CS 498 VR

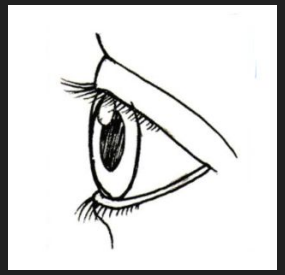
Lecture 3 - 1/24/2018

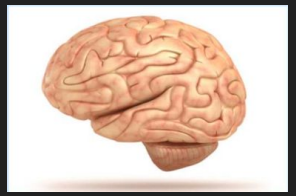
Recall

- 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:

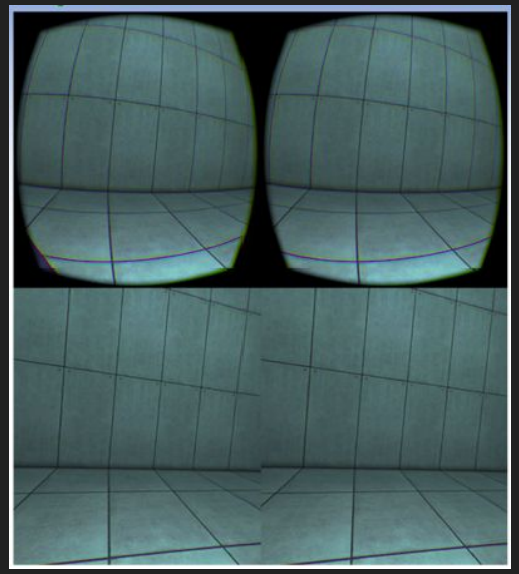
Tracking hardware:

Controllers:

Computer:

- CPU
- GPU

Hardware: Lens



FOV: _____

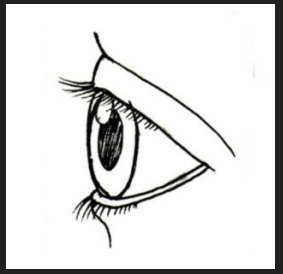
Distortion: _____

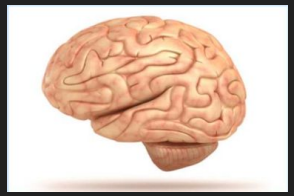
Birds-Eye View: Tracking Hardware

Hardware Teardown: Oculus DK2

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

Tracking Hardware



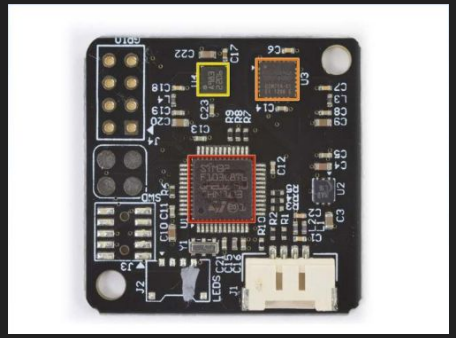


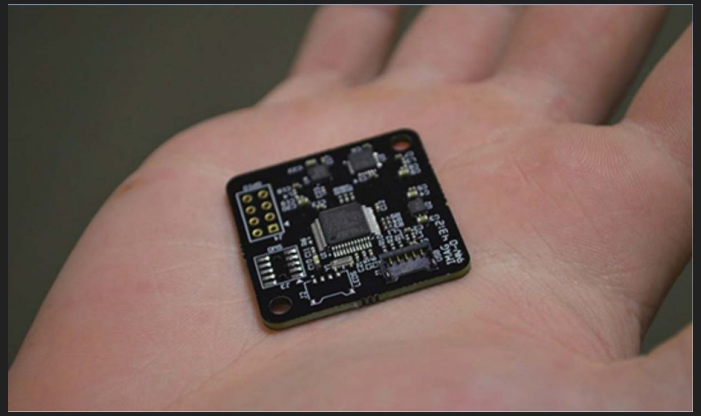
Tracking is: _____

HMD vs Cave

HMD vs Headphones

Tracking Hardware: IMUs





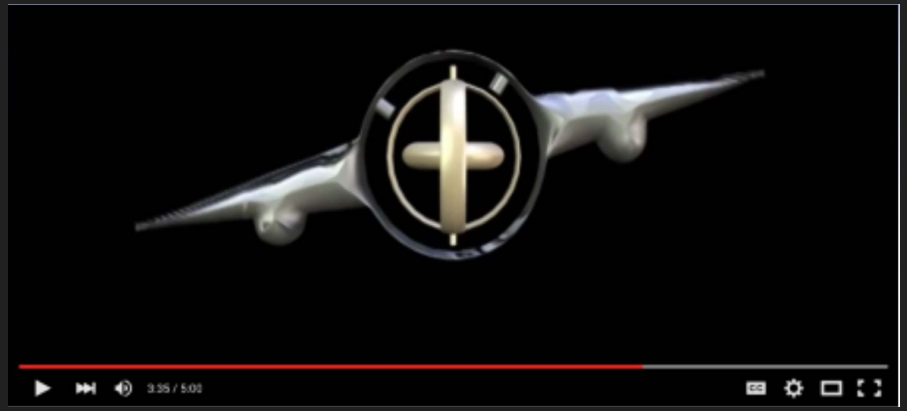
Used for:

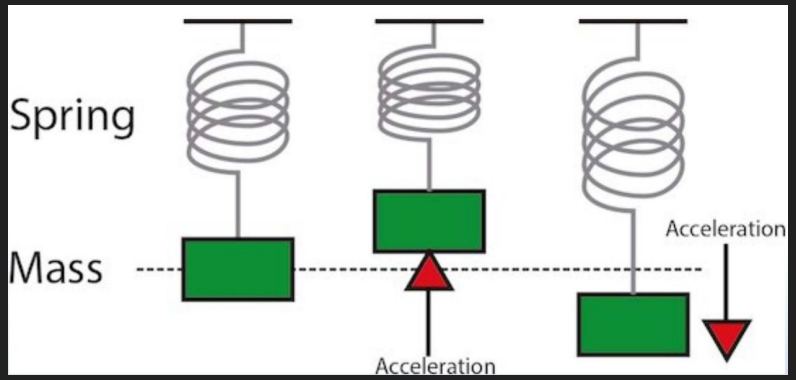
Consists of:

Common in:

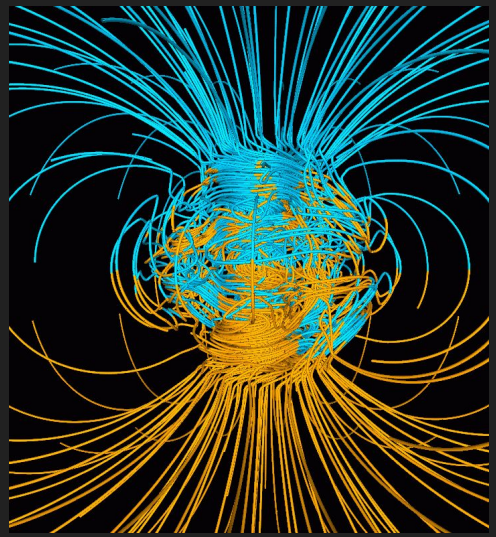
Cost:

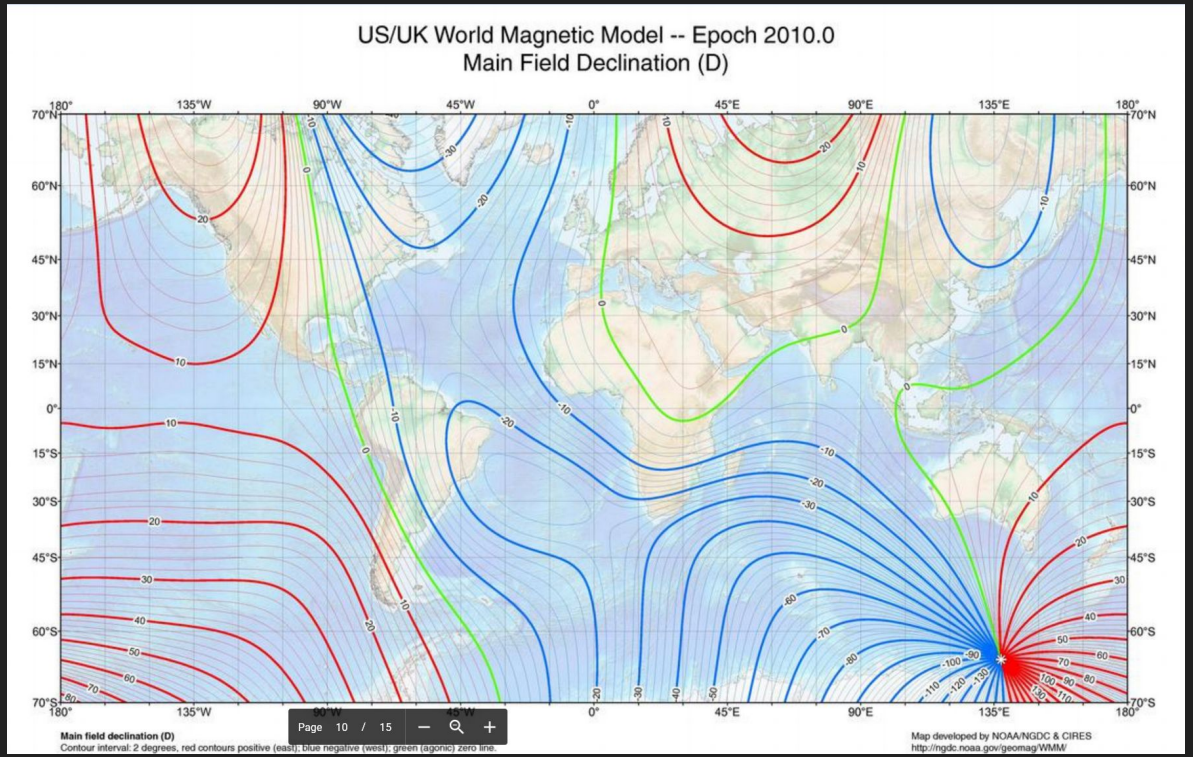
Tracking Hardware: IMUs



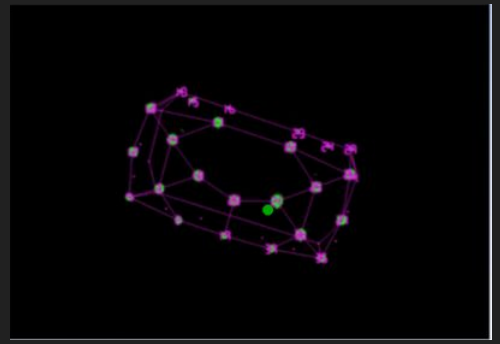


Tracking Hardware: IMUs

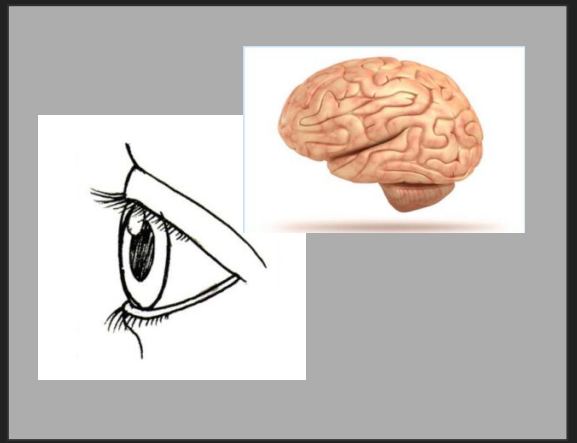




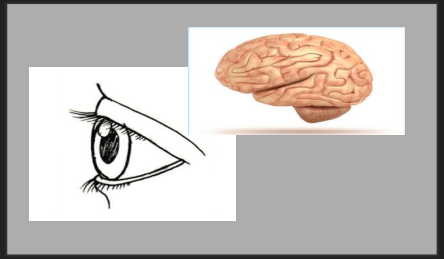
Tracking Hardware: Cameras



VR System: Software



VR System: Software



Software: VWG

Types of self motion:

_____

_____

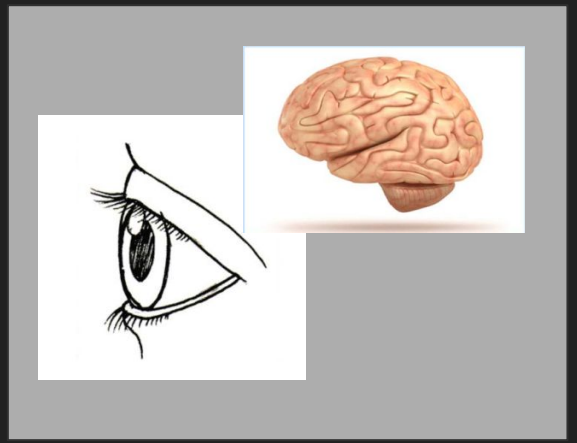
Software: VWG

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

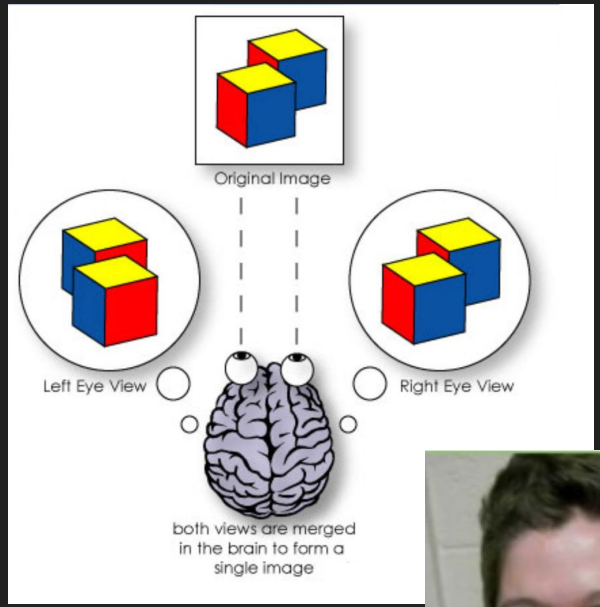
How do we perceive how far things are?

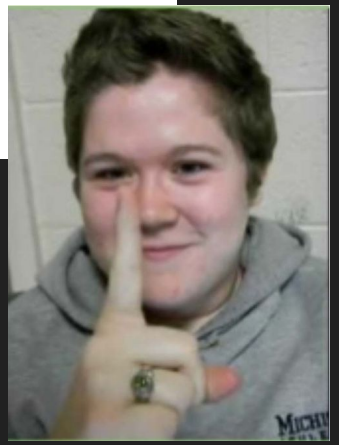
Depth perception

_____

Cues: _____

Depth Perception





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!

Note..

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