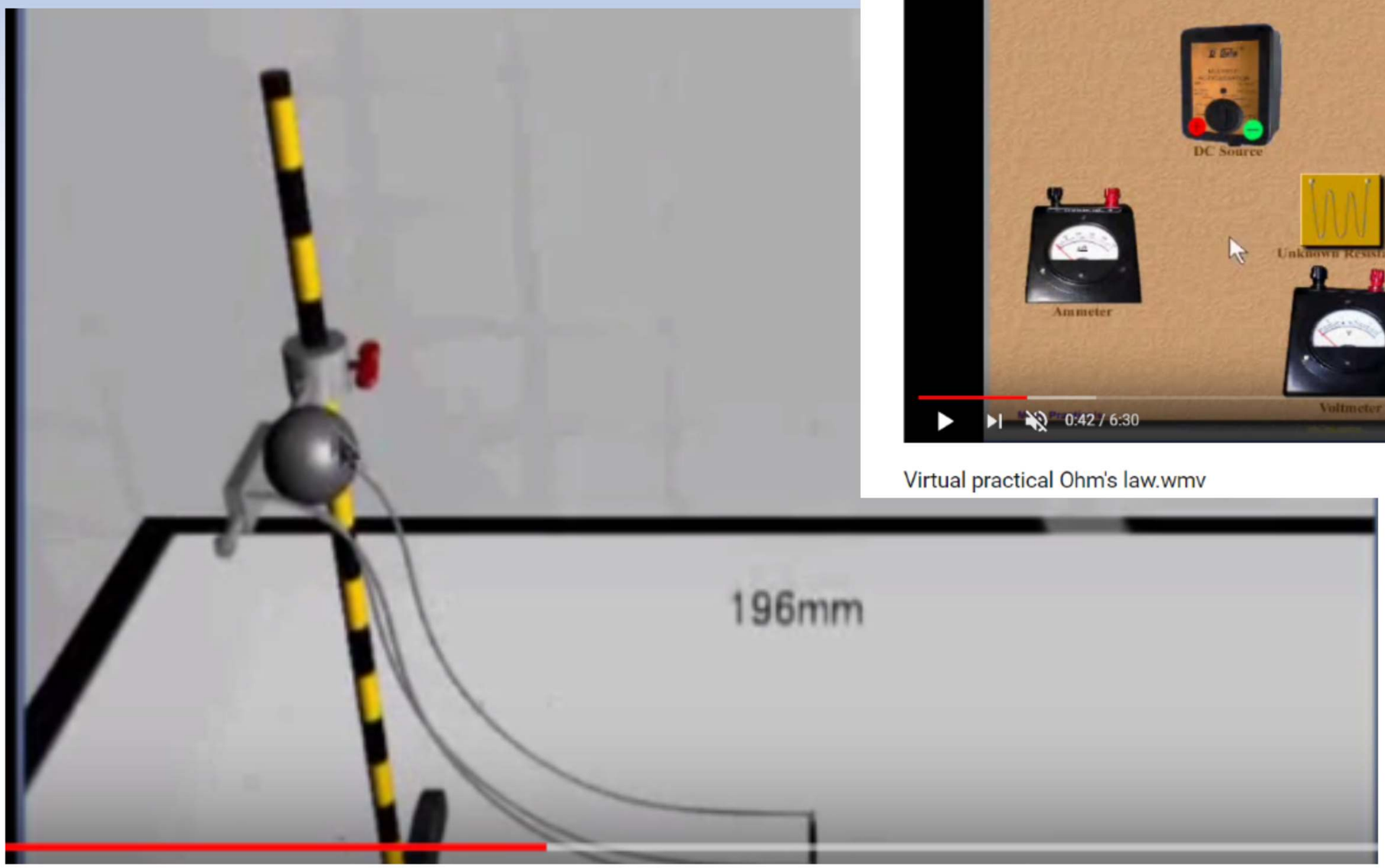
- Add photorealistic light and textures
- VR concepts:
  - Tracking: no tracking, latency, drift (vertical horisontal)
  - Perception: monocular vs binocular, depth perception upside down world, vection, stationarity
  - Resolution, frame rates, aliasing, jitter vs judder
- First office hours in VR!!!
- Device invariant experience: Google cardboard, phone or Oculus Rift.

