Performative Avatars

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Class Website: https://itp.nyu.edu/classes/avatars/
Log in: https://itp.nyu.edu/classes/avatars/wp-login
Course Times: Mondays, 12:10 - 2:40pm :: Room 50
Course Dates: 9/11, 9/18, 9/25, 10/2, 10/16, 10/23, 10/30
Office Hours: Fridays 3:00 - 6:00pm
Office Hours Link: http://bit.ly/2eZHbP6

Course Description:
Whether it's through photo realistic scans found in current-gen video games or the cartoonish and low-fi aesthetic of Bitmoji there is no limit to ways in which the body and the self are represented in digital spaces. This 2 credit class will look at how avatars are being used in art/entertainment and utilize existing avatar creation tools to develop projects that examine identity, body politics, and contemporary performance. In class we will cover the basics of Unreal Engine, photogrammetry, remeshing, and model rigging although students will be encouraged to use existing skill sets and creative thinking to complete some of the smaller week-by-week assignments.

Course Objectives:
- **To explore how avatars can become a part of your creative practice.**
- **Learn how to recontextualize digital spaces and bodies for the purposes of art, installation, and performance.**
- **To think critically about the future of how we represent ourselves and others in digital environments.**
- **Gain an introductory understanding of Unreal Engine, photogrammetry, remeshing, model rigging, and character animations.**

Course Rules/Conduct:
- **Be on time.**
- **Laptops closed when other students are presenting. Be respectful of your peer's time and work.**
- **Be respectful of people's bodies and identities. Be mindful of other people's experiences and opinions.**
- **Speak clearly and loudly as much as you can.**

Homework:

- **Homework must be posted to your blog and linked on the class website before the beginning of class. We will begin each class with a few students presenting their homework. I will accept volunteers however if I notice you are not presenting your homework week after week I will ask you to.**
- **Readings assigned for each week must be done before the next class. We will discuss the readings after we present homework assignments. If people are not showing that they're doing the readings then I will assign groups each week to lead the discussions.**
- **Unless otherwise noted you may work in groups, although in some cases there may be some qualifiers if you choose to do so. You will each be expected to post documentation of your work even if you work as a group.**
- **Generally I encourage experimentation in how you do your homework assignments. Some assignments may be more explicit than others. I will try to be clear about my expectations for each assignment. Outside of that you may experiment with how to achieve the assignment.**

Office Hours:

I will try my best to have them consistently on Fridays from 3:00 - 6:00pm. If this isn't possible I will reschedule them during the same week and also be available for Skype/Google Hangout sessions.

In Class Labs:

I highly encourage you to follow along with the in class labs. I will post each week before class what you will need to bring to class in order to do so. Sometimes it will require a Windows laptop which I recommend checking out ahead of time in the ER. If there are limited resources you may be asked to share.

How to Pass this Class:

- **Attendance: 50%**
- **Blog Posts: 20%**
- **Participation (Discussions): 15%**
- **Participation (Homework): 15%**

Schedule

Week 1 (9/11)
Intro to Class / Group Portrait Exercise / Intro to Unreal Engine / Self Portraits

- **Go over syllabus and expectations**
- **Questions**
- **Group portrait exercise**
- **Go over HW assignment for next week**
- **In Class Lab: Introduction to Unreal Engine**

In Class Lab:

- **Introduction to Unreal Engine:**
  - **Versions**
  - **Navigating the UI**
  - **Types of files**
  - **Blueprints + Level Blueprint**

HW:

- **Create a self portrait with two different avatar creation systems.**
- **Write a blog post with images describing the two self portraits.**
  - **What did you have control over? Were there things you wanted to have control over that you didn't?**
  - **Is this avatar an accurate representation of you? What is missing?**
  - **How do the two avatars compare to one another? What is the original context for this avatar (what game or social platform was this for)?**
  - **I highly recommend doing a time lapse screen recording if you can.**
- **Download Unreal Engine 4**
- **Create a sample project and do some simple tutorials**

Readings:

- **Avatars & Psychology/Self Representation**

Week 2 (9/18)
Present your Avatars / Create an Analog Avatar of Yourself / Fuse to Mixamo to Unreal Engine

- **Present your avatars in class and discuss**
- **Discuss readings**
- **Presentation and discussion on artists that have remixed and repurposed their own body and identity.**
- **Go over HW assignment for next week**
- **In Class Lab: Fuse to Mixamo to Unreal**

In Class Lab:

- Use Adobe Fuse to create a simple avatar
- Rig it using Adobe's Mixamo Rigging tool
- Download avatar and animations and upload it to Unreal Engine 4

HW:

- Consider the artists and projects presented in class and how they managed to take the concept of their own identity and body and create an external version of it that can be adopted by another person. Your homework is to create an "analog" avatar of yourself, some way in which you offer up your identity or body for other people to repurpose, inhabit, or remix. Consider how you can give up agency of your own identity or body to another person. This is the most open ended assignment for this class. Your project does not have to incorporate "technology". Think about using the skill sets you already possess to complete this assignment in an interesting and provocative way.
- Document your project and create a blog post. Add it to the homework page on the class website.
- If you didn't follow along in class then create an avatar using Adobe Fuse, rig it with Mixamo, and upload it to Unreal Engine with an animation.
- Create a short blog post showing your process and avatar, at least showing the final avatar in Unreal.

