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
Virtual VR Education

Project goals:

- Add photorealistic light and textures
- VR concepts:
  - Tracking: no tracking, latency, drift (vertical horizonal)
  - 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

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
Virtual Reality Paddle Boarding

Let's explore the islands!

https://www.youtube.com/watch?v=PNUUbU1-ZgM

Contact: mhermand@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: mhermand@illinois.edu
prof. Manuel Hernandez, Kinesiology & Community Health &Neuroscience
Walking After Stroke

Dr. Manuel Hernandez Lab
Treadmill allowing for data collection

Contact: mhermand@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: mhermand@illinois.edu
prof. Manuel Hernandez, Kinesiology & Community Health & Neuroscience
Empathy Towards Parkinson's Disease Patients

Contact: mhermand@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: mhermand@illinois.edu
prof. Manuel Hernandez, Kinesiology & Community Health & Neuroscience
Physiological Measures for Motion Sickness

Project goals:
- Study motion sickness
- With wii platform!

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

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

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

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

Pilot's view with the Oculus Rift
Pilot's view in reality

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
“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
  - Invoking emotion through sensory manipulation
  - Creating empathy in virtual reality

= Movies + 3D models

Sophia sylan2@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:
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:
- Create original art and music
- Develop more levels

https://www.youtube.com/watch?v=2Top9ZH3UzU&feature=youtu.be

Contact: mouscho2@illinois.edu, Victor Mouschovias
Mountain Water Love

Project goals:  https://www.youtube.com/watch?v=ol58q8vETlc&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:
- Simulation sickness in non-Euclidean spaces
- Perception of non-Euclidean spaces

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