Contact: santo3@illinois.edu, Craig Santo
with prof. Anna Yershova

Virtual Physics 211@UIUC Labs



Virtual practical Ohm's law.wmv



https://www.youtube.com/watch?v=7CEZ7KgRItA

Contact: Adnan Rebei, rebei2@illinois.edu
prof. Jose Mestre, department of Physics

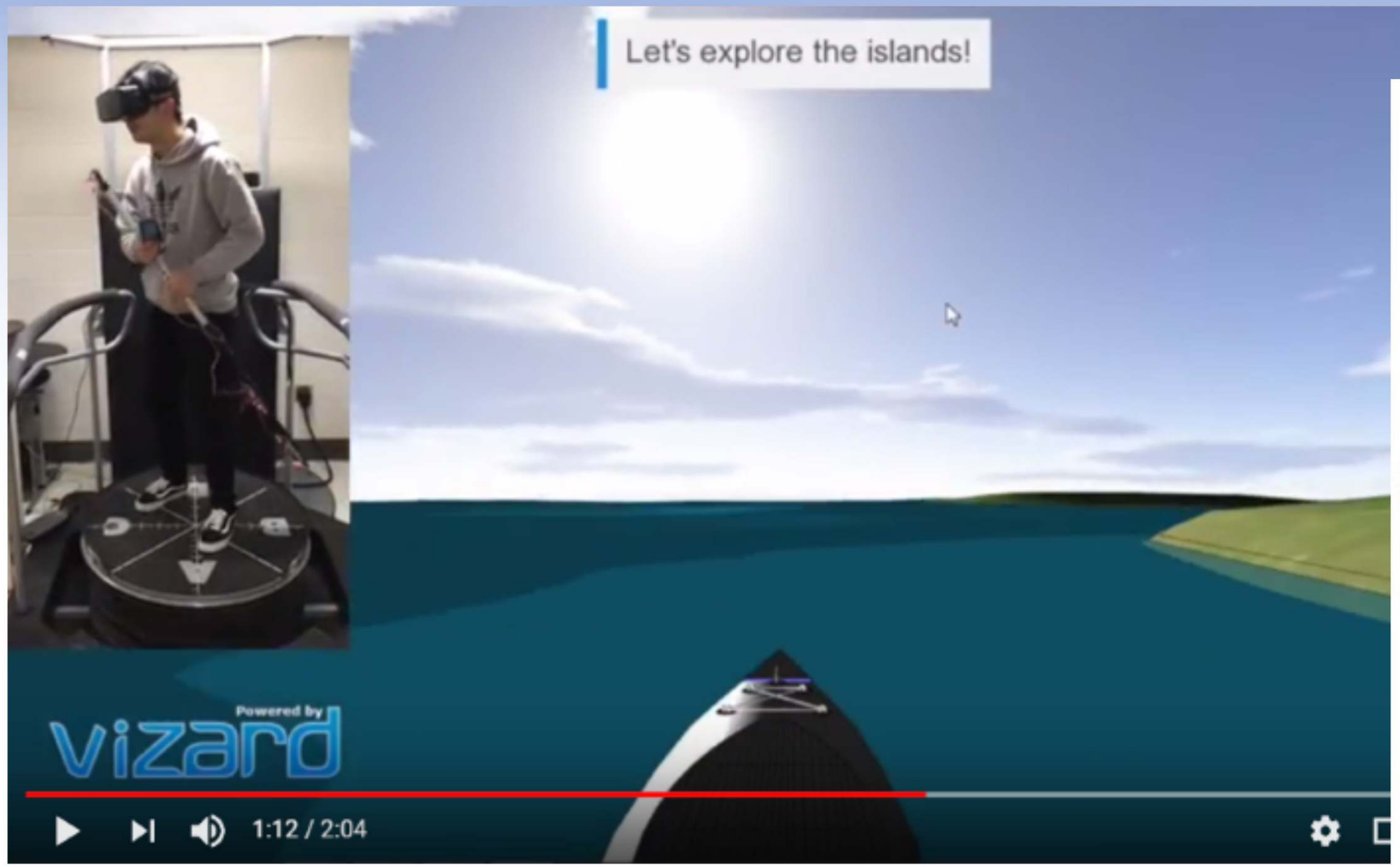
Virtual Physics 211@UIUC Labs

Project goals:

- Create a proof of concept for a PHYS211 Virtual Lab
- Help the physics department get their own VR lab!

