Mini - VR Workshop
Build Your First VR Experience with Unity + XR Toolkit

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TigerHacks 2025, Saturday 8th November – VR Lab

College of Engineering | Information Technology | University of Missouri – Columbia

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What You'll Do Today

You will learn how to:

- Set up a Unity project for VR
- Add a VR player (headset + controllers)
- Move using teleportation
- Grab and interact with virtual objects
- Try examples of more advanced VR interactions

No experience required, let's go!

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What is VR and Why It Matters

- VR creates a sense of **presence** – feeling like you are inside the virtual world
- The goal is to trick your brain into treating virtual objects and spaces as real

- **VR is used in:**
  - Games and entertainment
  - Education and training
  - Health and therapy
  - Architecture and design
  - Remote collaboration and simulation

Research at MU has been advancing the applications and uses of VR technology.

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What Makes Good VR

- **Natural interaction:** grab, touch, push, look – not just mouse clicks

- **Comfortable movement** – avoid sudden motion to reduce motion sickness

- **Correct scale** – objects should feel real in size and distance

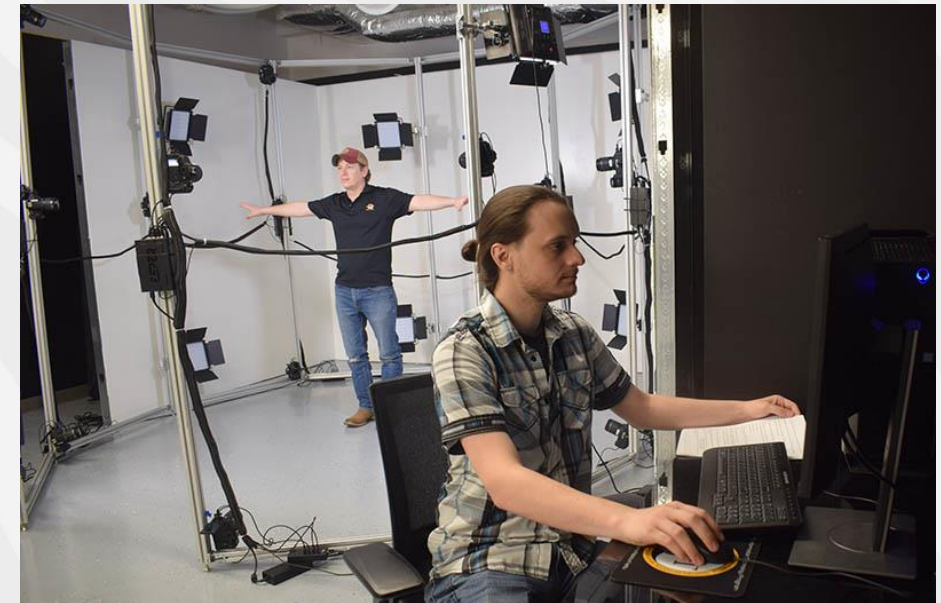- **A clear purpose** – explore, build, solve, learn, simulate

