

XR MOOC Specialization Course 1: Intro to AR/VR/MR/XR

Dr. Michael Nebeling

Assignment 3: Impact Analysis

In this third and final assignment, your task is to perform one of the activities detailed below and write up your XR design impact analysis. This assignment consists of five (5) steps:

1. **Consider all major classes of issues outlined in the lectures** (see [Key Issues in XR](#))
2. **State the issues that you are most interested in**
3. **Perform one of the suggested activities using think-aloud**
4. **Write your impact analysis capturing your main thoughts/concerns**
5. **Optional: Do another issue/activity and add to your impact analysis**

Expected results

- Activity-centric approach to uncovering issues and concerns
- Initial brainstorming how to address issues and mitigate concerns
- Design thinking mindset that promotes ethical & responsible design

Submission

Please submit the following information and supplementary materials (as PDF document or PNG image, optionally MP4 video) to the XR Issues Gallery:

Title: Enter the name of the XR app you tried in support of the activity. *This text will appear as the title of the submission in the gallery.*

Category: Choose virtual reality (VR) or augmented reality (AR) to categorize the technology selection, or XR if it is a combination of both VR and AR.

Activity: Choose the activity (see below) you performed for your impact analysis. If it is your own activity, please provide a brief description of the activity.

Impact Analysis detailing Who/What/When/Where/Why:

You should perform your XR design impact analysis using think-aloud and take notes of your main thoughts/concerns. Below you can find a three-part template to help you structure your reflection. There is also a practice quiz on Coursera to draft your written response.

Attachments:

Feel free to submit any supporting materials such as sketches, screenshots, or photos that illustrate your activity and any of the issues and concerns you identified.

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Activities

Below are the three (3) proposed activities involving XR technology.

Social VR Meeting Activity

The goal of this activity is to give a popular VR platform a try and meet someone in VR. Some of the popular ones include [AltspaceVR](#), [RecRoom](#), [BigscreenVR](#), [Mozilla Hubs](#), and [Spatial](#). You are free to choose any platform and you are also welcome to do this activity with someone you trust rather than meeting strangers. My hope is that you have an enjoyable experience but there is a risk in meeting strangers. I hope it raises interesting issues and you could also extrapolate from a safer social VR meeting situation with friends or family.

Object Recognition Activity

The goal of this activity is to take a photo of a physical object and then perform object recognition on it. There are a few different ways in which you can do this. For example, you could use the IKEA Place app (available for iOS or Android) and use it to recognize furniture in your home just like I demonstrated in the lecture. Or, you could use Google Search or Google Lens (Android) but using a photo as input for an image-based search query. It is also okay if you don't want to use any app or service for object recognition. But you should still take a photo of a physical object in your real-world environment and perform object recognition manually using think-aloud. My hope is that performing at least this part of the activity while thinking about what is visible in the photo and what it could mean to share it with the app or service raises interesting issues.

AR Photo Activity

The goal of this activity is to take a photo of yourself and then enhance it using AR lenses. Some of the popular apps include Snapchat and Instagram (available for iOS or Android) but your smartphone's default camera app may also support AR modes. As you play around with the AR lenses, observe how accurately your face is being tracked and also how it manipulates reality. As you could see with some of the AR lenses I showed in the lecture, they can make you look quite different. My hope is that performing this activity while thinking about what is visible in the photo and what it could mean to share it with the app or service raises interesting issues.

XR Design Impact Analysis

Below you can find three discussion prompts to help you draft your written impact analysis:

Describe which classes of issues (e.g., design issues, technical issues, user adoption, social acceptance) you focused on and why you consider them an important set of issues.

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You should describe issues from these main classes:

- **design issues** (e.g., barrier to entry, few guidelines & best practices)
- **technical issues** (e.g., platform fragmentation, device limitations)
- **accessibility & equity concerns** (e.g., special needs, still unfamiliar/expensive)
- **ethical & social concerns** (e.g., data collection and sharing)
- **privacy & security concerns** (e.g., consent, more risk than in daily life)

Describe which one (1) of the following activities you performed and why you chose to do that activity:

- **social VR meeting activity:** joining a social VR platform for a virtual meeting;
- **object recognition activity:** taking a photo of a physical object and either using an app or performing object recognition manually via think-aloud;
- **AR photo activity:** taking an AR photo (or selfie) and assessing privacy impact considering the environment, people, anything else visible.

You should elaborate on how you carried out one of three activities using concrete examples. Describe the process (what did you do) as well as the results (what happened).

Describe the main considerations from your impact analysis:

- **Who:** Who is impacted by the issue(s)? Consider other users than yourself.
- **What/Why:** What is the problem from your perspective? Can you give an example to make it clear why it is a problem?
- **When/Where:** Under which circumstances is the impact on users the largest and most severe? Consider before, during, and after the experience.
- **How** could the impact be mitigated? Consider both users as well as designers of the experience.

You should speak to each of the main aspects: who is impacted, when are they most impacted, and what could be done to mitigate the impact?