

# Announcements

- Piazza link and register: [piazza.com/illinois/fall2015/cs498sl](https://piazza.com/illinois/fall2015/cs498sl)
- Read chapter 1 of Mather book.
- Contact students from the previous semester to get the book.
- Read a tutorial on Unity.
- Does anyone have access to the VR Lab?

# When Did VR Start? Paintings?



# When Did VR Start?



# When Did VR Start?



# When Did VR Start?



# When Did VR Start? Motion Pictures?



<https://www.youtube.com/watch?v=IEqccPhsqqA>



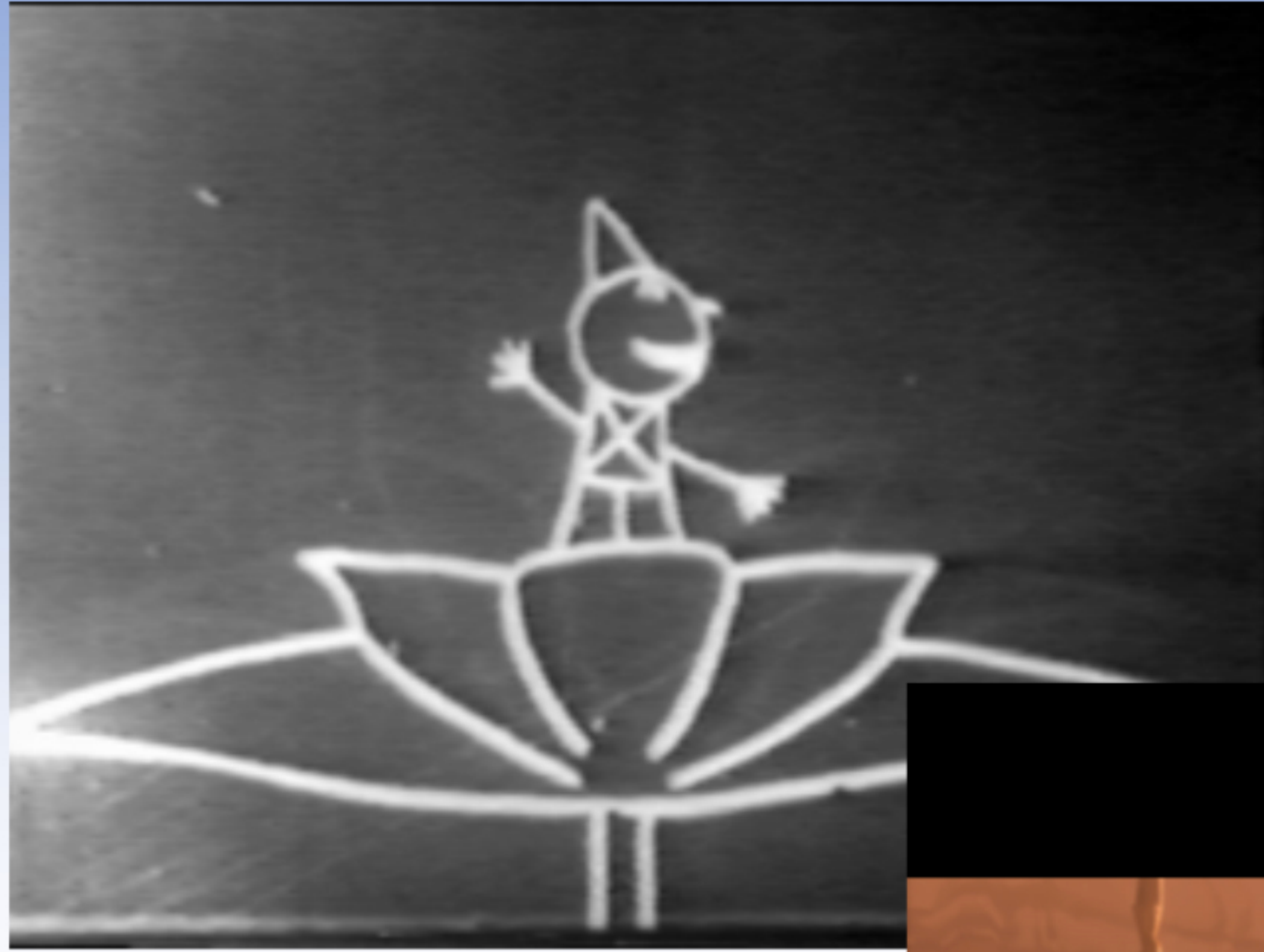
[https://www.youtube.com/watch?v=b9MoAQJFn\\_8](https://www.youtube.com/watch?v=b9MoAQJFn_8)



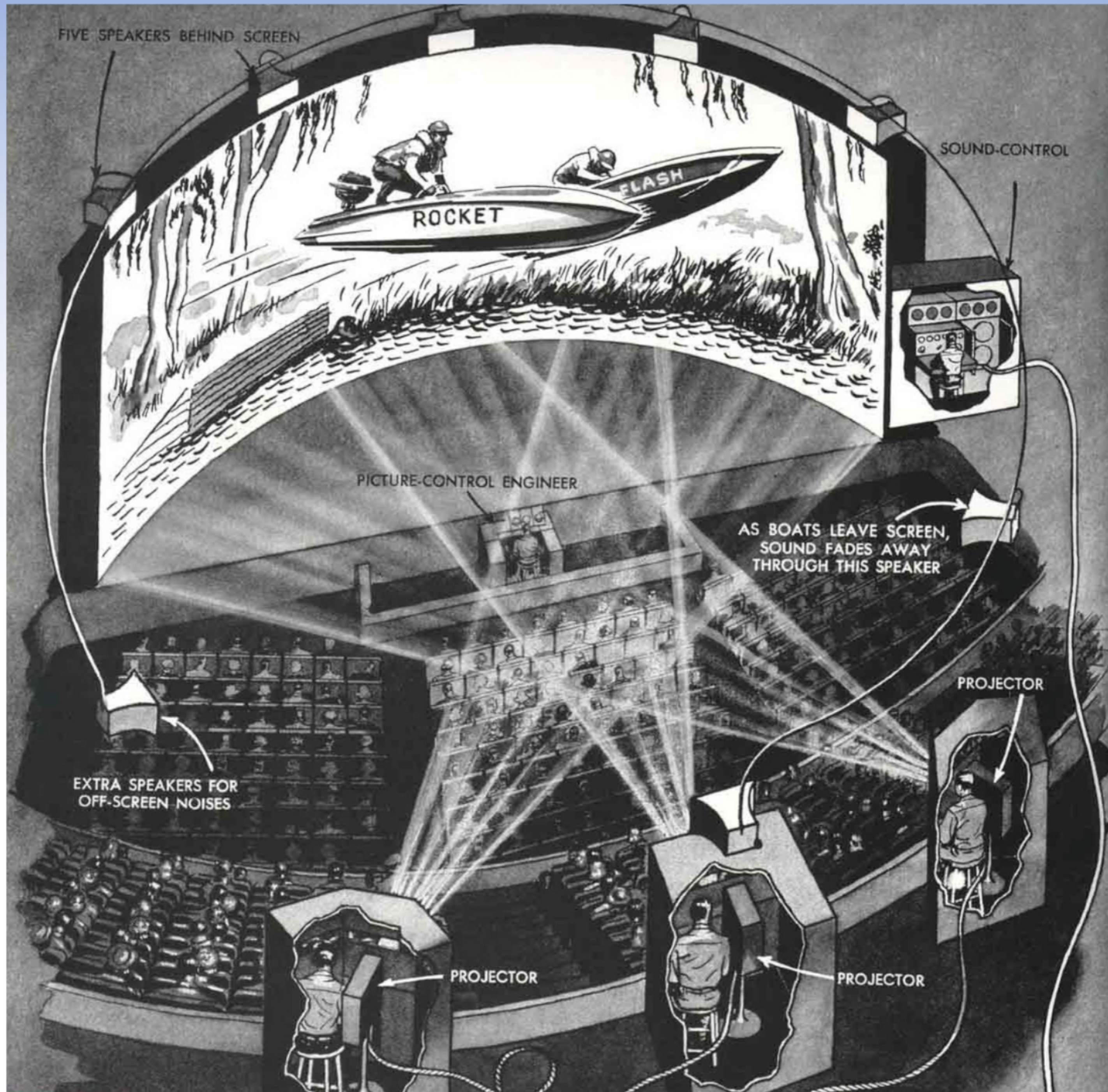
[https://www.youtube.com/watch?v=vKW-Gd\\_S\\_xc](https://www.youtube.com/watch?v=vKW-Gd_S_xc)