Readings:

- Avatars & Ethics/Ownership

Week 3 (9/25)

Present your Analog Avatars / Recontextualize a Digital Space / Skeletal Meshes & Physics

- Present your analog avatars
- Discuss readings
- Presentation and discussion on artists that have remixed and repurposed digital spaces for art and performance.
- Go over HW assignment for next week
- In Class Lab: Skeletal meshes & physics assets in Unreal Engine

In Class Lab:

- Now that we have a little more familiarity with Unreal Engine we'll look at Skeletal Meshes, a special type of mesh for rigged meshes (ie avatars). We'll use the avatars we created last week in Fuse to look at how skeletal meshes differ from meshes. We'll also look at the physics asset and PHAT tool, which drives rag doll physics for skeletal meshes. We'll then spawn the skeletal meshes in an Unreal Engine Level.

HW:

- Find a digital space that makes use of avatars and create a small performance that disrupts or recontextualizes this space. Look at the artists we covered in class to gain ideas about how to approach your project. It doesn't have to be a

video game but you will probably find the most options for exploration in this realm. It also doesn't have to be an online or social space, you can go against the grain of a system that uses "AI" or has a prescribed ruleset of what you are supposed to be doing in that space. Don't be afraid to bring the "real world" into your performance. This can be done in a group but if it's done with a group it should directly make use of the fact that you have more than one person in your performance.

- **Document your performance as best as you can, screen recordings are a great tool for this assignment. Write a brief blog post with the documentation and a description of the piece with your intent and how you felt about the results.**
- **If you didn't follow along in class then take the avatar you created in Fuse last week and create a physics asset for it. Then create an innovative environment with simple shapes and spawn the skeletal mesh. Shoot a video of it and post it to your blog. If you have trouble mention where you got lost or what wasn't working.**

Readings:

- **Avatars & Performance**

Week 4 (10/2)

Present your Performance / Scanning Lab + Photoscan

- **Present your homework**
- **Discuss readings**
- **Presentation on photogrammetry**
- **Go over HW assignment for next week**
- **In Class Lab: Scanning your own avatar with Photoscan**

In Class Lab:

- **We will take an existing doll or action figure and use a DSLR camera, a small turntable and some lights to create a high resolution scan using Photoscan, a photogrammetry software. We will go over best practices, camera settings, how to use the software and the types of files that are used in this process (.obj, materials, textures).**

Homework:

- **By yourself or with a partner find an action figure or doll, or make your own (clay is a great medium for this) and repeat the steps in class to create your own avatar. Document your process and setup. If the scan doesn't come out correctly document it anyways and show us how you approached it.**
- **You can do this project in a team or group, but you must create 1 scan for each person in the group. For example, if there are 3 of you, you should have 3 scans to present.**
- **I encourage you to be creative with what you scan but keep these things in mind:**

- In order to rig them for the next class the scan needs to be symmetrical and humanoid/bipedal in shape.
- Shiny/reflective surfaces and glass are especially difficult to scan.

Readings:

- Avatars & Sex/Violence

Week 5 (10/16)

Present your Scans / Topology Morphing w/ Zbrush / Resizing w/ Maya / Rigging w/ Mixamo

- Present your scanned avatars in class and explain what worked and what didn't
- Discuss readings
- In Class Lab: Topology Morphing, Resizing, and Rigging
- Go over HW assignment for next week

In Class Lab:

- We will take our scans from last week and go through a process of cleaning it up, resizing it, and rigging it so that it can be animated. For this we will use Zbrush, Maya, and Mixamo.

HW:

- Apply all the techniques from in class lab to your own scans from last week. If your scan didn't turn out right then use the scan we've been using for the in class tutorials or use a classmate's scan.
- Write a blog post with screenshots detailing the process. If there are parts that were confusing or didn't work make sure to mention them in the post. What worked and what didn't work.
- If the rigging worked then bring it into Unreal Engine and shoot a quick video or gif of it with an animation applied to it.

Readings:

- Avatars & Race/Gender

Week 6 (10/23)

Present your Rigged Avatar / Branching Animations in UE4 / Shooting Videos in UE4

- Present your rigged self-scanned avatars to the class
- Discuss the readings
- In Class Lab: First person control / Branching between animations / Shooting Videos
- Go over HW assignment for next week

In Class Lab:

- We'll look at ways to pilot our scanned avatars in Unreal. We'll apply different animations to the scan and blend between them.

HW:

- Create a short video with at least 3 camera cuts and 4 different animations with your newly rigged and scanned avatar. Be inventive and playful. See if you can create a story, even a short one. You are welcome to take the footage you

capture in Unreal Engine and apply other effects in a program like After Effects. If your classmates are ok with it then you can use other avatars in your movie as well. Don't forget that sound and music can make a simple video all the more compelling.

Readings:

- **Avatars & The Future**

Week 7 (10/30)

Final Class / Head Scans / Halloween Party!?!?

- **Present your short movies**
- **Discuss the readings**
- **In Class Lab: Head Scans w/ Photoscan**
- **Last thoughts / Hearty congratulations and handshakes**