Contact: Adnan Rebei, rebei2@illinois.edu
prof. Jose Mestre, department of Physics

VR Paddle Boarding



https://www.youtube.com/watch?v=PNUUbUI-ZgM

Contact: mhernand@illinois.edu
prof. Manuel Hernandez, Kinesiology & Community Health &Neuroscience

VR Paddle Boarding

Project goals:

- Hardware: connect Vive/Unity to the balancing platform.
- Hardware: Connect Vive controller to the paddle.
- Create a MUCH better water environment for paddling in Unity.

Contact: mhernand@illinois.edu
prof. Manuel Hernandez, Kinesiology & Community Health &Neuroscience

Walking After Stroke

Contact: mhernand@illinois.edu
prof. Manuel Hernandez, Kinesiology & Community Health &Neuroscience

Walking After Stroke

Project goals:

- DONE:Connect Vive/Unity to the treadmill.
- Create more and more realistic testing environments.
- Improve perception of presence within the experiences.

Contact: mhernand@illinois.edu
prof. Manuel Hernandez, Kinesiology & Community Health &Neuroscience

Empathy Towards Parkinson's Disease Patients

Contact: mhernand@illinois.edu
prof. Manuel Hernandez, Kinesiology & Community Health &Neuroscience

Empathy Towards Parkinson's Disease Patients

Project goals:

- DONE: Hardware is all set up.
- Create better falling situations.
- Create MUCH better testing environments.

Contact: mhernand@illinois.edu
prof. Manuel Hernandez, Kinesiology & Community Health &Neuroscience

Physiological Measures for Motion Sickness

Project goals:

- Study motion sickness
- With wii platform!

https://www.youtube.com/watch?v=KSSZzaJeB5A

Contact: cameronmmerrill@gmail.com , Cameron Merrill
prof. Steve LaValle

Foreign Language Learning

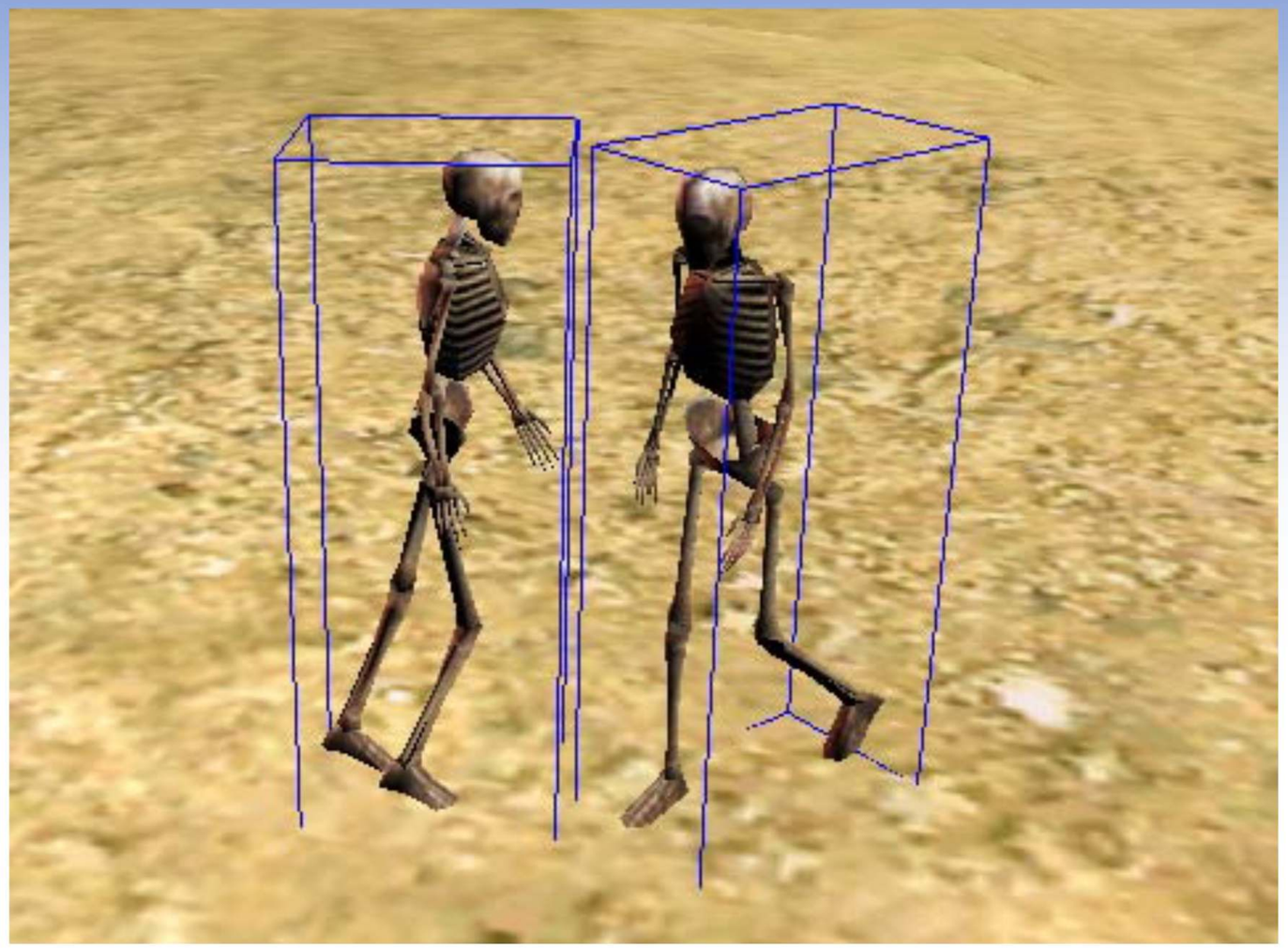
Project goals:

https://www.youtube.com/watch?v=SHesK20IjyM

- Gather gaze heat map
- Analyze it to adjust the language learning lesson

Contact: cameronmmerrill@gmail.com , Cameron Merrill
prof. Steve LaValle

Perception of Personal Space in VR



Project goals:

- Create invisible "personal space" spheres around characters
- Study collisions between spheres in VR

Contact: cameronmmerrill@gmail.com , Cameron Merrill
prof. Steve LaValle

Flight Simulator

https://www.youtube.com/watch?v=mrpqh8ZRLp4

Already FULL

Project goals:

- Add lighting and textures
- Professional looking, comfortable demo
- Maybe: add drone panoramas

Contact: blaksmatic@gmail.com , Blaks Zeng
prof. Anna Yershova, prof. Steve LaValle

Modern History: Black Lives Matter

"A Story of"

"Death of"

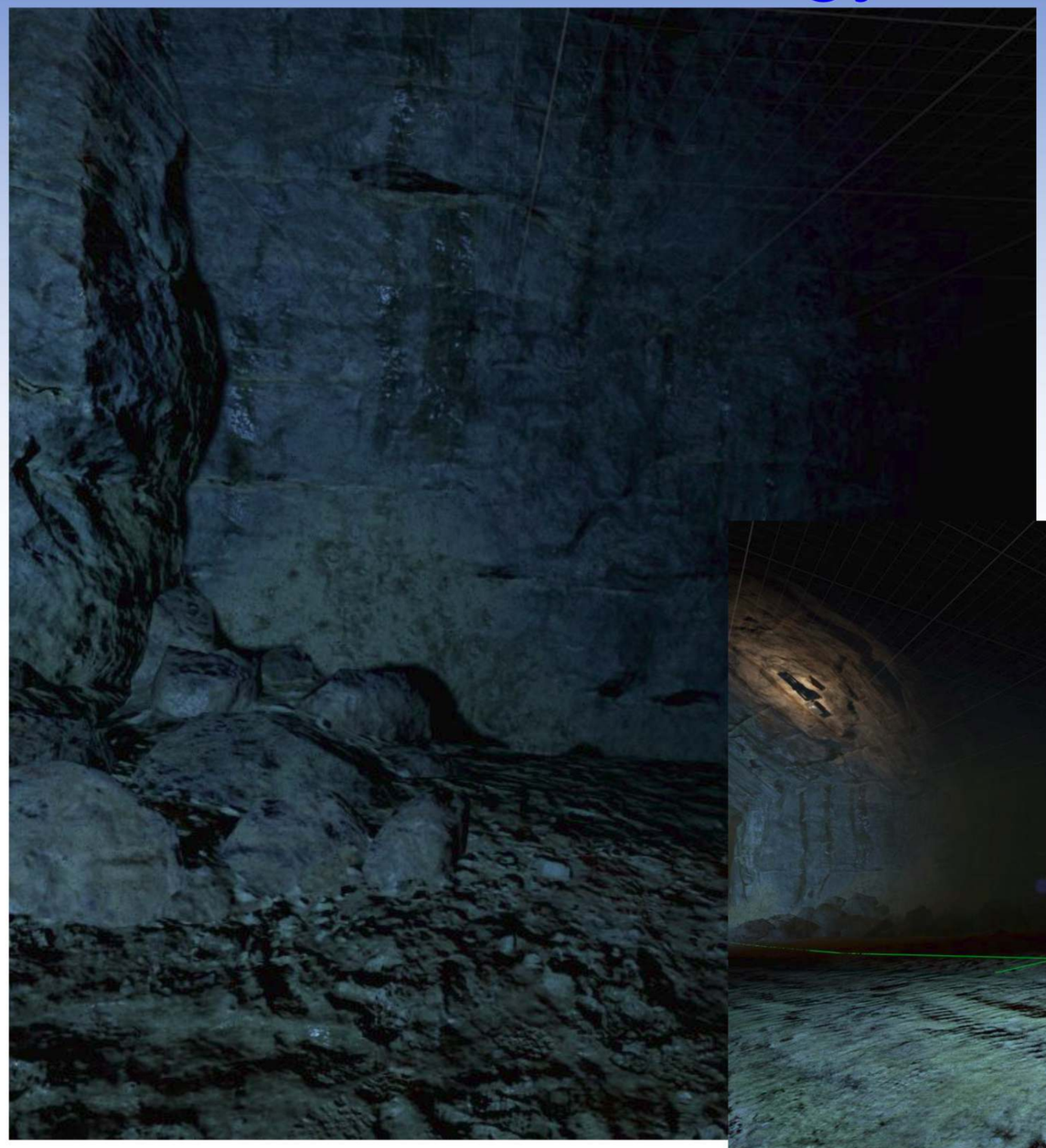
Sandra Bland

- "Sandra Bland was a 28-year-old black woman who was found hanged in a jail cell in Waller County, Texas, on July 13, 2015, three days after being arrested during a traffic stop."

- Exploration in:
  - Combining 3D and 2D media = Movies + 3D models
  - Invoking emotion through sensory manipulation
  - Creating empathy in virtual reality

Sophia
svlin2@illinois.edu

Archeology: Excavation Sites in VR



Contact our TA:
Blaks Zeng
yzeng19illinois.edu
Experience in UE4 only!

Contact professor: llshacke@illinois.edu
prof. Laura Shackelford, Associate Professor, College of Medicine,
Dept. of Surgery, Dept. of Anthropology

In the news: http://www.sci-news.com/othersciences/anthropology/article00538.html
More on the project:
https://courses.engr.illinois.edu/cs498sl3/projects/VR%20Archaeology%20Shackelford.pdf