# Realism vs Simplicity in Cartoons



# Realism vs Lower Cost and Portability

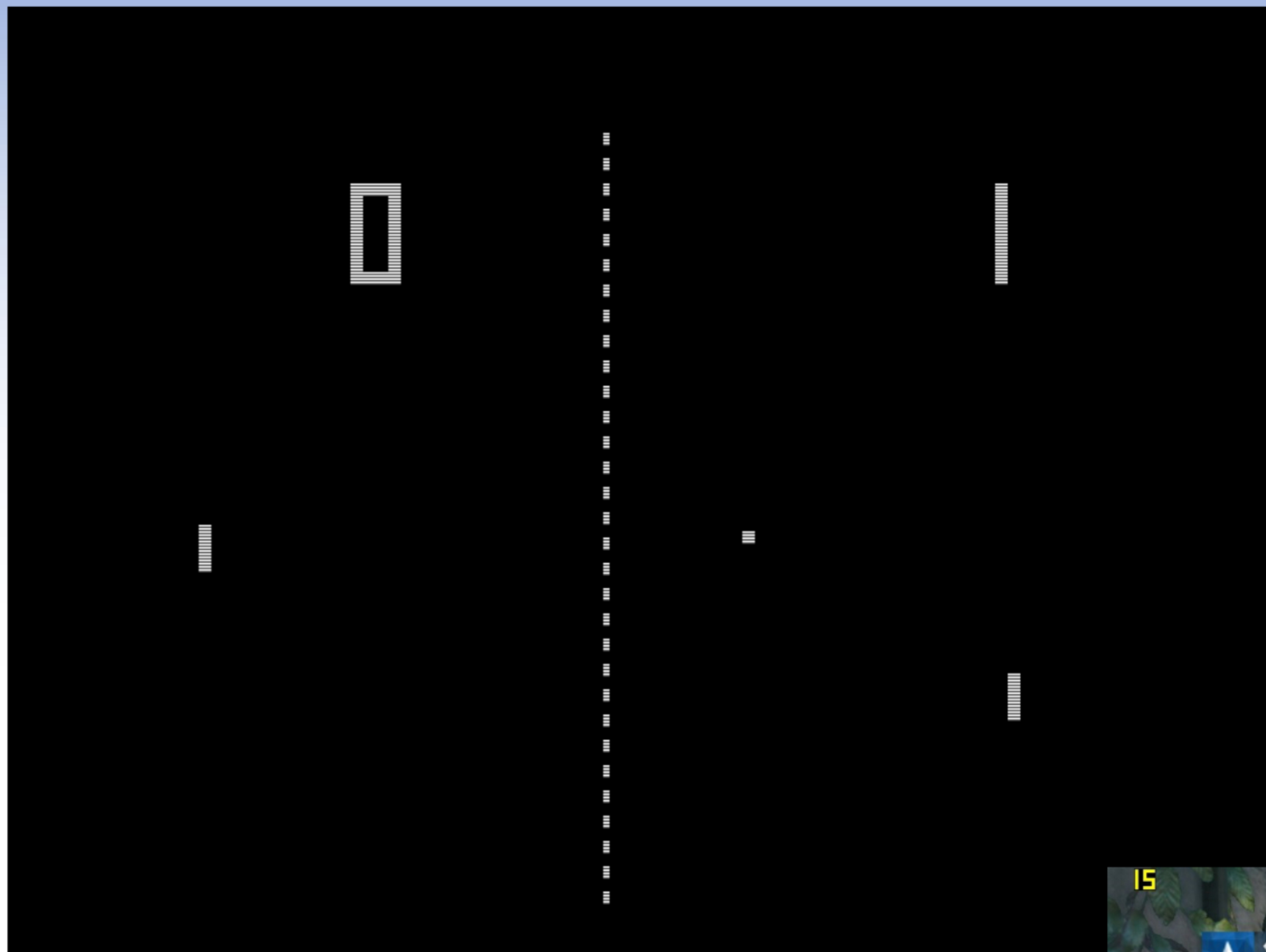


# How many FPS are enough?



<https://www.youtube.com/watch?v=-Qk7ZSXujRo>

# Evolution of Computer Games



# Realism vs Simplicity in Computer Games



# History of VR

Introducing . . .

