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Aalto University  
School of Arts, Design  
and Architecture

# Coding Virtual Worlds Development

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# Today's outline

- **Discover VR**
- **Questions of the Week**
- **Iterative Development**
- **Code Review**

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# Discover VR

The background of the slide is a virtual reality environment. It features a dark space filled with a glowing yellow grid of lines that recede into the distance, creating a sense of depth and perspective. In the center, there is a white, arched doorway or entrance. Above the doorway, there are several small, glowing lights in blue, green, and red. The overall aesthetic is clean, modern, and futuristic.

# XR Encounter 2

OCT 8TH 2020 at 19:30 EEST

Virtual Cinema Lab presents:

## XR Encounter A VR Game Night

Hanging out together to enjoy an exciting tabletop game is a pleasant social event and an excellent opportunity to make new friends. The game can act as a medium to communicate, share playful competition, and learn about others' interests and characters. Online gaming is only relatively seldom used as a replacement, as many social aspects are less prevalent.

In this VR Encounter, we would like to explore the social game night in VR. We try to see what kind of interactions are possible and how we can see others behind the game avatars.

We start with meeting in Zoom to introduce ourselves and get ready. Later, we can come back to Zoom to share our impressions.

The Zoom link is <https://aalto.zoom.us/j/64107934131>

Please install beforehand these games  
Half + Half (for Oculus Quest or Rift)  
Pokerstar VR (Oculus Quest or Rift or Steam)



# Discover VR

## Locomotion - National Geographics & The Under Presents

- **Overview Impressions - How was the experience?**
- **Locomotion - Was moving comfortable?**
  - **Paddling a boat (sitting?)**
  - **Climbing the wall**
  - **Teleportation**
  - **Pull the world**
- **... break out and make a few notes together?**



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# Questions of the Week

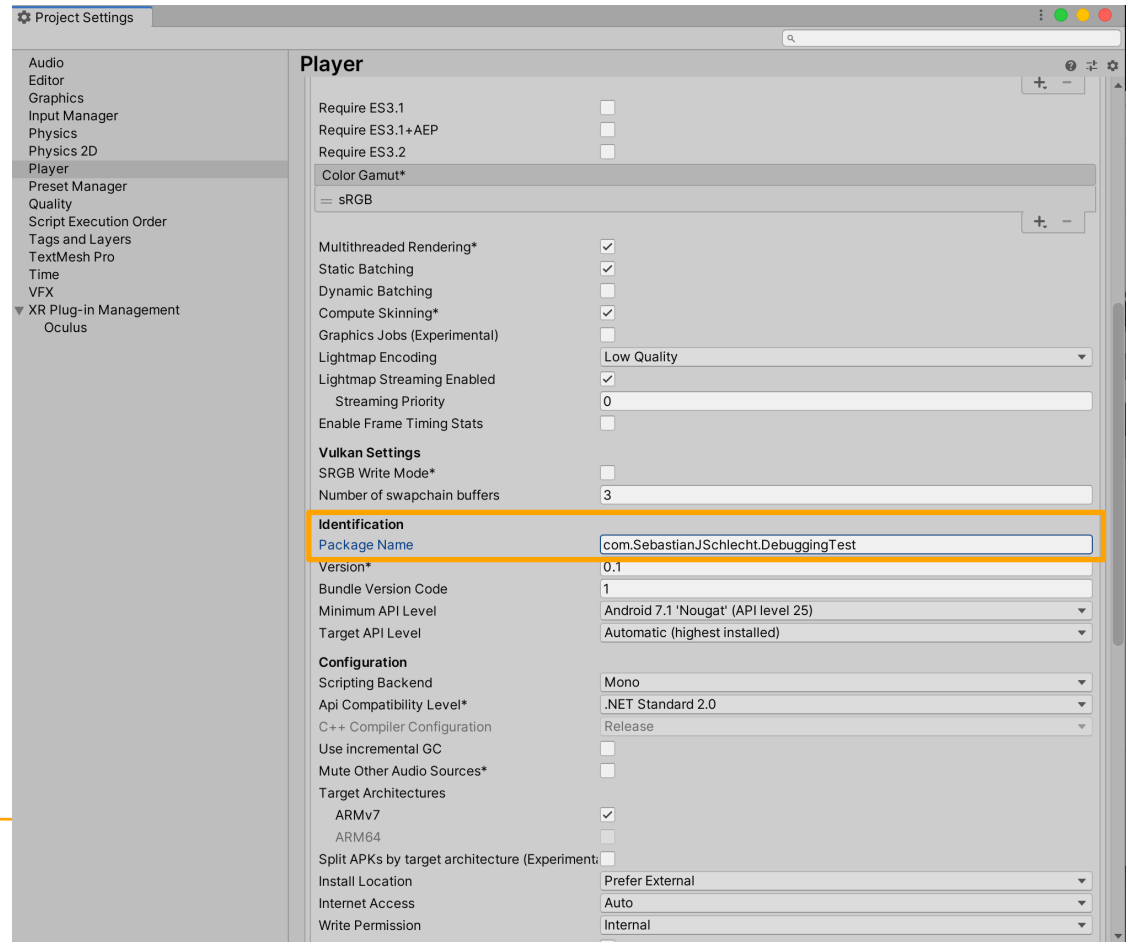
# Questions of the Week

## Name your builds

### Project Settings

-> Player ->

Other Settings



# Questions of the Week

## Git Best Practices

### Manual Setup

- Add Unity-specific `.gitignore` settings
- Configure Unity for version control
- Use Git Large File Storage

### Automatic Setup (GitHub for Unity)

- Not tested with [version.aalto.fi](https://version.aalto.fi)



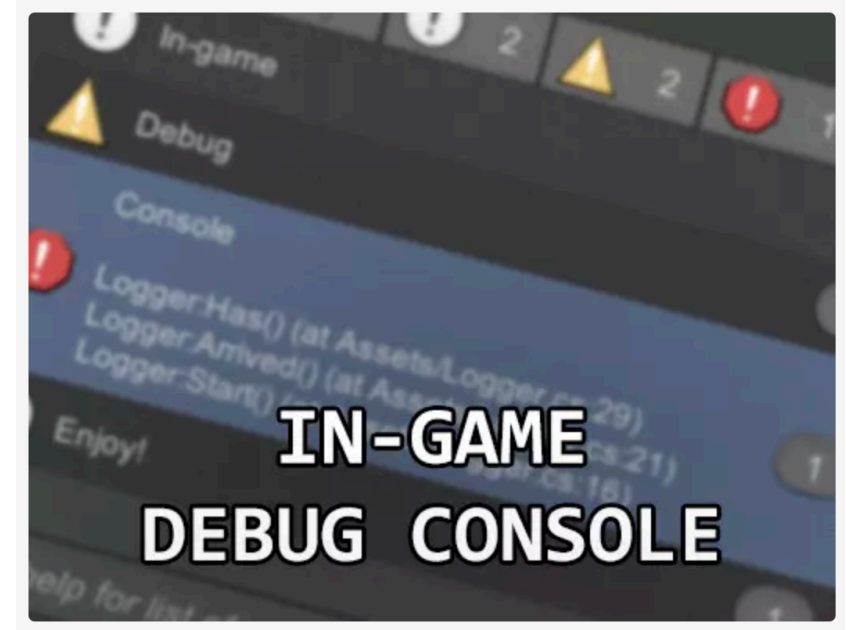


# Questions of the Week

## Debugging in VR

### In-game Debug Console

- Debug.Log to TextBox
- Needs adaptation to VR

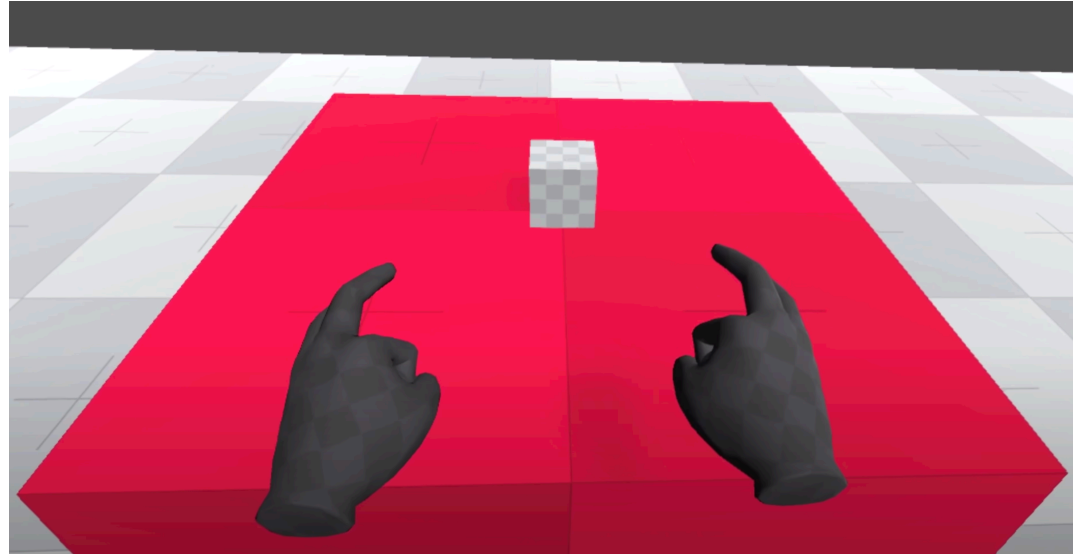


# Questions of the Week

## Custom Hands

### Custom Hands Tutorial by VR with Andrew

- Works with our setup
- Nothing prewired
- Movement needs coding

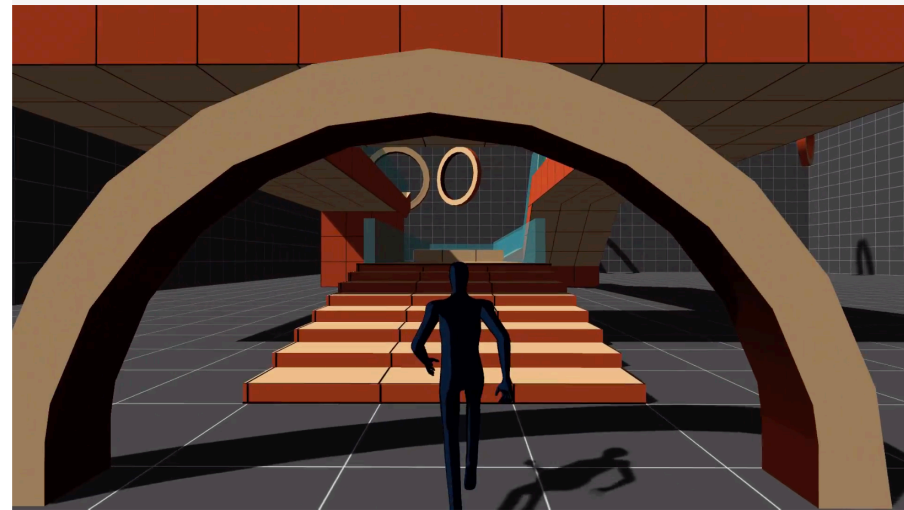


# Questions of the Week

## Assets

### 3rd person character

- Needs adaptation of camera
- Character control already setups
- Nice animations



# Questions of the Week

## XRDirectInteractor

***This is handled via trigger volumes that update the current set of valid targets for this interactor. This component must have a collision volume that is set to be a trigger to work.***

- Any collider should work
- Enable Trigger



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# Iterative Development

# Rule of the Loop

## Selecting Reasonable Goals

### Thomson's Rule for First-Time Telescope Makers:

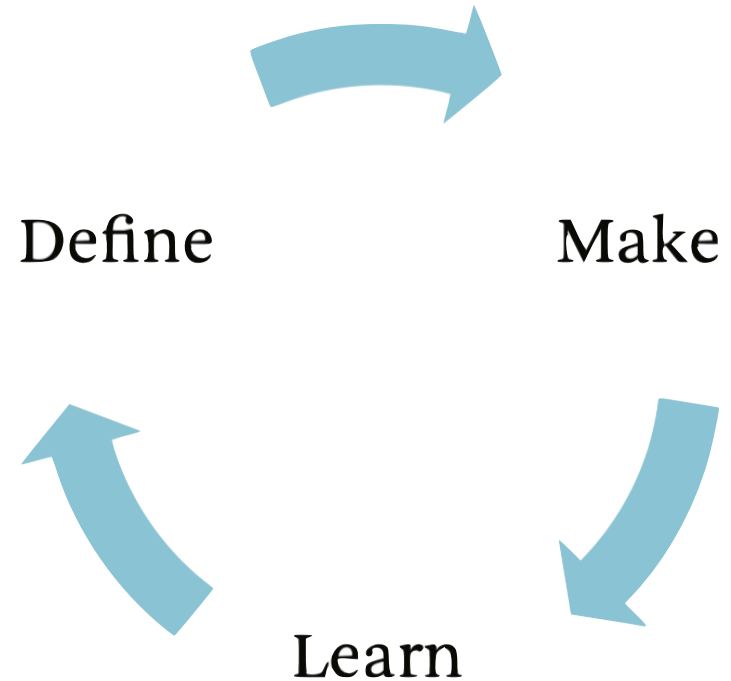
*"It is faster to make a four-inch mirror than a six-inch mirror than to make a six-inch mirror."*

# Rule of the Loop

The more iterations, the better the experience

Really the number of iterations count, at least 3-4

Make a proper split of your money and time budget to fit this



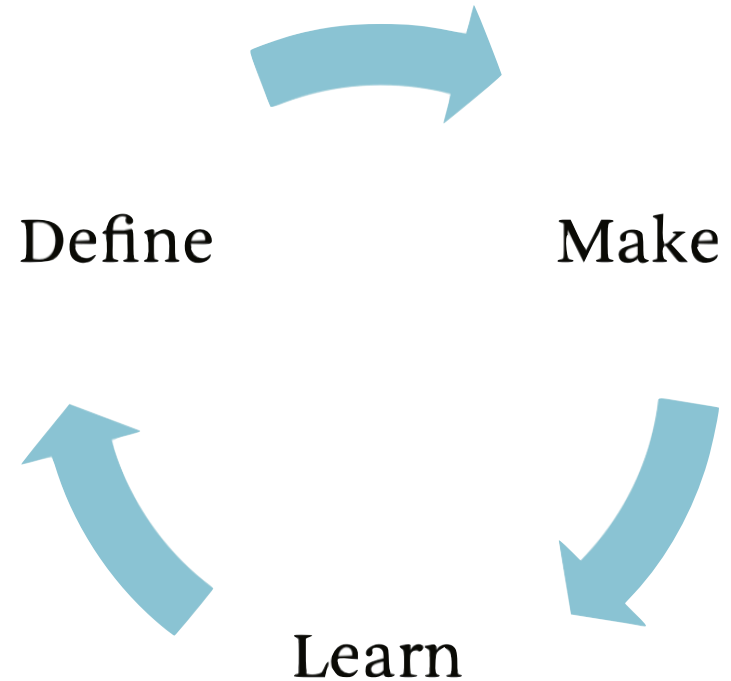
# Rule of the Loop

## Stages

**The Define Stage.** This stage attempts to answer the question “What do we make?” and includes everything from the high-level vision to listing requirements.

**The Make Stage.** This stage answers the question “How do we make it?” and then proceeds to make it.

**The Learn Stage.** This stage answers the question “What works and what does not work?” The answers are fed back into the Define Stage to refine what is to be made.







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# Next Assignment

# Assignment 4 - VR Mechanic

## Tasks

- Find Team (or do individually)
- Prepare a design document for your final project.
- Choose a new VR mechanic that is necessary for your final project and start exploring it.

## Deliverables (**everyone needs to submit**)

- .apk (demonstrating the mechanic) + a short description
- Design Document for the final project

# Designing VR

## UWAS-C0056 Designing and Creating Virtual Worlds

Period II

Main teacher Prof. Lily Diaz



# For bigger VR projects

## DOM-E5163 Independent Study in VR

- 1. Students select a topic that they would want to pursue independently.**
- 2. Together with tutor(s), a work plan with objectives, including landmark dates for presentation and handing in of key deliverables, is discussed.**
- 3. The work plan is implemented, and the outcomes of the independent study project evaluated.**



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# Code Review