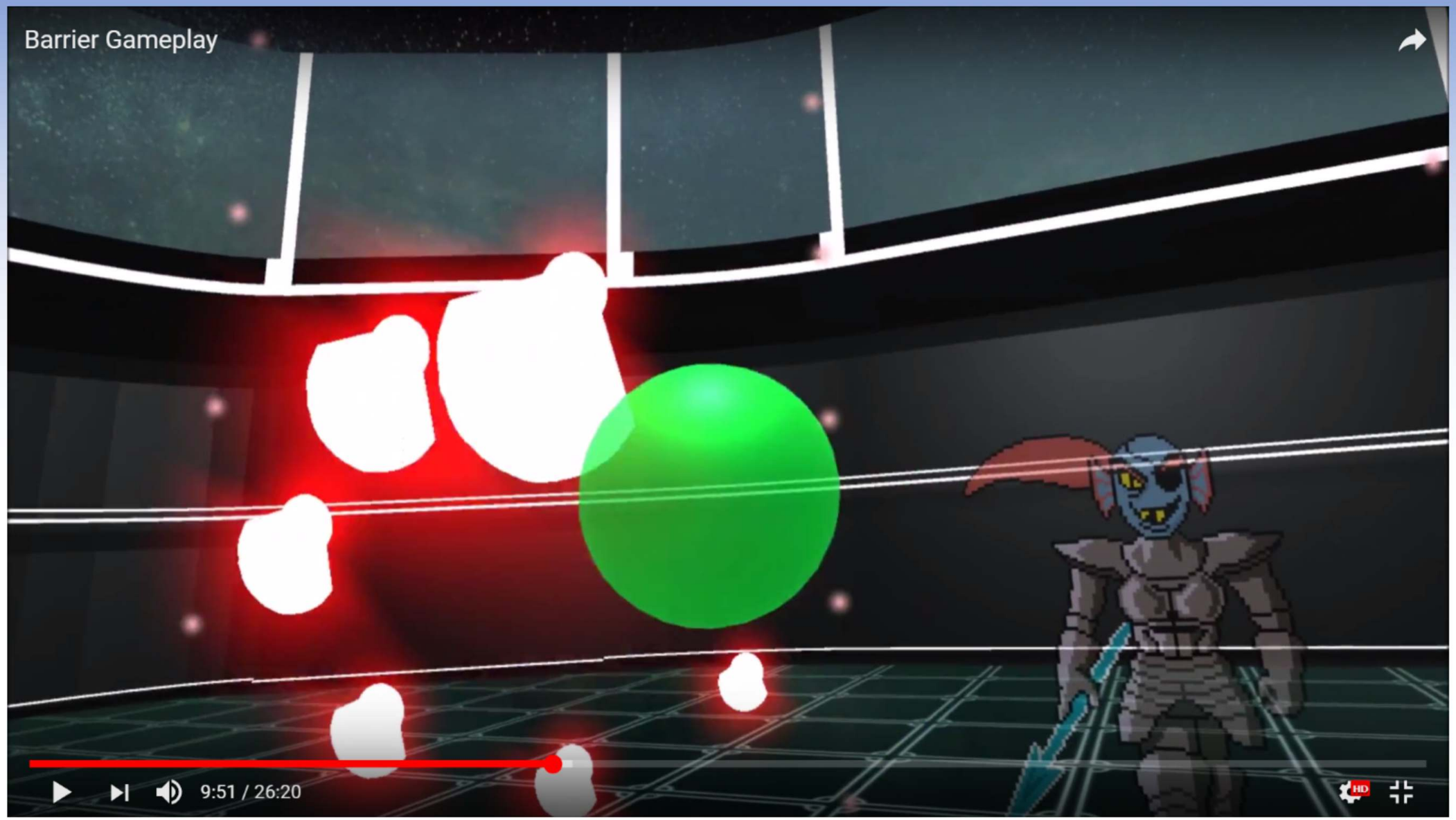
VR Music Performance

Goals

- Creating an immersive experience for the listener.
  - We call our music sound sculpture.
    - **"We look to create what we call 'Sound Sculpture' where the music has height, depth, and tactility. We want you to taste the music."—Justin McAdara**
- Virtual Reality has created an exciting environment for musical exploration

