# VR

### 21 Feb 2020

Project based evaluation (project based in UNITY 3D)

Project should be a game that uses the user’s affective input (eye, voice, nervousness, heartrate, etc...)

#### Human Machine Interactions

The goal is to bridge the gap between execution and evaluation. Execution is the human’s actions to the machine, while evaluation is the machine’s understanding of the human’s intention.

Multimedia is something physical or measurable (i.e: sound, motion, etc)

Modality is some method of communication (audio, visual, etc)

The goal is to make an interface like communicating/interacting with a human.

#### Wizard-of-Oz Model

This type of prototyping is based in the same idea of the wizard from the “Wizard of Oz.” Whereas the user is under the impression that they are interacting with a real system, but some or all of the features of the system are being controlled by a “wizard” (a human) in the background. This is useful in prototyping because it helps us understand how the user might WANT to interact with the system, so we can see what features are useful.

### side-note (project idea)

Idea for the multimodal game: Game that measures the user’s “emotional stress levels” vis-a-vis heart rate, breathing, eye contact, etc. (We can take inspiration from Chanel’s work on emotional models to assist) in a “thriller” type of video game similar but not limited to, “Papers Please” where the interact is more one on one, and easier to manage (more dialogue, freedom to spice things up with good models/physics but less direct interaction?) Additionally, human interaction could tie in re: “Lie to Me”-esque things.

### 28 Feb 2020

#### Perception can be broken down into three parts

1. Depth

2. Time

3. Movement

#### Representation of objects are done with polygons

This is something that we knew from before. More polygons equals smoother details. We talk about normals on the triangle as being important to know we have two since the question is whether or not we can distinguish from the interior and the exterior.

#### We can express depth by manipulating polygons

There are concepts that help express depth, such as making objects further away have less polygons and thus less detail. Additionally, we can use this concept of a peripheral vision, and put less detail or blur the objects that are not in the “central” field of vision. This tactic was not something that I thought about before and is pretty interesting.

#### Sound has some properties that help user intuition

Timbre, intensity and frequency make up sounds, but its interesting to know how they affect us as the users. There are some sounds that communicate certain ideas or emotions (music is a good example) and it can assist us in creating a positive user machine interaction.

We looked at the concept in practice in what was called a “earcon” (ear and icon) and the idea was to present a sound to represent an icon (for instance on our phones). A great example from another team was the usage of a gear sound to convey settings (very smart).

### 06 Mar 2020

(missed the first 15/20 minute of class, and did not attend the second lab part of the lecture this week)

#### We should think about objects as a collection of their components

This type of approach has many benefits and reasons when we think about buffering, interaction between objects, physics, etc.

#### Animation in terms of Keyframes

This concept where we have keyframes in animation is an intuitive one, and is used in UNITY 3D in terms of animation timing and movement, etc.

#### VR/AR is to allow a person to experience an environment that we create/alter

Using sensors, design, etc... There are lots of applications beyond just games, such as simulations of medical procedures, etc... Additionally, we have to keep in mind that there are real life elements of feedback and pushback that we have to account for when we are simulating environments (i.e: elasticity of skin, etc) that could be important to replicate the VR/AR environment to keep intact immersion as well as realistic properties.