## sensorama

The Revolutionary Motion Picture System that takes you into another world with

- 3-D
- WIDE VISION
- MOTION
- COLOR
- STEREO-SOUND
- AROMAS
- WIND
- VIBRATIONS

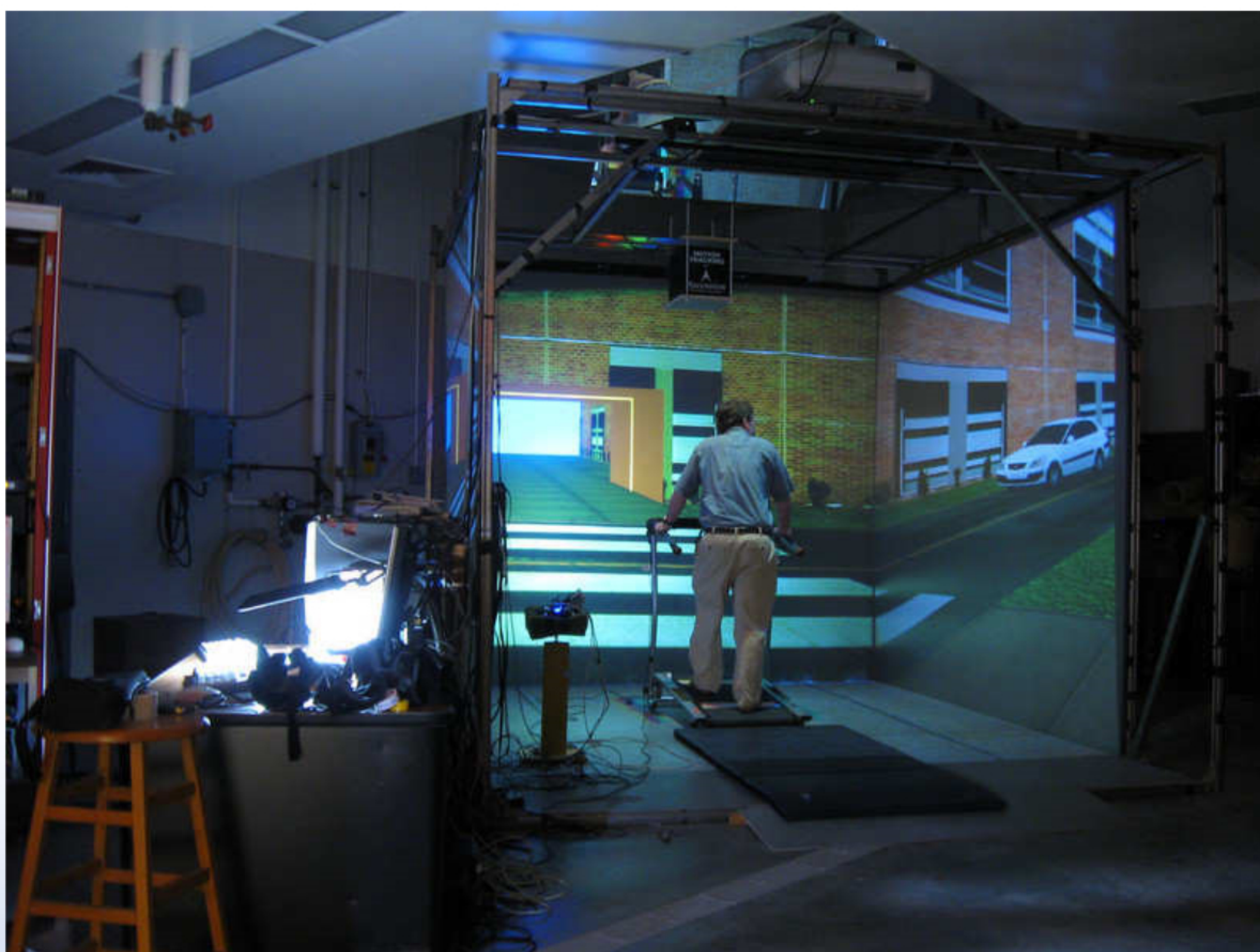


SENSORAMA, INC., 855 GALLOWAY ST., PACIFIC PALISADES, CALIF. 90272  
TEL. (213) 459-2162

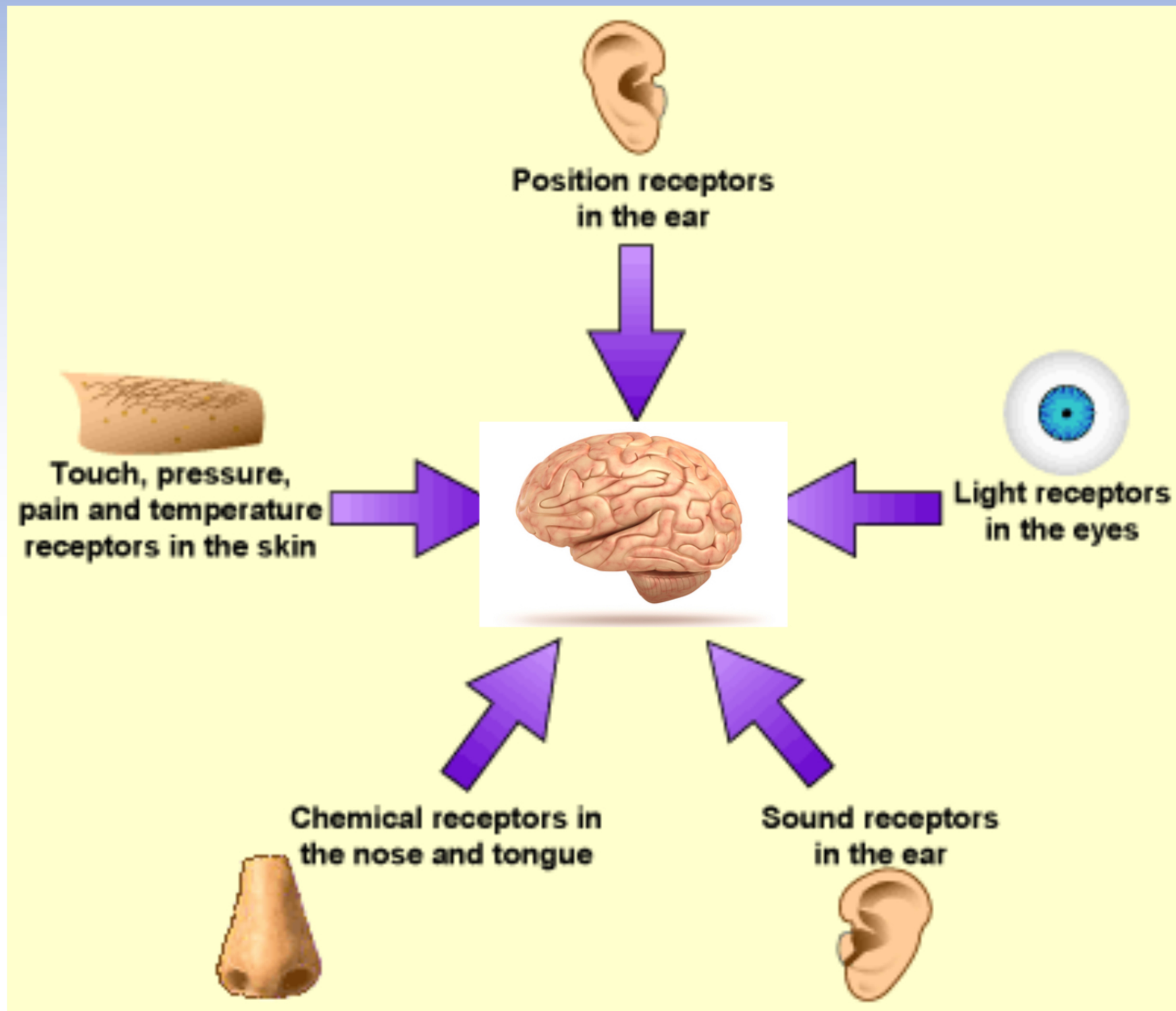


<https://www.youtube.com/watch?v=ISJWZpFIAIQ>

# Headsets vs Cave



# Hardware: Senses vs Sensors



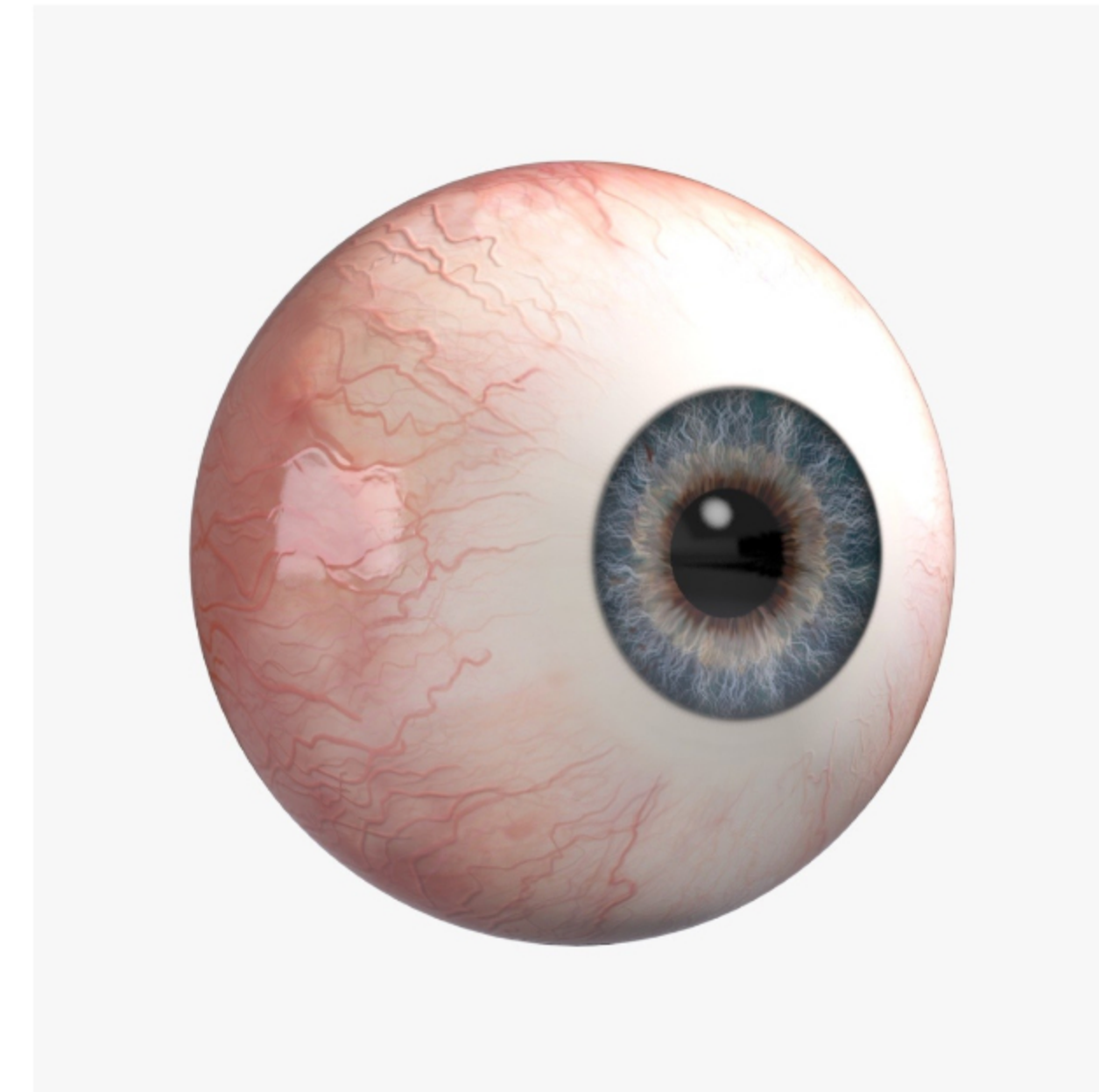
A sensor is a transducer that transforms the physical world energy into a signal.