Contact: bdconra2@illinois.edu, Bryce Conrad

Barrier



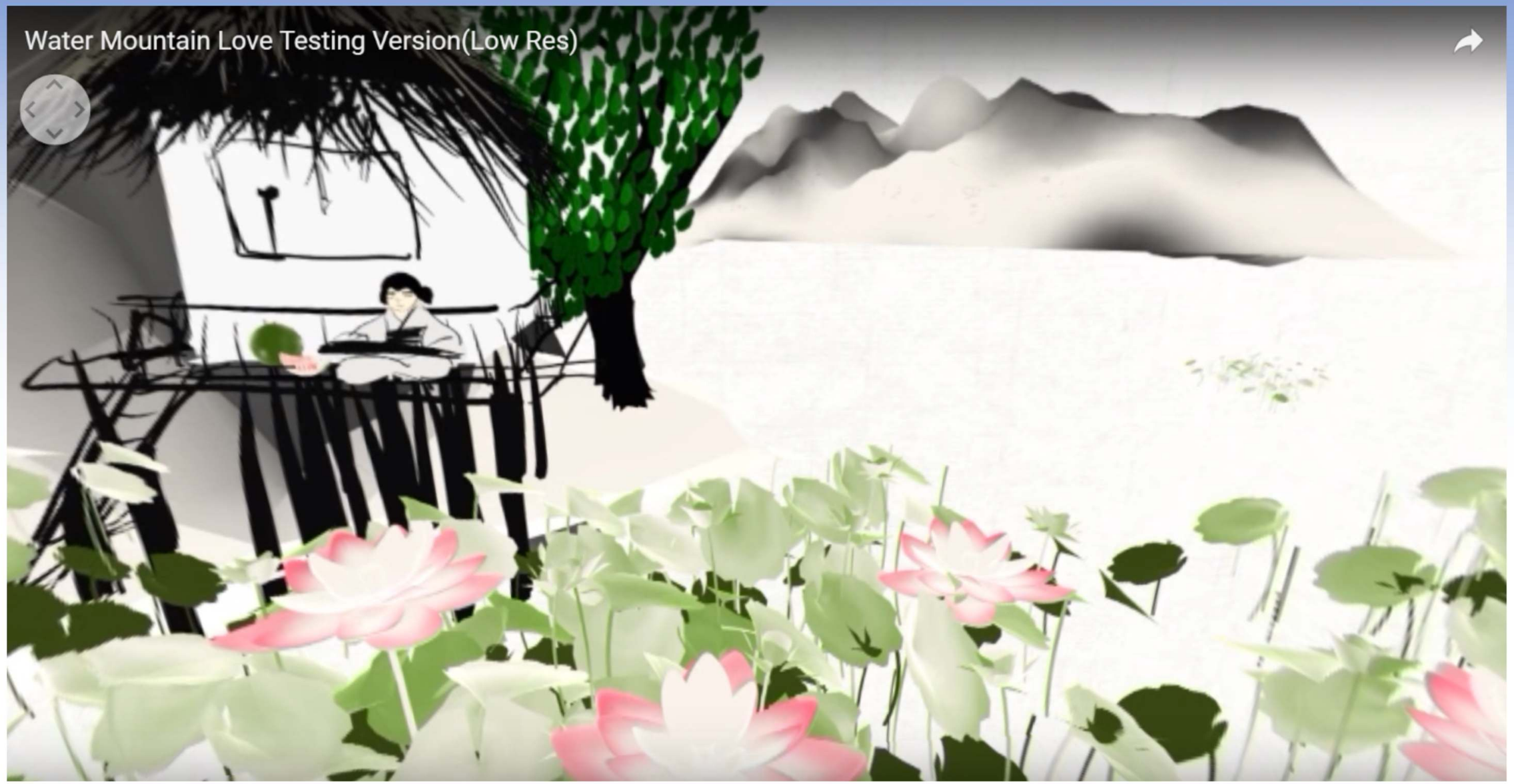
Project goals:

https://www.youtube.com/watch?v=2Top9QH3UzU&feature=youtu.be

- Create original art and music
