TIGERHACKS

Mini - VR Workshop

Build Your First VR Experience with Unity + XR Toolkit

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

Mizzou

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!

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.

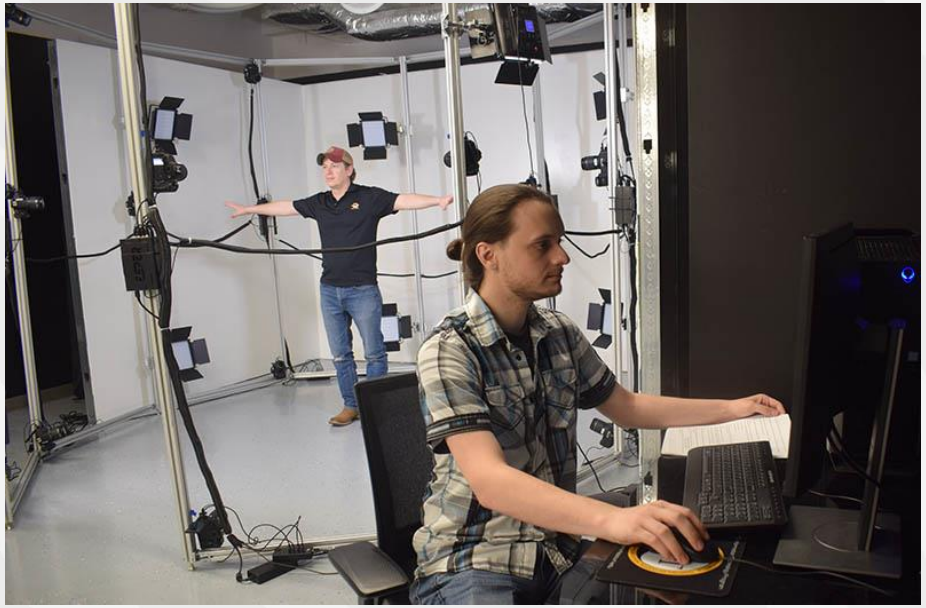
What Makes Good VR

- **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

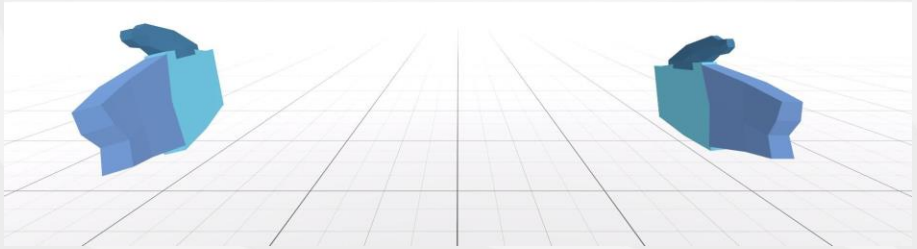
Things to Keep in Mind

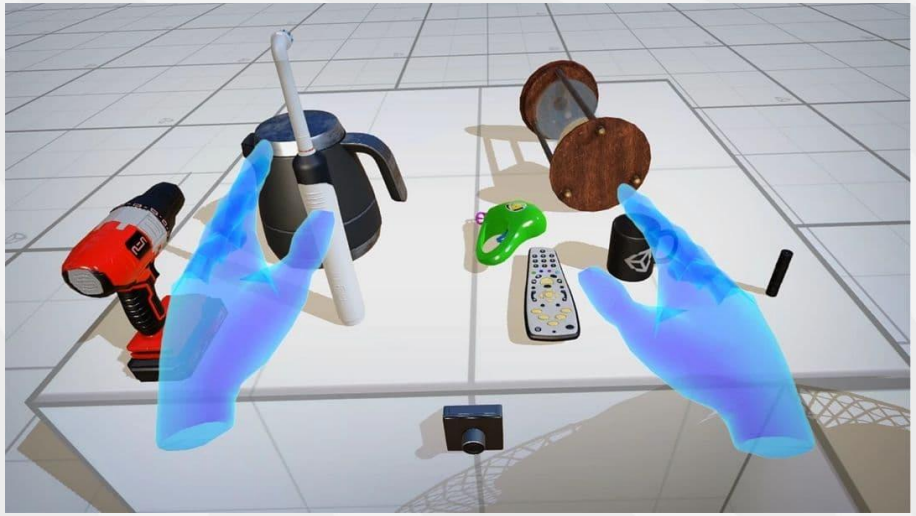
- VR users are physically moving → requires safe space
- Headsets can cause fatigue or nausea if poorly designed
- Users are visually and audibly isolated from the real world
- Hardware is still expensive → Unity makes VR development more accessible



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

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

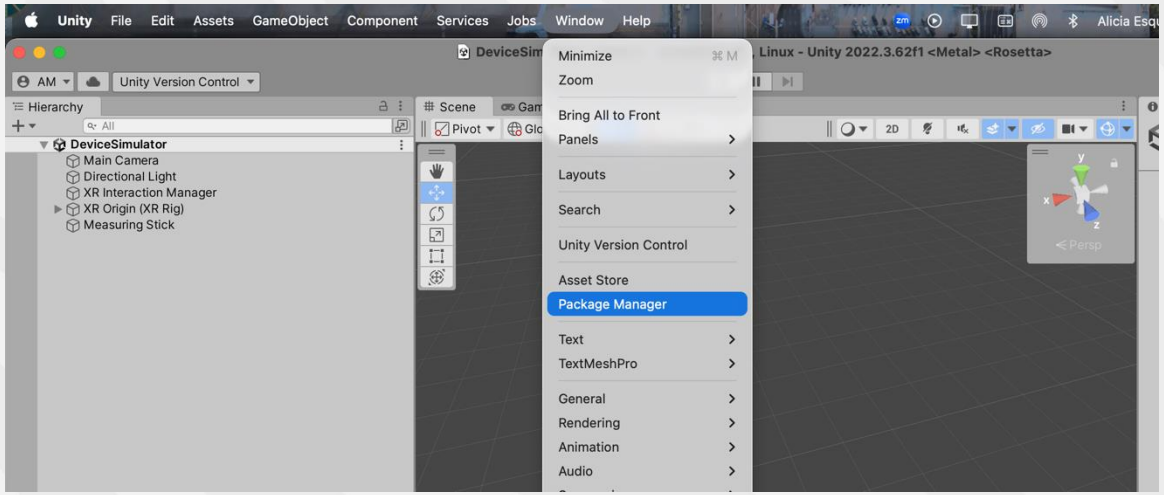
1. Open Unity Hub → New Project
2. Template: **3D (URP or Core 3D)**
3. Name it: `TigerHacks_VR`
4. Create

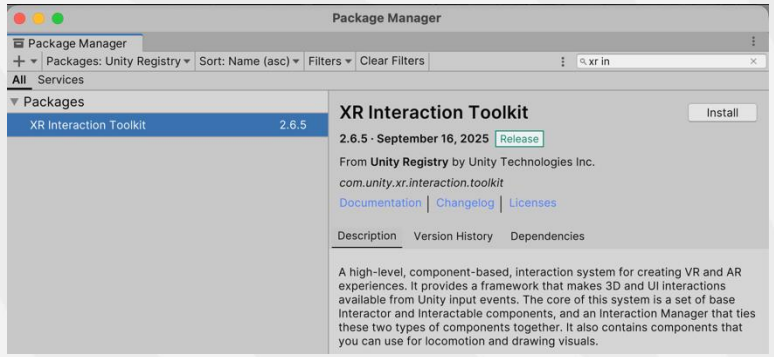
Unity

Meta Quest

Step 2: Install VR/XR Packages

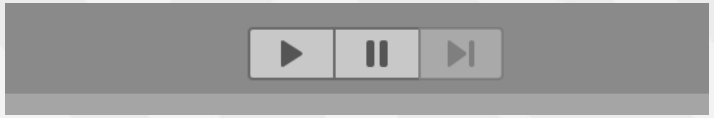
1. Window → **Package Manager**
2. Enable "Show Preview Packages"
3. **Install:**
   - ***XR Interaction Toolkit***
   - ***XR Plugin Management***
4. Go to Edit → Project Settings → XR Plugin Management → Enable **OpenXR**
5. If prompted: **Import XR Interaction Input**

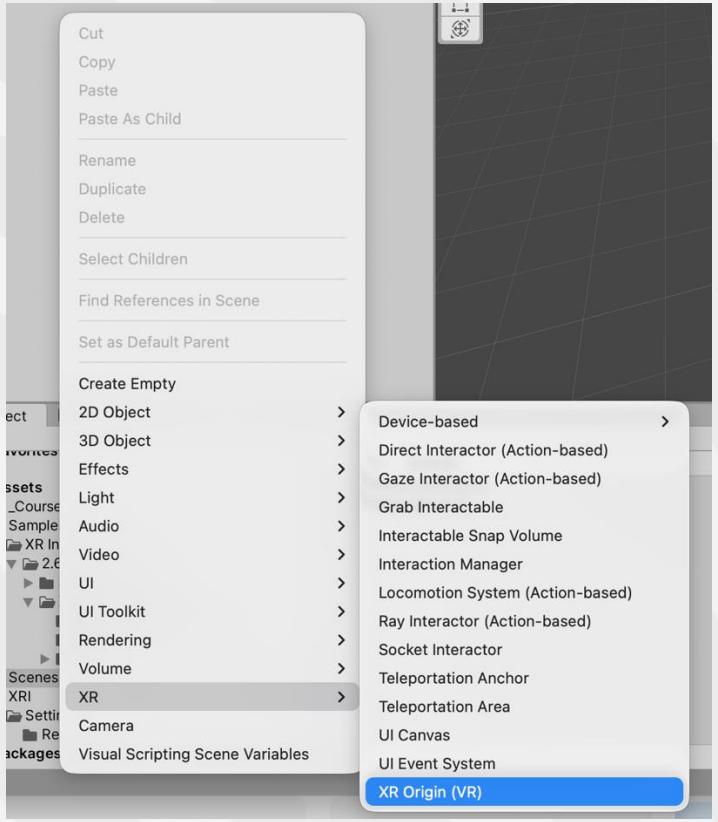




Step 3: Add a VR Player (XR Rig)

- 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





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

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

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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