SOFTWARE: GAMIFICATION

OT 699 – Week 4

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OBJECTIVES

By the end of this session, students will be able to:

- Describe why gamifying therapy is useful
- Install the Unity game engine
- Modify your first Unity microgame using the Unity tutorial
- Create your first basic video game from scratch using an online tutorial
- (Updated after recording the whole lecture: You will also learn about real-life troubleshooting ☺)

Why is gamifying therapy useful?

- Sometimes, repetitive movements are needed in therapy (e.g., abduction, adduction, flexion, extension)

- However, as OTs, we should focus on meaningful, goal-oriented actions

- Gamification of routine tasks or movements can provide clients with greater motivation, engagement, and purpose
  - Works for younger clients (pediatrics) as well as older adults!

Why is gamifying therapy useful?

- Low-tech is always awesome!
  - We are pros at turning movements into meaningful activities that align with the client's goals
- However, sometimes and for some populations, computer-based games might be helpful
  - **Stroke rehab** – more movements → better recovery, so games can encourage more of the same repetitive movement easily
  - **Pediatrics** – computer games may be more fun and easier than setting up objects in a natural environment
  - **Home therapy** – computer games may be a safer way to quantify movements while at home

Ways to gamify

- Different **platforms** (consoles, mobile phone app, tablet app, web-based games, computer games)
- Different **game engines** – software development environment made for people to play games
  - They usually have built-in libraries for:
    - Input/output
    - Rendering engines for great graphics
    - Physics engines (built-in collision)
    - Sound, animation, cinematics, etc.
- This is in contrast to Python, which has many different types of libraries but isn't specialized for games, or Matlab which is for math and statistics.

Game Engine Lab: Unity

- In this session, we will learn the very basics of the game engine Unity, which is widely used, works on Windows/Mac operating systems, and can be deployed in many forms (mobile, web, computer)

- We will:
  - Install the game engine
  - Run through one Unity beginner tutorial to modify a game
  - Run through a more advanced tutorial to make our own game Watch Videos 1-7 of this playlist (~1 hour): https://www.youtube.com/playlist?list=PLPV2KyIb3jR5QFsefuO2Rl AgWEz6EvVi6 – You are welcome to complete the whole playlist if desired up to video video 11 (E10) if you like though!

Some notes after recording everything...

- I ran through the tutorial on Windows first, then went to record it on a Mac – it turns out Unity is much smoother on Windows!

- On Mac, a few workarounds are required, which I detail in the video (and in the following slides)

- If you're on Windows, you can skip these aspects, although the standard Unity download, install, build and publish time still take a while (I fast-forwarded in the video).

- If for any reason you are having a lot of issues, you should try to at least get through the **basic Unity tutorial with me**, and then you can do less of the advanced YouTube make-your-own-game tutorials (e.g., aim for videos 1-4 instead of 1-7).

- Email sliew@usc.edu with any questions!

- In our live session, Ms. Coralie Phanord, a Unity pro, will guest lecture and help with troubleshooting. ☺

Extra Unity Install Instructions for Mac

- If you're on a Mac, you may get this error:
  - Unity fatal error: The project is on case sensitive file system. Case sensitive file systems are not supported at the moment. Please move the project folder to a case insensitive file system.
- This means you can download and install Unity as normal. However, in order to open the tutorial Karting project (or save other projects), you need to create a **new disk image** to save it on.

Extra Unity Install Instructions for Mac

- To create a new disk image, go to your search (upper right hand corner magnifying glass icon)
- Search: "Disk Utility" and open it
- Then go to File > New Image > Blank Image

- In the box that appears:
- Save As: CIFS (case insensitive file system)
- Name: unity_workspace
- Size: 10 GB (you can do less, like 2 GB if needed)
- Format: Mac OS Extended (Journaled)
- Leave the rest as is and click save
- (see next slide for screenshot)

Disk Utility
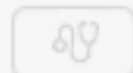
First Aid Partition Erase Restore Unmount

Save As: CIFS

Tags:

Where: 🏠 sliew

Name: unity_workspace

Size: 10 GB

Format: Mac OS Extended (Journaled)

Encryption: none

Partitions: Single partition - GUID Partition Map

Image Format: read/write disk image

Cancel Save

Free

243.

Used: 11.22 GB Device:

Extra Unity Install Instructions for Mac

- Next, open Unity Hub
- Go to "Projects" on the left-hand side menu
- Then click "New"
- In Templates, select the "Karting Microgame"
- On the right, entitle this "MyFirstGame"
- IMPORTANT: For Location: click the three dots to the right, then use your Finder browser to find the "unity_workspace" disk image we created on the left. You might need to scroll down.
- Click select
- Then click "Create"
- This may take a few minutes to load all the assets, but then you should be set for the tutorial
- (See screenshots on next slide)