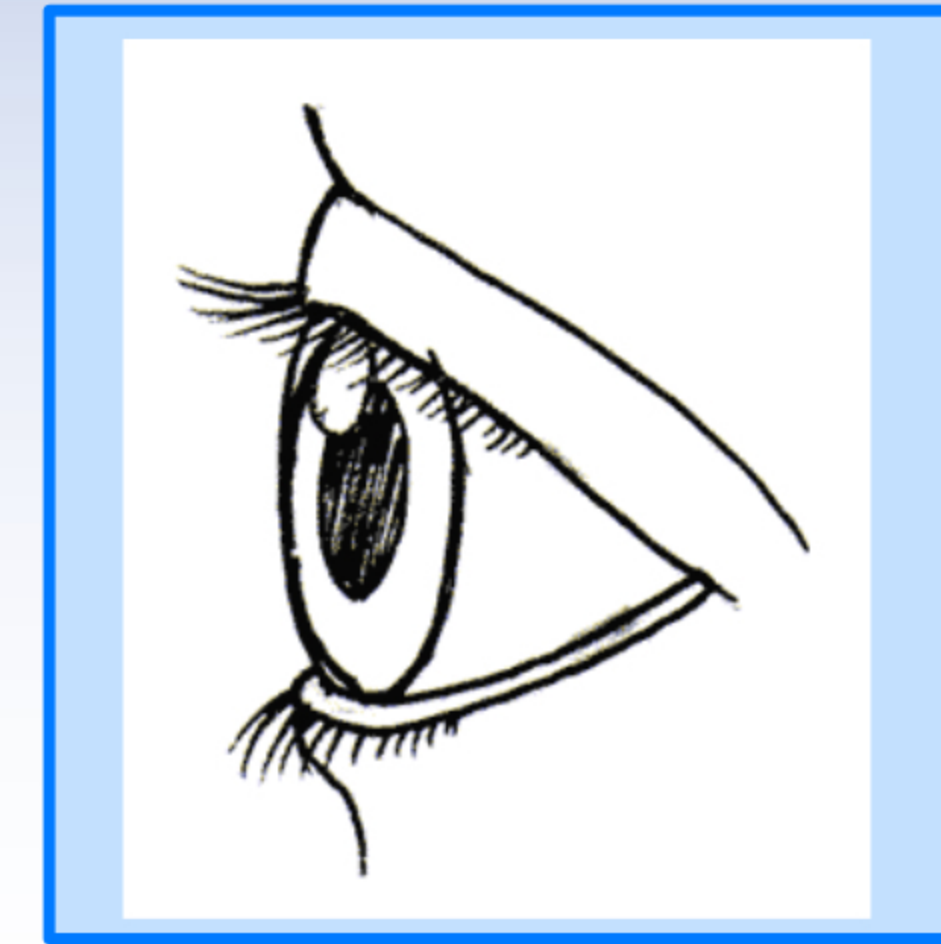
# Sensors vs Physical World

Each sensor moves through space or changes in some way. These changes are:

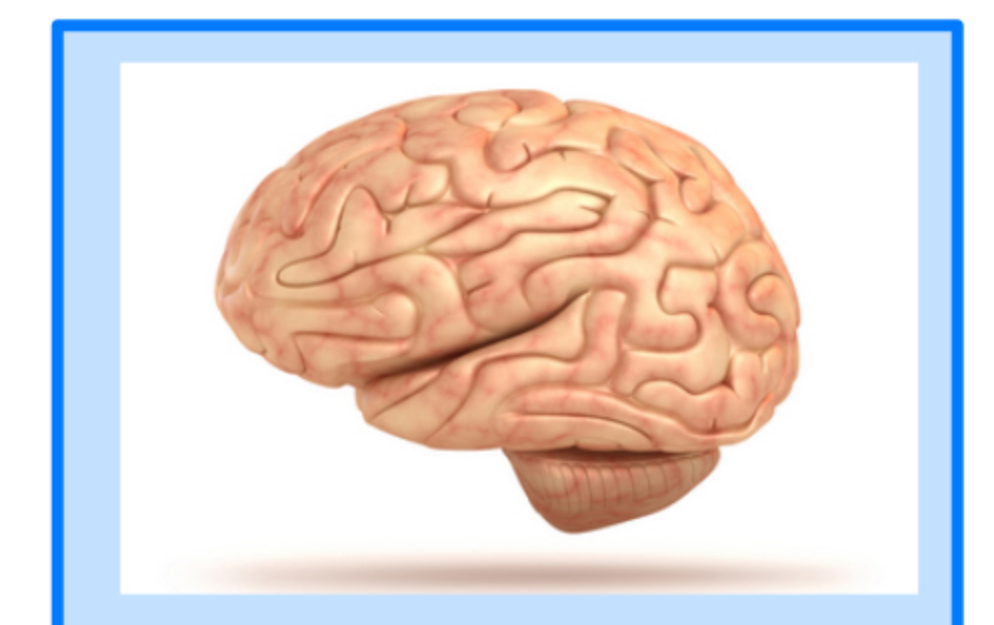
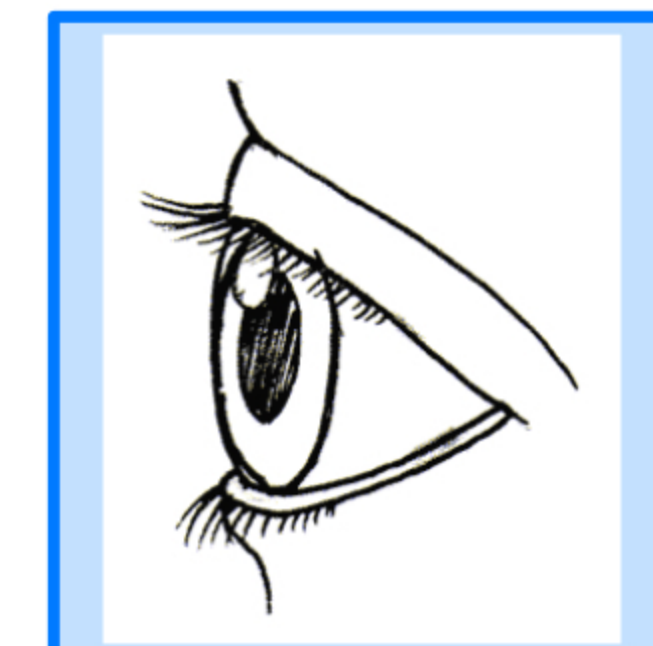
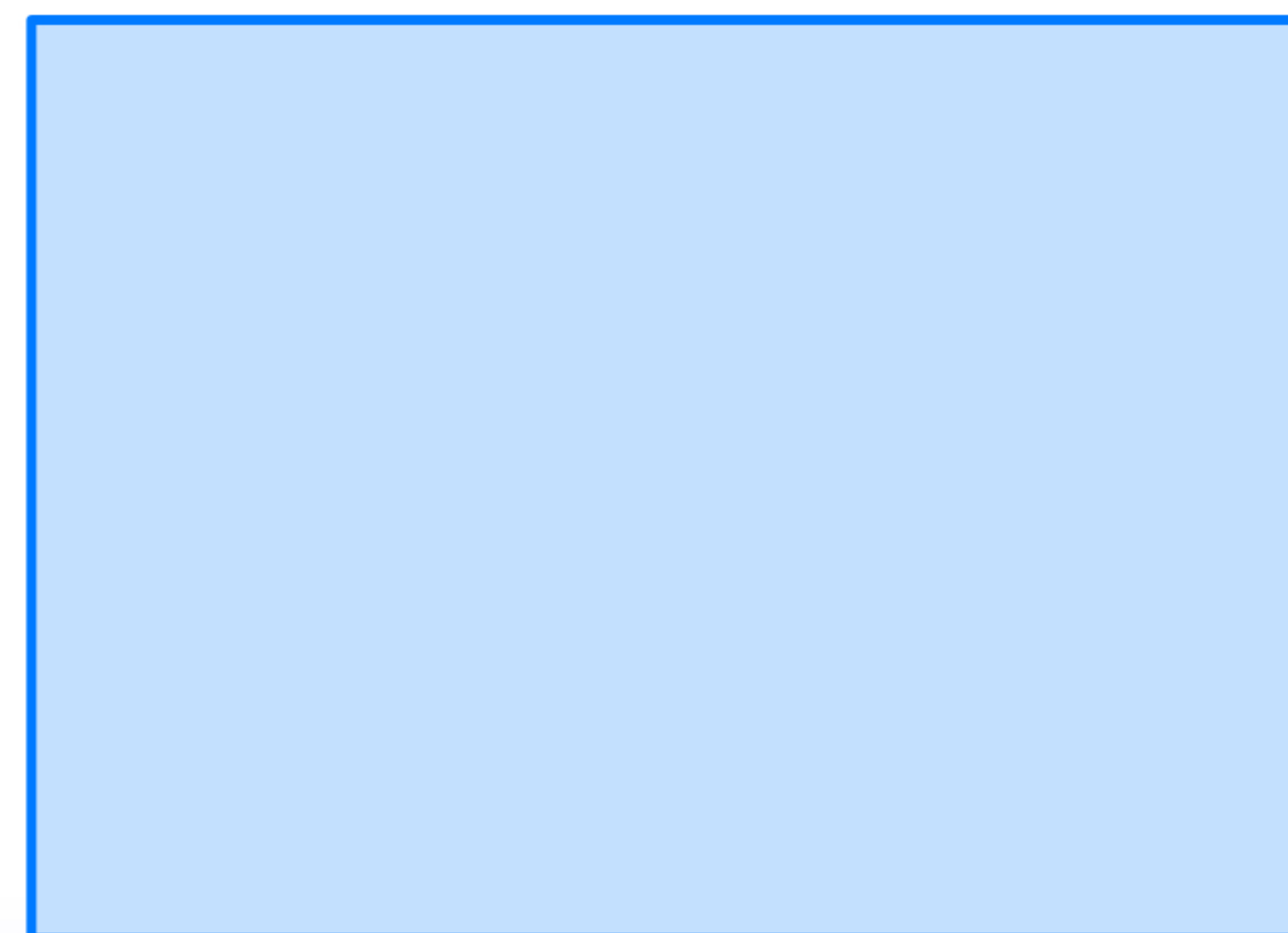
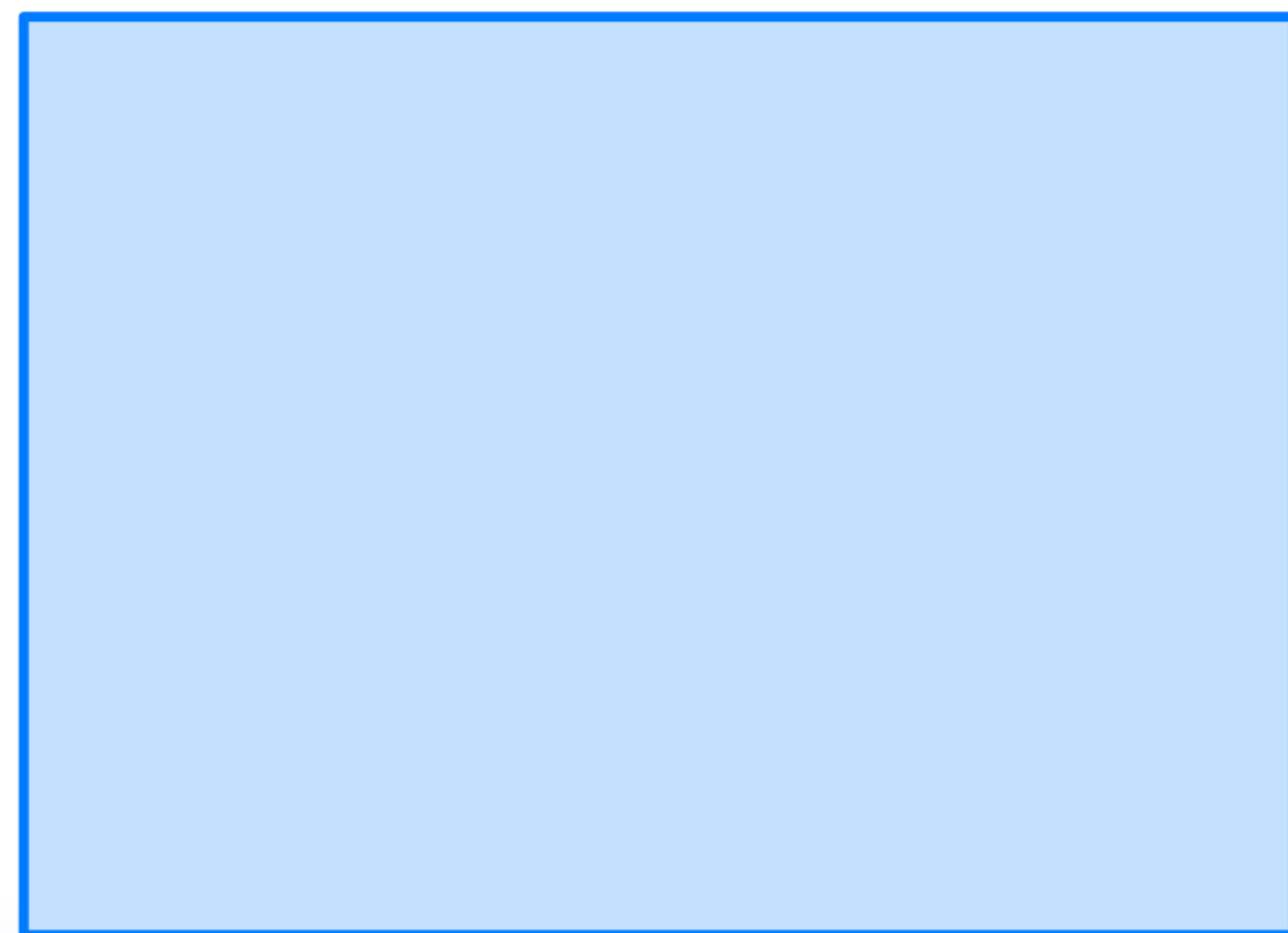
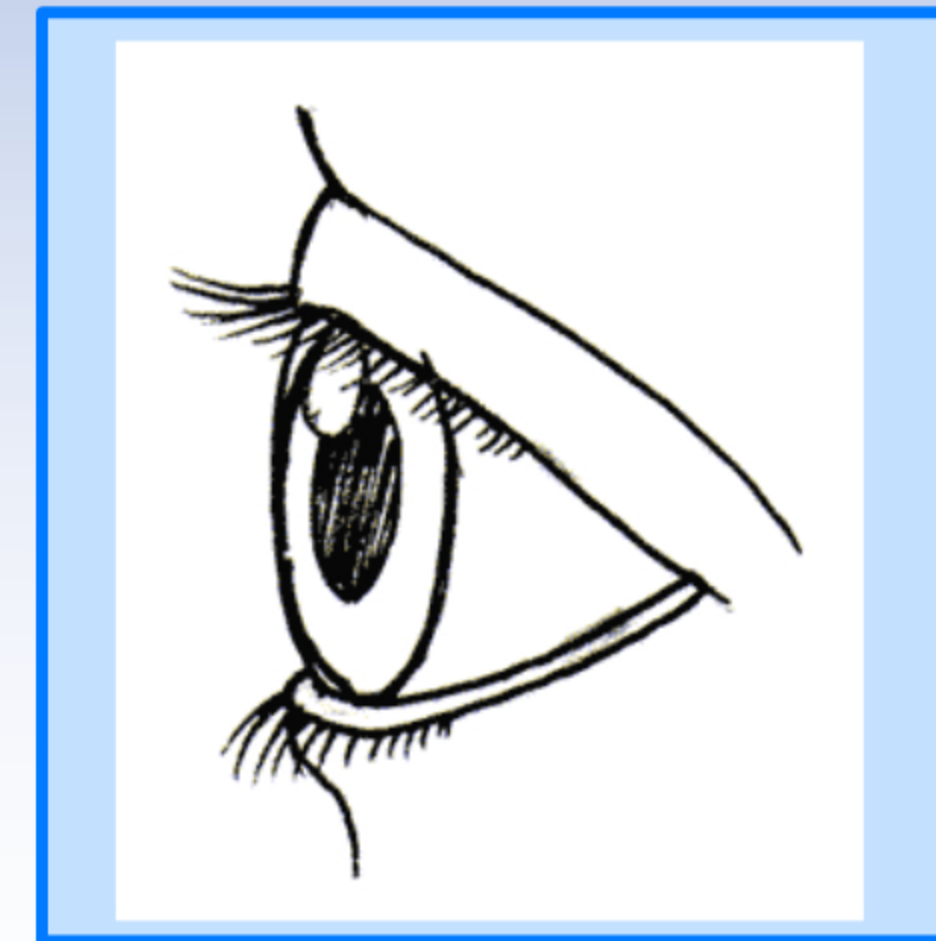
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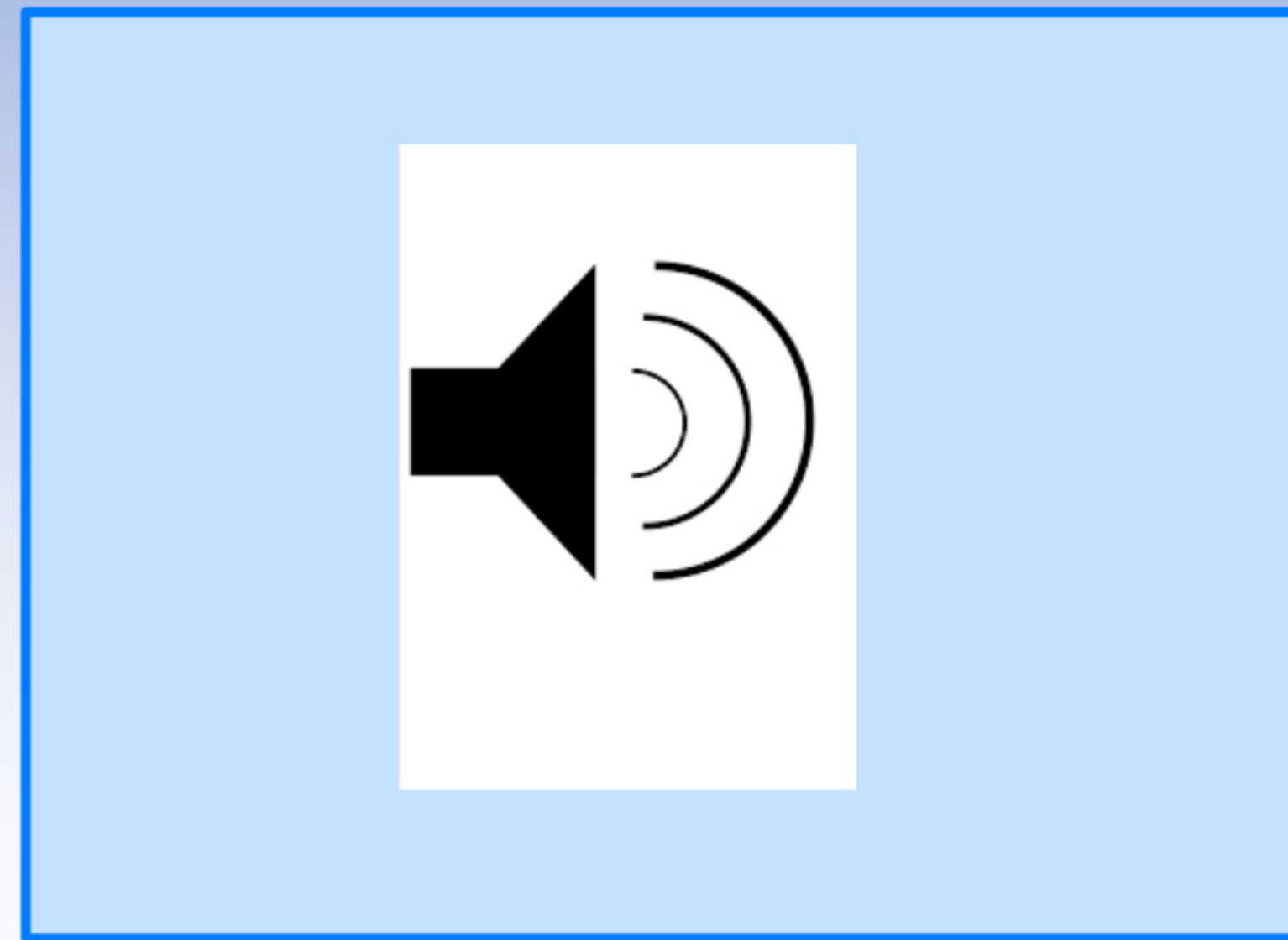
# Sensors in Physical World: Reality