- Develop more levels

Contact: mouscho2@illinois.edu, Victor Mouschovias

Mountain Water Love



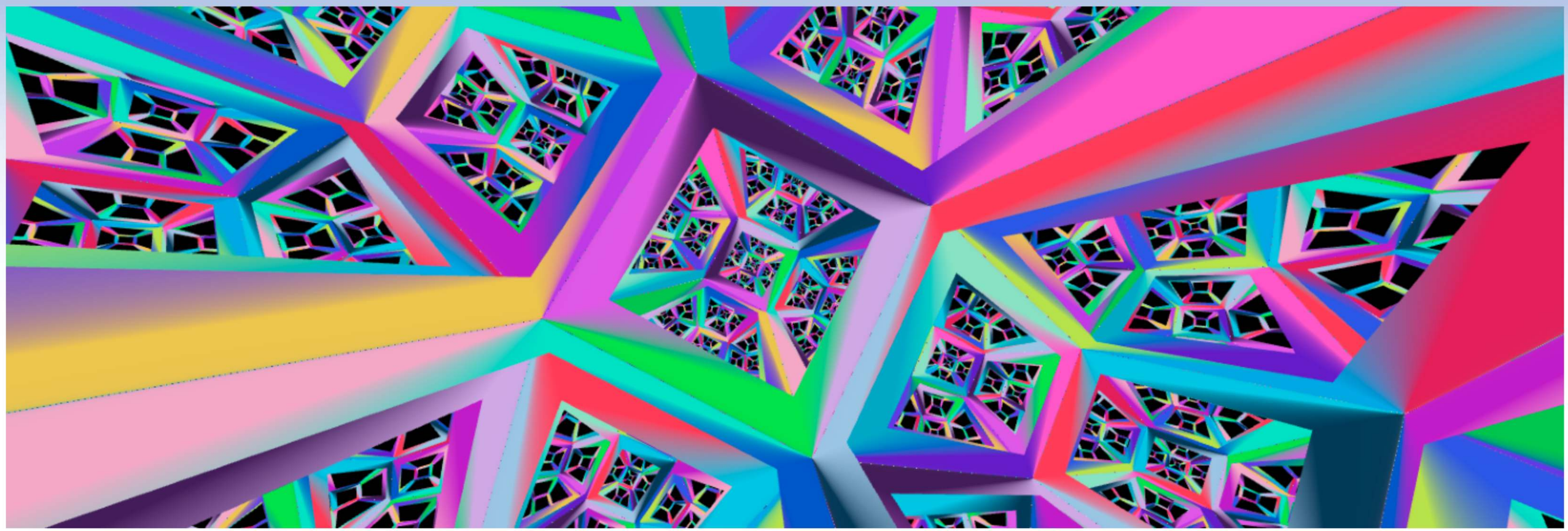
Project goals: https://www.youtube.com/watch?v=oI58q8vETIc&feature=youtu.be