An image of the virtual museum, available in the Oculus Rift Store

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Things to Keep in Mind

- VR users are physically moving → requires safe space

- Headsets can cause fatigue or nausea if poorly designed

- Users are visually and audibly isolated from the real world

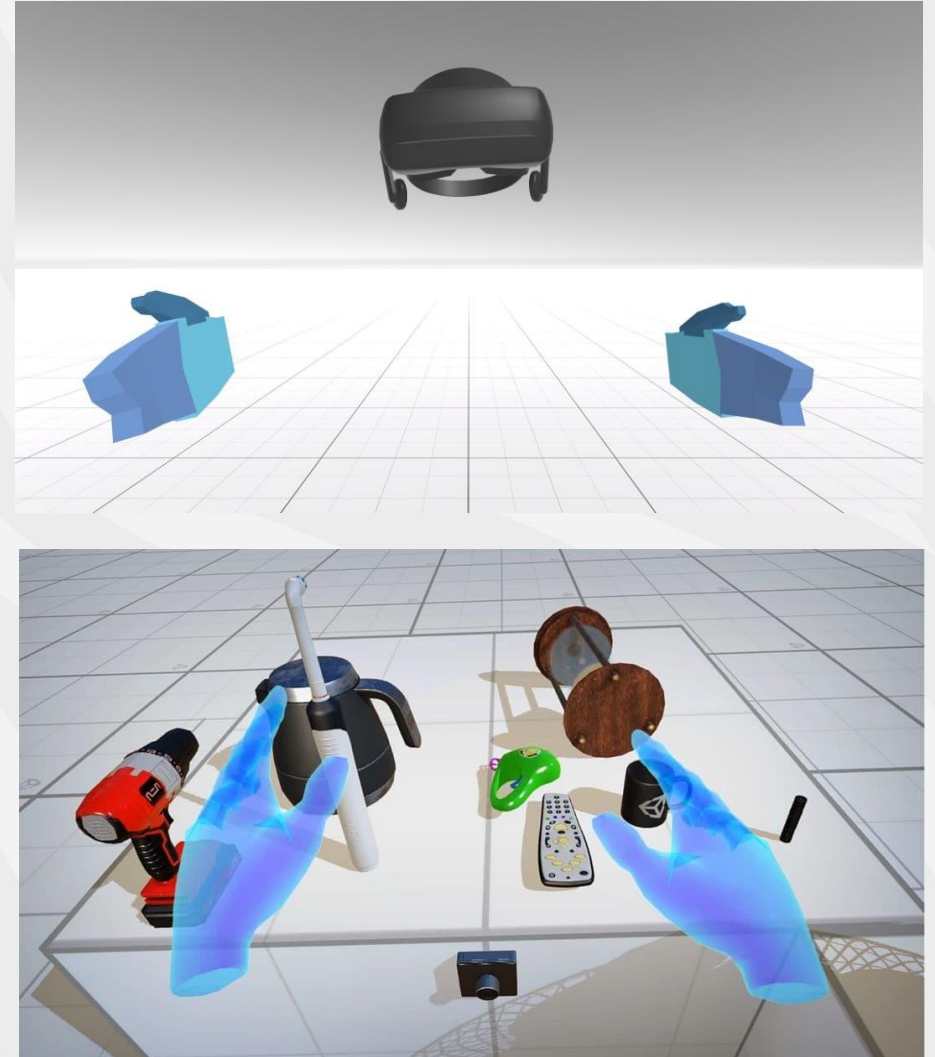- Hardware is still expensive → Unity makes VR development more accessible

The motion capture system takes images from all angles to turn people into digital avatars.

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What You Will Build Today

By the end of this session, you will have:

- A working Unity VR project

- A player rig (head + hands)

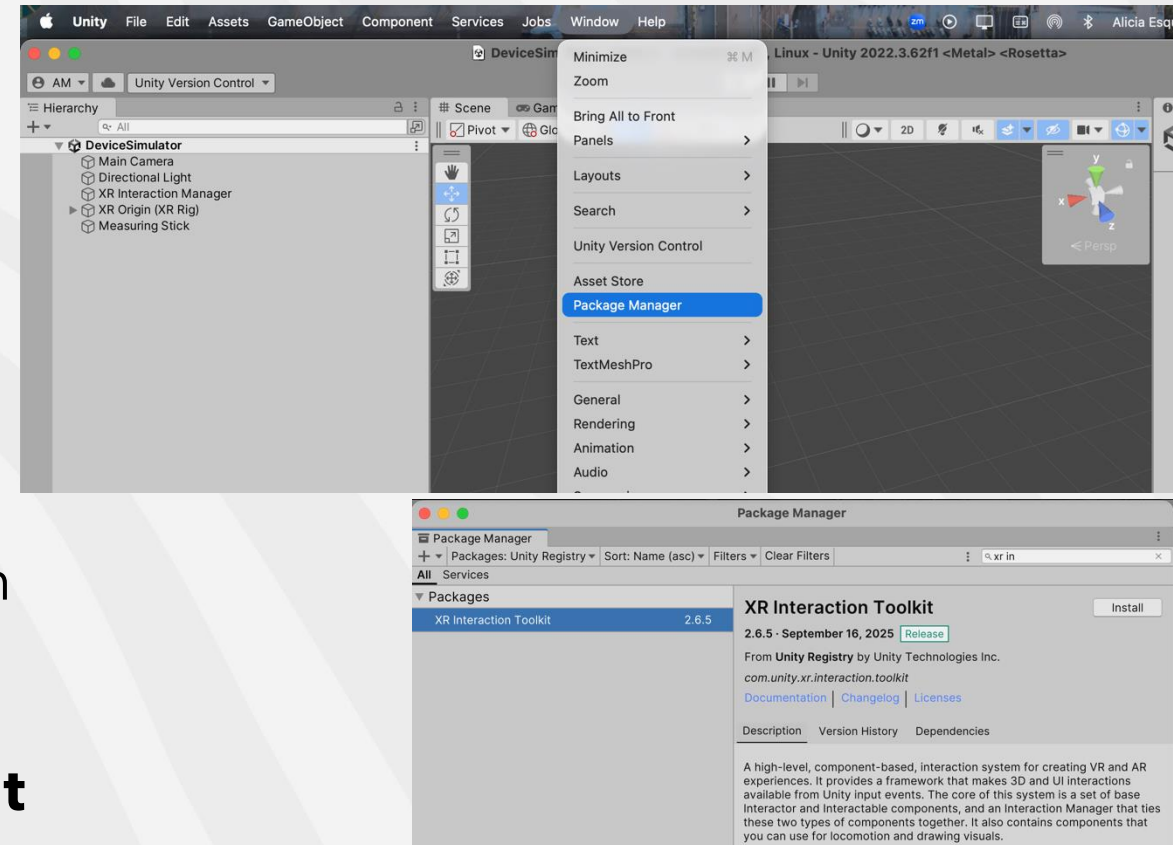- Teleport locomotion

- Grabbable, throwable physics object

Step 1: Create a New Unity Project

1. Open Unity Hub → New Project

2. Template: **3D (URP or Core 3D)**

3. Name it: `TigerHacks_VR`

4. Create

5. https://github.com/alicesquivel/vr-workshop
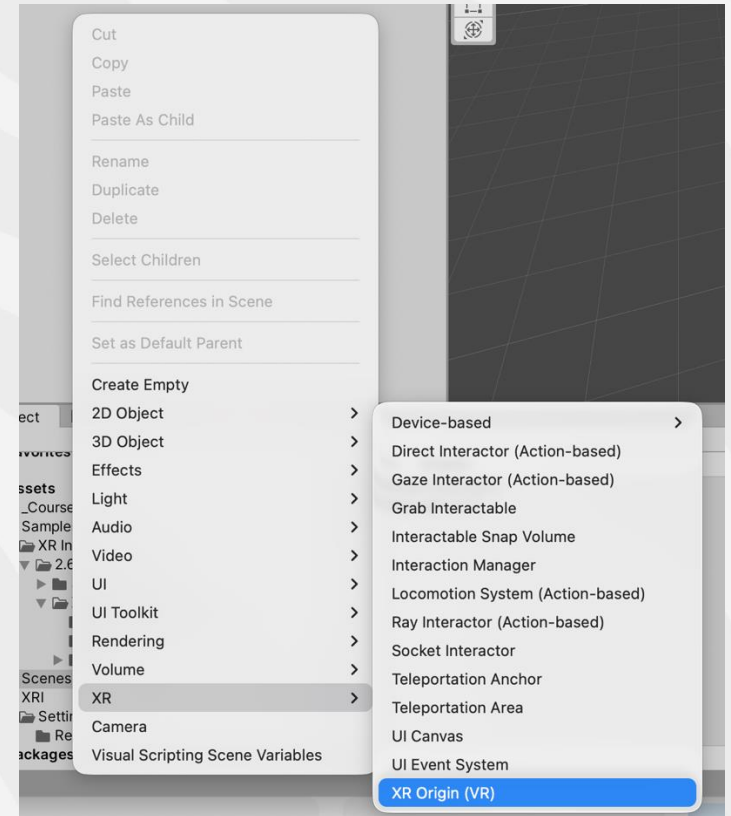
Step 2: Install VR/XR Packages

1. Window → **Package Manager**

2. Enable "Show Preview Packages"

3. **Install:**

   • ***XR Interaction Toolkit***

   • ***XR Plugin Management***

4. Go to Edit → Project Settings → XR Plugin Management → Enable **OpenXR**

5. If prompted: **Import XR Interaction Input**

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Step 3: Add a VR Player (XR Rig)

- In Hierarchy: Right-click → XR → **XR Origin**

- This adds:
  - Main Camera (your head)
  - Left & right controllers

- **Press Play** while wearing headset → you are inside the scene

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Step 4: Add Floor + Teleportation

1. Right-click → 3D Object → Plane → name it `Floor`

2. Add Component → **Teleportation Area**

3. Now you can point your controller and teleport to move

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Step 5: Add a Grabbable Object

1. Right-click Hierarchy → 3D Object → Cube

2. Position at (0, 1, 1)

3. Add Component → **Rigidbody**

4. Add Component → **XR Grab Interactable**

5. Enter Play Mode → Grab and throw it in VR

You Just Built VR Interaction

Now your scene includes:

- A VR camera that follows your head

- Controllers that interact with objects

- Teleport movement

- Physics-based grabbing and throwing

Put on your headset, It's VR time

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Next: Live Demo and Headset Tryout

- Try the scene you built
- Explore advanced VR interactions
- Ask questions or get help

Explore after the workshop:

- Unity Learn – VR Beginner Pathway

- Ask for today's project files on request

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Thank you!

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