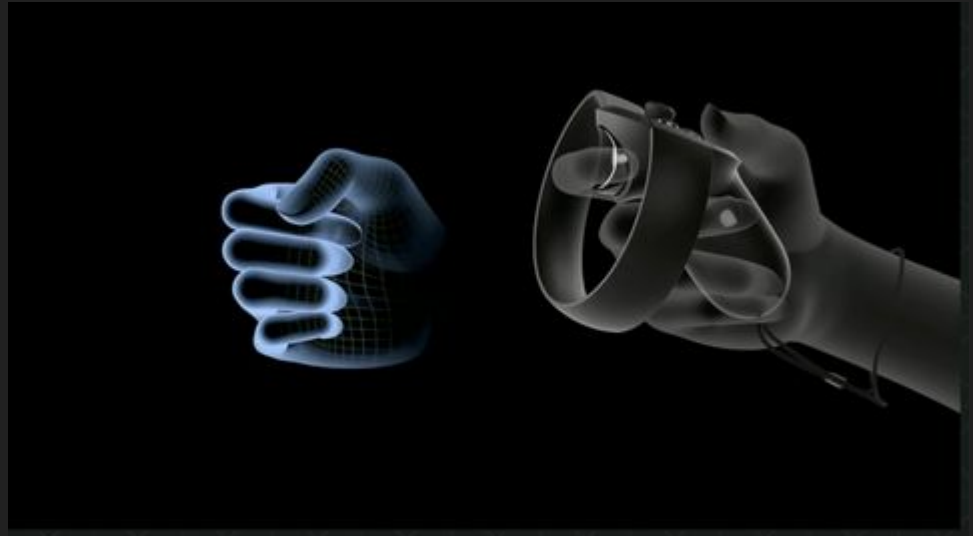


# HW2: VR Classroom

CSE165 - Discussion 3

# Agenda

- Homework Intro
- Using Oculus Touch Controllers
- Creating VR Lab
- Instantiating Furniture
- Selecting Furniture
- Manipulating Furniture

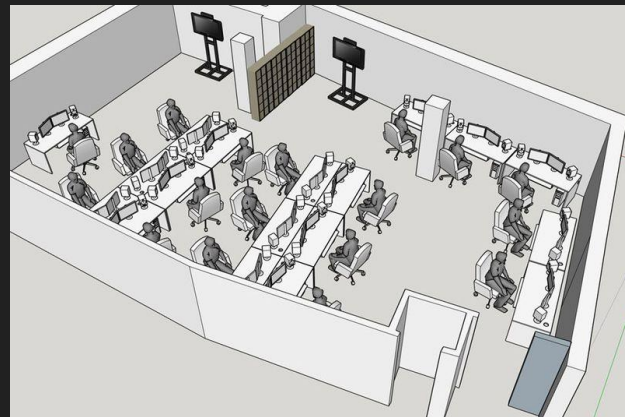


Next week: Grouping, copying, measuring, and extra credit

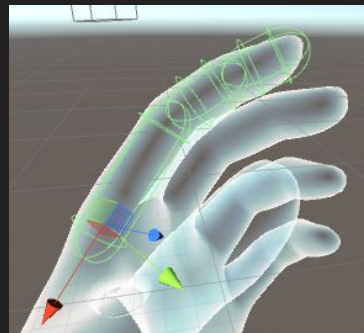


# Homework 2: VR Classroom Design Tool

- Provided with fbx files:
  - Including TV, Chairs, Locker, Whiteboard, etc.
  - Download at <http://ivl.calit2.net/wiki/images/1/12/Vrlab-fbx.zip>
- Design your own VR lab:
  - A room with 26 desks, at least 30 lockers and 2 storage cabinets.
  - Display at 1:1 Scale
- Interactions with Touch Controllers!
  - Teleport, Spawn, Select, Manipulate...



# Oculus Touch Controllers



- Oculus Integration SDK:

- Download: <https://assetstore.unity.com/packages/tools/integration/oculus-integration-82022>
- OVRPlayerController gives you the prefab for Oculus Camera
- LocalAvatar gives you the prefab for Oculus Touch Controller
- Check out sample scripts in the SDK to see how things work!

- FAQs

- Unity crashes when importing the assets?
  - Find out the script that causes the crash and uncheck it when re-importing.
- Where do I put localAvatar?
  - One way is to put it under OVRPlayerController/OVRCameraRig/TrackingSpace
- Errors when importing the SDK from asset store?
  - SDK also available at:  
<https://developer.oculus.com/downloads/package/oculus-utilities-for-unity-5/>

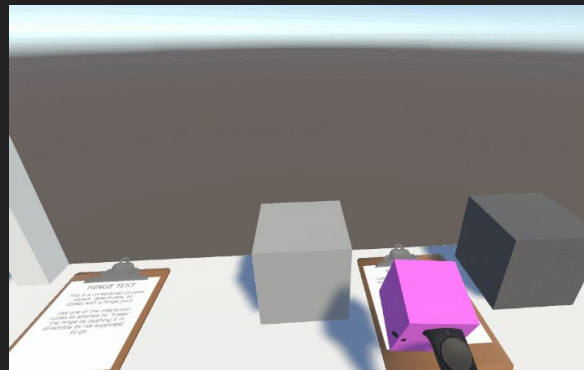
# Downloading and Creating VR Lab

- Extract the folder, and drag it into the Asset window
- The scale of certain objects, like the chair, is way off
  - Select the model, and you should see Import Settings in the Inspector Panel.
  - Change the Scale Factor to realistic values
- You will need to add colliders manually
  - Simply using Mesh Colliders would be too slow
- Once you have set up an object to your liking, make it a Prefab!



# Instantiating + Placing Furniture

- Users should be able to choose and place different types of furniture
- Similar methods as last week, but requires more design
  - `GameObject.Instantiate()` and `Physics.Raycast()` for lots of your interaction
- Key questions:
  - How will the user select what type of furniture to place?
  - How will the user choose where to place the furniture? No overlap allowed!
  - How can you make sure the furniture is upright when created?



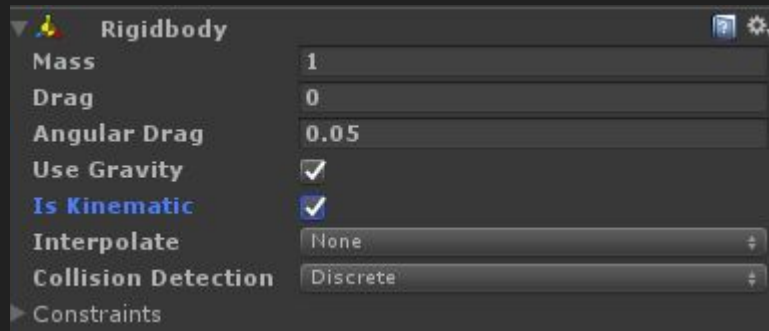
# Selecting Furniture

- You need two different types of selection/interaction (from lecture)
  - How do you switch between different modes?
- Ideas for selection:
  - Pointer
  - Grab
  - Go-go technique
  - World in miniature
  - Flashlight technique
  - .....



# Manipulating Furniture

- Users should be able to move and rotate furniture objects.
  - Checking isKinematic helps you temporarily get rid of gravity.
- Note that all furniture must always be upright when on the ground!
  - No intersecting with other furniture or floor.
  - A furniture cannot be on the top of another.
- You want your manipulation to be intuitive. More buttons != better.
  - How do you manipulate object in the real world?
  - Try to avoid using too many buttons





# Questions?

Feel free to ask on Piazza!

*(Making your questions public is helpful to everyone!)*