- Develop ink propagating textures
- Create more stories

Contact: kelu2@illinois.edu, Ke Lu
ruian2@illinois.edu, Rui An

Motion Sickness in 4D

https://youtu.be/jfSTwqmrQDc



Project goals:

- Smulation sickness in non-Euclidean spaces
- Perception of non-Euclidean spaces

Contact: cjwidd@gmail.com, Chris Widdowson
and prof. Frances Wang, psychology

DECISION NEUROSCIENCE LABORATORY

Cognitive Training in Virtual Reality

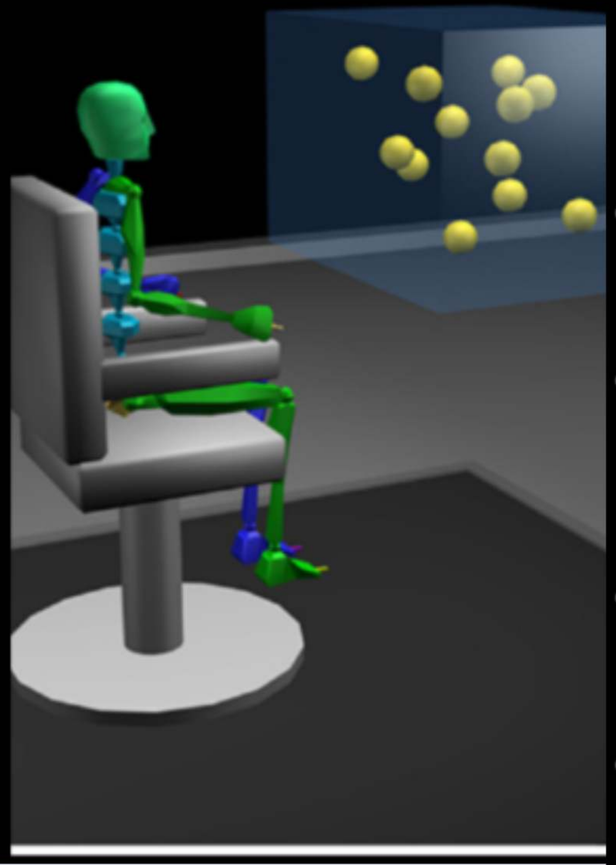
Contact: Kyle Liang kl2@illinois.edu

Neural Tracker:

A task that is claimed to be able to enhance the subjects' cognitive function.

Link:

1. https://neurotracker.net/
2. https://www.youtube.com/watch?v=LXUdxDWaSiE



Project Goal

1. **Implement the task in virtual reality environment.**
2. **Adding new features to the task requested by the researchers.**
3. **Coming up with possible new cognitive training tasks and implement them.**

Good things

- 1. One of the projects that is closest to game.
- 2. Potentially, you will see your name on top-tier journals one day, like Nature and Science.
- 3. You may get to know cool people.
- 4. It's easy, since cognitive task won't require fancy special effects and super complex animations.