Templates

Settings

2D

3D

3D With Extras

Project Name * **4**

MyFirstGame1

Location *

/Volumes/unity_workspace

5

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High Definition RP

Universal Render Pipeline

3

Karting Microgame

CANCEL

CREATE

Create a new project with Unity 2019.4.18f1

unity_workspace

Search

Name	Size
▶ 📁 MyFirstGame	

sliew
Desktop
data
Documents
Downloads
Pictures
Recents
Applications

iCloud
iCloud Drive

Locations
Unity Hub 2...
unity_works... **6**
Network

New Folder

Cancel

7

Select Folder

Templates

Settings

2D

3D

3D With Extras

Project Name *

MyFirstGame1

Location *

/Volumes/unity_workspace

...
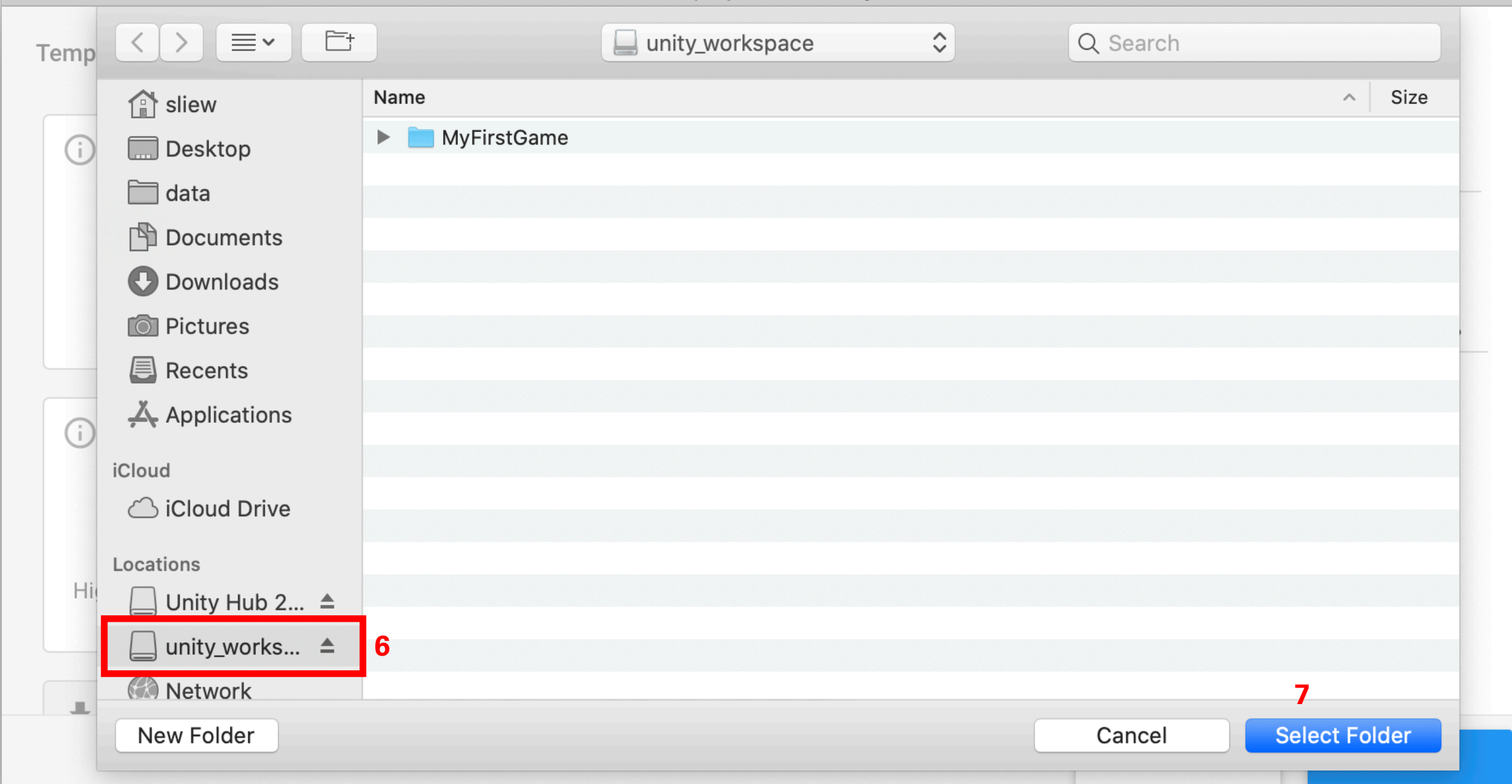
High Definition RP

Universal Render
Pipeline

Karting Microgame

7

CANCEL

CREATE

Extra Unity Install Instructions for Mac

- When you do the Youtube Unity tutorial for Mac, you will just need to make sure you always save your Unity projects to the /Volumes/unity_workspace disk image!

- Remember, of you ran out of asynchronous class time because of the workarounds, you can just do YouTube tutorials 1-4: https://www.youtube.com/playlist?list=PLPV2KyIb3jR5QFsefuO2RIAgWEz6EvVi6

- Finally, this is what working with technology REALLY looks like lol. Hours on hours of troubleshooting and trying to figure out what's wrong and how to fix it :D

- So… any time someone tells you they can guarantee how long a tech project will take, if they haven't done it before, they are likely lying and you should expect it will take longer, and just be excited if it doesn't ☺

My microgame on the web

- Finally, if you want to try playing my microgame from the tutorial on the web, you should be able to click this link:

- https://play.unity.com/mg/karting/my-first-game-1101