Recall

- What is a sensor?
- What different types of audio displays are there?
- How many DOF’s does the eye have?
VR System: Hardware, Software, and Perceptual Psychology
VR System: Hardware, Software, and Perceptual Psychology
Rendering Hardware: Vision Displays

Rendering: ________________________________

Artificial Stimulus: ________________________________
Rendering Hardware: Audio Displays

Rendering: _____________________________________________________

Artificial Stimulus: ___________________________________________________
Birds-Eye View: Hardware

Rendering hardware (displays):
- Visual
- Audio
- Touch
- Smell? Taste? Vestibular?

Lens:

Tracking hardware:

Controllers:

Computer:
- CPU
- GPU
Hardware: Lens

FOV: __________________________________________________________

Distortion: _____________________________________________________
Birds-Eye View: Tracking Hardware
Hardware Teardown: Oculus DK2

https://www.youtube.com/watch?v=-HoHkFgsIJc
Tracking Hardware

Tracking is: _____________________________________________________

HMD vs Cave

HMD vs Headphones
Tracking Hardware: IMUs

Used for:

Consists of:

Common in:

Cost:
Tracking Hardware: IMUs
Tracking Hardware: IMUs
Tracking Hardware: Cameras
VR System: Software
VR System: Software
Software: VWG

Types of self motion:
Software: VWG

Gaming engines:

Google street viewer:

Robot + camera:
VR System: Hardware, Software, and Perceptual Psychology
What is Reality?

https://www.youtube.com/watch?v=O4zICmyuNvs
What is Reality? Sensation and Perception

How do we perceive how far things are?

Depth perception

Cues: ____________________________
Depth Perception

- Original Image
- Left Eye View
- Right Eye View
- Both views are merged in the brain to form a single image
Review

- What is tracking? Why is it important?
- What is an IMU?
- What is the VWG?
First Homework Assignment!

- Machine Problem (MP) 1 is released!
- See course website under Assignments tab.
- You must work with a partner; find a buddy on Piazza
- MP’s are submitted on Compass. Only one of the partners should submit the zip file to us. Be sure to name it with both NetID’s so we know who it’s for.
- Other policies to know regarding assignments are on the course website (late submissions, etc)
Reminder about homework & expectations

- Lectures will be recorded, but why not come to class?
- Read the book! It’s free and explains things well
- Check Piazza often - updates about class, deadlines, etc
- MP’s are to be done in pairs, class projects are in groups of 3 to 5
- There are only 20 computers and 200 students, so start on your MP’s early or you might have trouble getting on a computer!
You do not need to be a CS major to do well in this course!

➢ For MP’s, work with someone who codes
➢ Talk to the TA’s, they’re super helpful
Class Projects

- Coolest part of this course → you get to create a real VR experience!
- Projects are large part of your final grade & give you chance to boost it if you struggle with the MP’s or exams
- Check Piazza for opportunities to work with professors on campus
- Look up the VRProjectMania Facebook page to see what students have done in past semesters
- Don’t make another first person shooter, escape room, or maze… use this opportunity to see what has already been developed and create the killer app!
Homework

- Lavalle, CH 2.1
- MP1