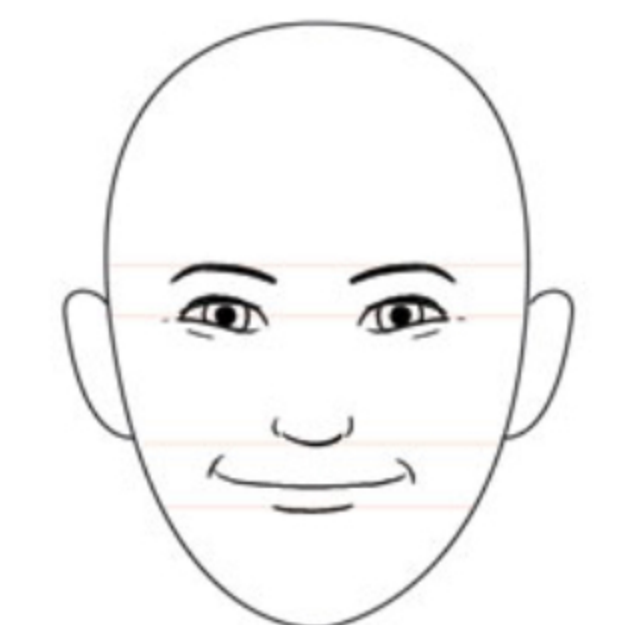
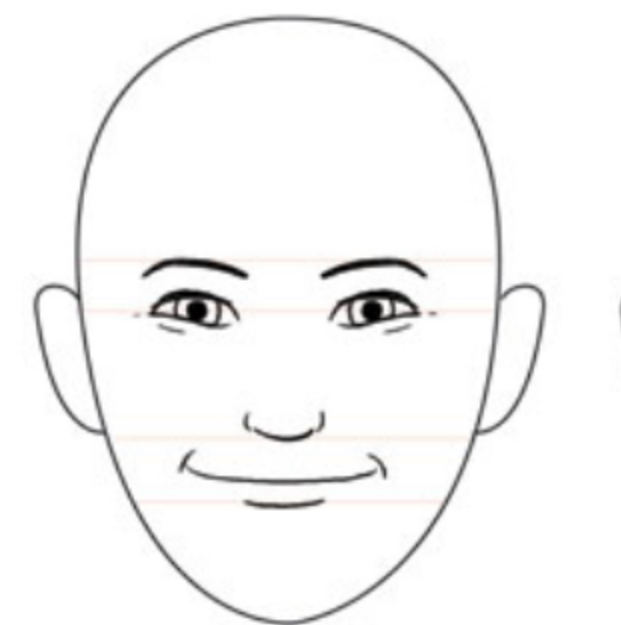
# Sensors in Physical World: Virtual Reality



# Audio Displays

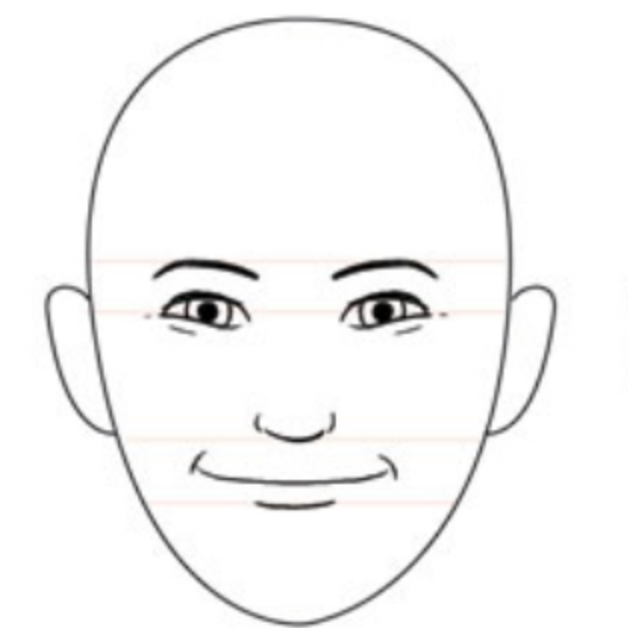
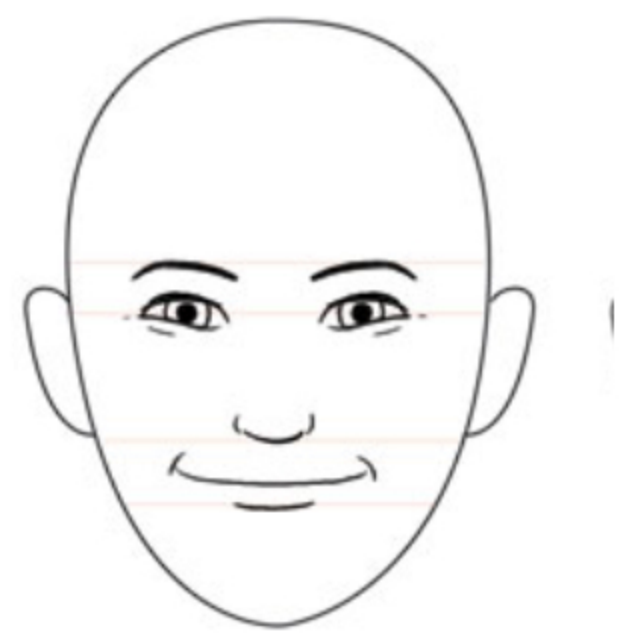


Two familiar settings:

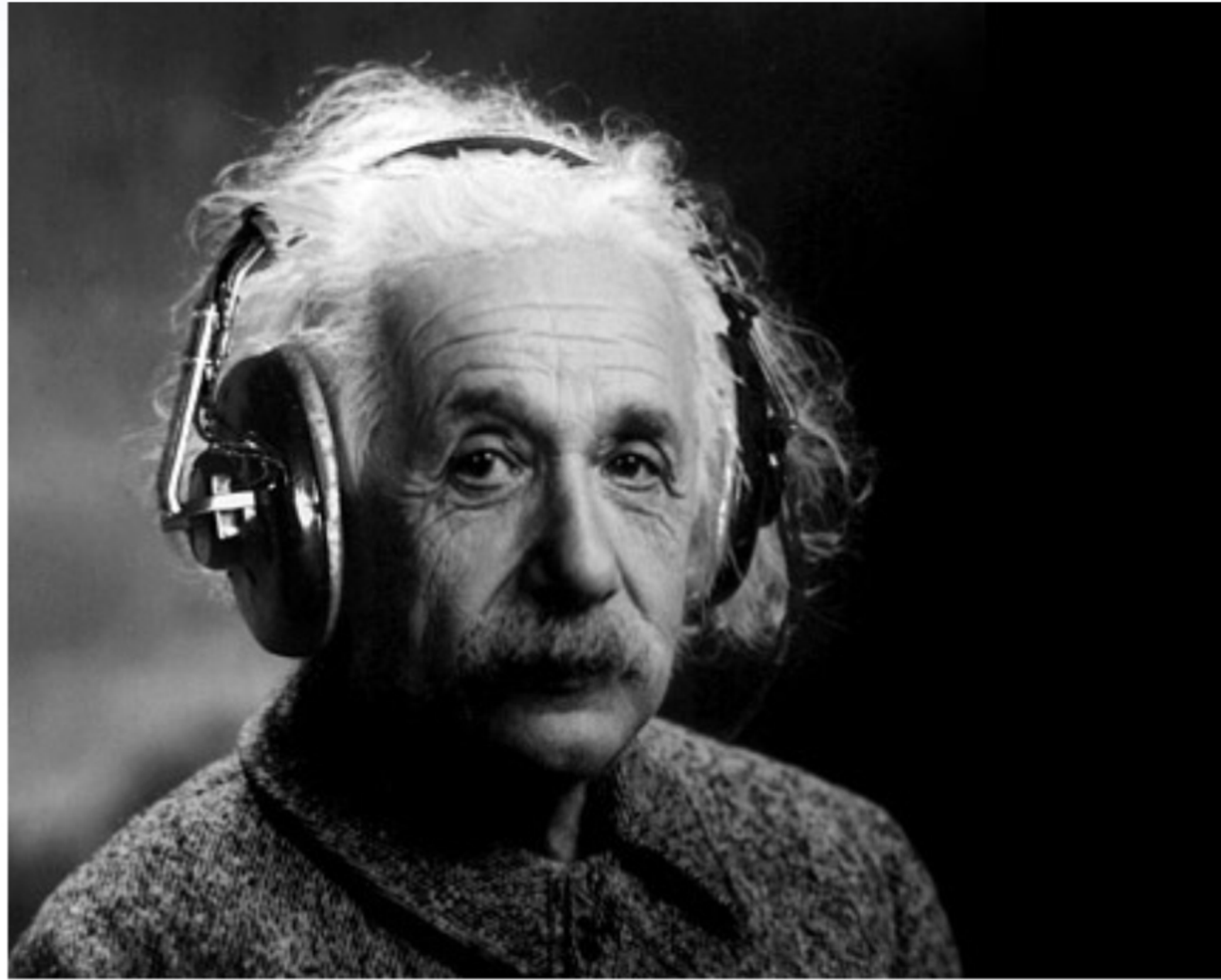


# Visual Displays

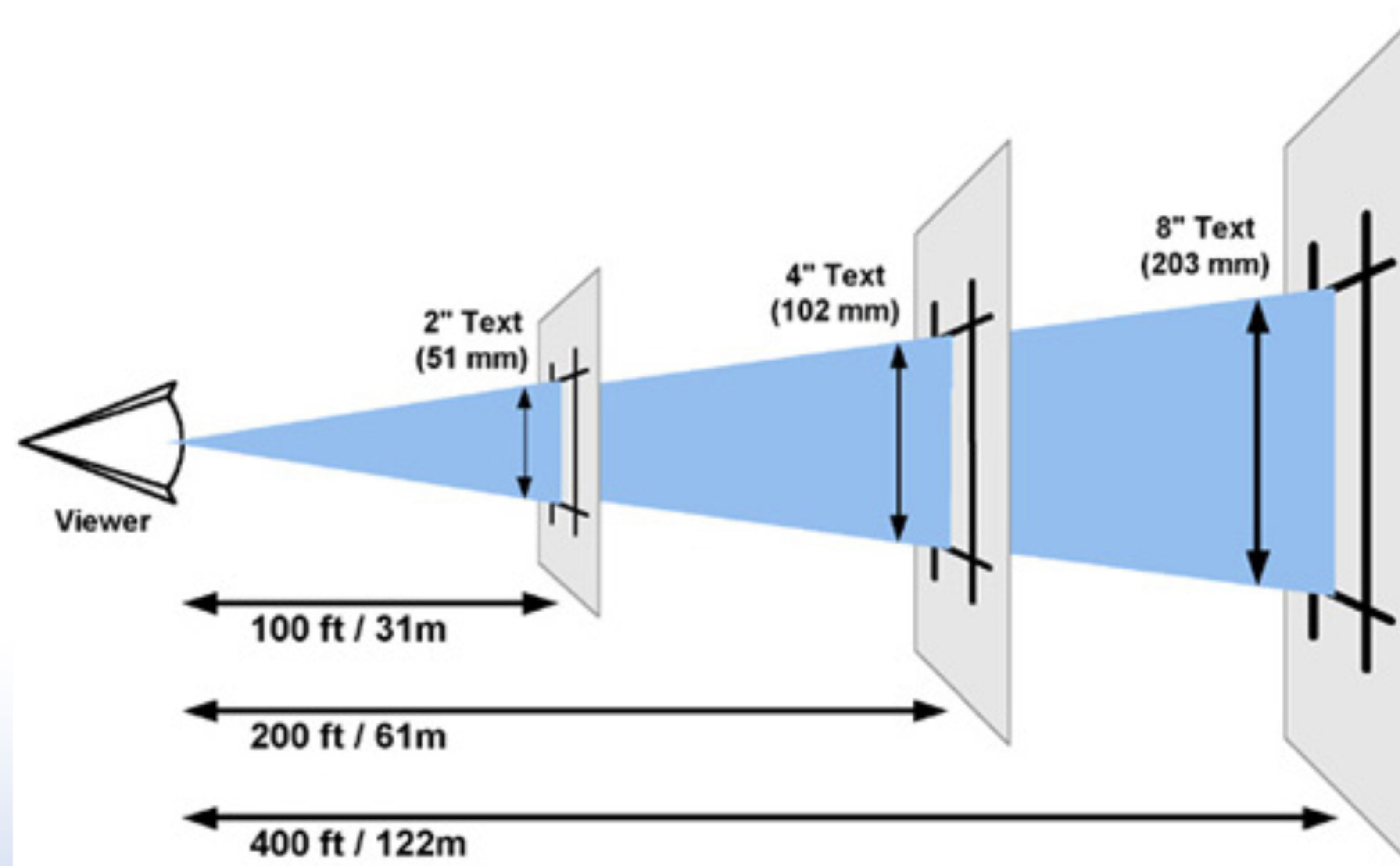
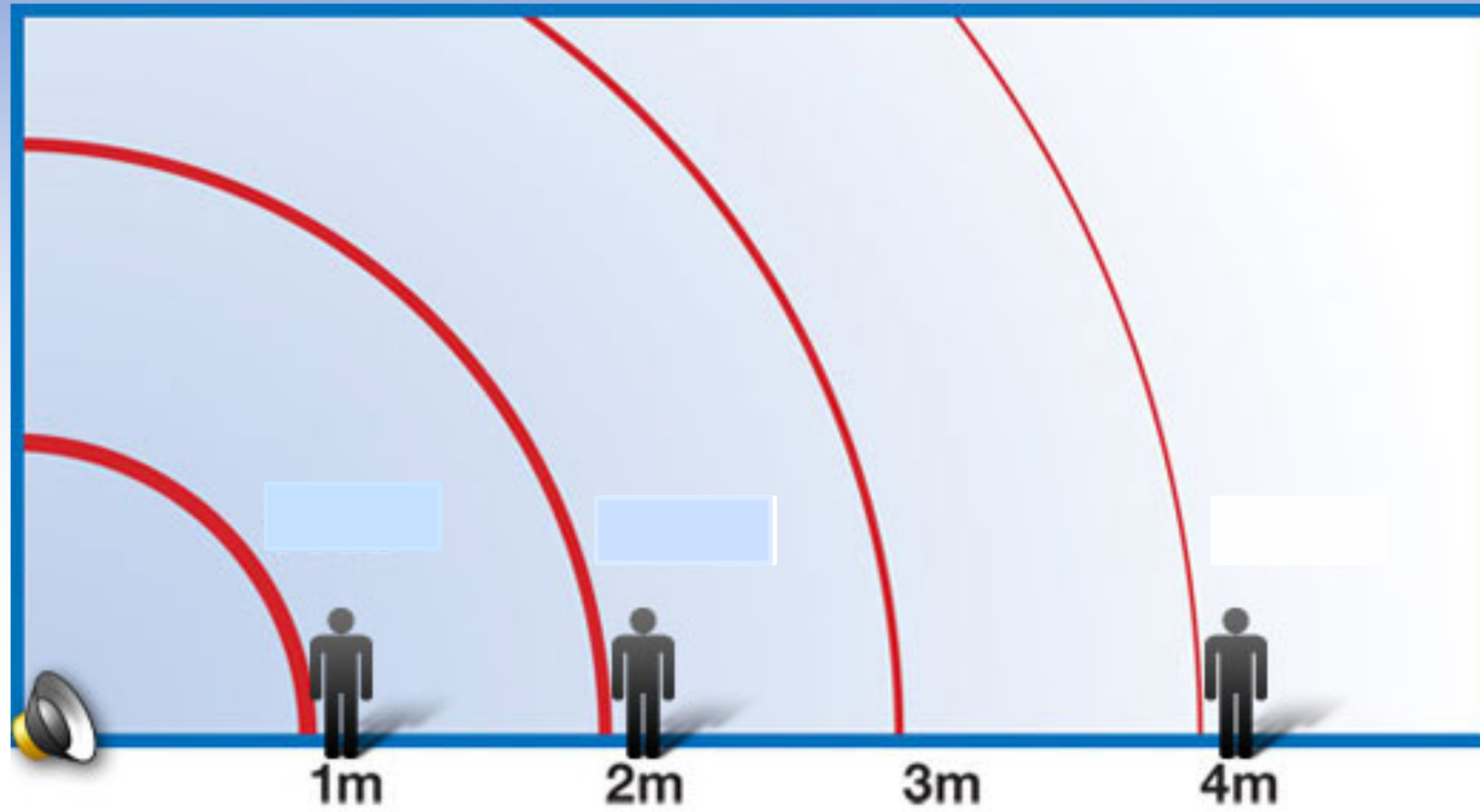
Two settings:



# HMDs vs Headphones



# Distance to Displays



# Birds-Eye View: Hardware

## Displays:

- Visual:
- Audio:
- Touch:
- Smell? Taste? Vestibular?

## Tracking hardware components:

- IMUs:
- Magnetometers:
- Cameras:

## Controllers:

- 

## Lens:

## Computer:

- CPU:
- GPU: