

COMM118S: Into the Metaverse: Designing the Future of Virtual Worlds

Summer, 2022

Class Time: Tuesdays and Thursdays, 1:30 - 3:30 PM PDT

Location: Hewlett 200

Course description

What will the future look like? One idea that is recently gaining attention is the Metaverse, a computer-generated simulation of a world in which people can meet and interact. In this course, students will critically evaluate the current landscape of such conceptualizations of virtual worlds. From the psychological and behavioral mechanisms of how people perceive virtual humans, to the design of virtual spaces and interactions, to the ethical considerations that shape how virtual worlds are regulated, this course will pull from multiple fields to provide a comprehensive understanding of virtual worlds.

During this course, we will use Oculus Quest 2 headsets to go on virtual field trips to social worlds. Through in-VR experiences, academic papers and articles, and discussions, students will develop a toolset to learn how to approach designing future virtual worlds.

Teaching Team

Instructor

Eugy Han (she/her/hers)
eugyoung@stanford.edu

Office Hours

Wednesdays
10am-11am, McClatchy
300

TA

Anna Gibson (she/her/hers)

Office Hours

Wednesdays 10am-12pm,
Zoom
<https://stanford.zoom.us/j/92813526634?pwd=S3hVd3p1UW1YRWlvTWp5NVFCcG9TUT09>

TA

Rachael Lee (she/her/hers)

Office Hours

Thursdays 11am-1pm,
Hewlett 200

Overview

Alternative realities have been the subject of countless science-fiction action-adventure tales like Ernest Cline’s *Ready Player One*, William Gibson’s *Neuromancer*, and *Black Mirror* (e.g., *Playtest*, *Striking Vipers*). This course will focus on one such reality: virtual reality (VR). With new VR headsets and content being made available every day, VR has become more and more accessible to the general public. Consequently, the virtual worlds created in these stories may be not too far from our own reality. In this course, each student will have the opportunity to travel to such virtual worlds. We will explore what it means to be inside a virtual world, as ourselves, as others, and with others. We will specifically be looking at how communities can be created in virtual settings, what social interactions look like, and how a sense of social presence is created.

By reading academic papers, we will learn what kind of research has been done in building these virtual people and worlds. We will also gain hands-on experience by exploring various VR experiences and social platforms. Through our class discussions, we will synthesize what we have learned and build on each other’s ideas. In our discussions, we will further elaborate on personal experiences. We will also be asking questions about what the current status is on representation, diversity, and inclusivity in virtual worlds. How can their design be approved? What are the ethical considerations of the current structures in place? How can virtual worlds be moderated? In the second half of the course, we will work to create prototypes of potential virtual worlds.

Course Goals

The learning objectives for this course are the following:

- Understand the literature in the field of VR and tie the research with current trends
- Gain comfort or proficiency in creating content within VR (engines such as Unity or WebVR, or 3D modeling applications such as Google Blocks or Tilt Brush, or social VR world-development tools in ENGAGE)
- Work in a collaborative team designing, prototyping, and presenting projects
- Handle state-of-the-art VR HMDs (how to set up, use, troubleshoot)

Course Structure and Student Evaluation

Evaluation in this course is a combination of the following:

Participation/Attendance in VR Journeys [In class]	20%
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Readings Recap Presentation [In class]	15%
Reaction Posts [Canvas]	20%
Final Project	30%
Final Project Presentation [In class]	15%

Participation/Attendance in VR Journeys

In the first half of the course, during class (either in-person or via VR+Zoom), students will travel together to a social VR platform. We will familiarize ourselves with the platform and discuss its affordances. Students are encouraged to try out these platforms before the discussion section. Students will turn in a screenshot documenting their participation in the journeys by the end of the class in order to receive participation credit. In the second half of the course, we will dedicate part of class time to working on the final project.

Readings Recap Presentation

Parts of the course will be lectures delivered by the instructor and others will be student-guided. In groups of 6-8, students will take on one of the assigned readings and present their synthesis (summary/recap presentation, key questions related to paper, potential answers to key questions and leading discussion) of the material. Following the presentation, we will further discuss the material and build on our knowledge with supplemental articles and experiences.

Reaction Post

Each student will submit a reaction post (min 150 words) on Canvas in response to the assigned reading (and/or supplementary material) each week by Wednesday 5pm, so that students can come prepared to discuss the material in Thursday's class. These posts should thoughtfully engage and apply with key concepts and ideas.

Final Project and Presentation

In the second half of the course, students will work on the final project either individually or in groups to create a prototype of, or a conceptualization of, a virtual environment, focusing on one or several aspects of social VR (e.g., people, places, communities, regulations). The final project can, but does not need to, include in-VR elements. We will talk more about the goals of the final project and what tools (3D or 2D) can be used in the third week of the course. In the final week of the course students will present their final projects.

Weekly Schedule

All readings will be made available in PDF format on Canvas. All readings should be done before submitting a reaction post Wednesday evenings.

Week 1: Metaverse + Social VR

Readings (Optional this week): *Experience on Demand* Chapter 7

Class 1 (T): Introduction to the course and VR + Distribution of headsets

Class 2 (Th): [No Readings Recap Presentations in the first week] Lecture on presence and readings

Week 2: Presence

Readings: *Experience on Demand* Chapter 2; Bailenson et al. (2005)

Class 3 (T): Lecture on social, self, and spatial presence

Class 4 (Th): Readings Recap Presentation 1

VR Journey in class: Trip to ENGAGE

Week 3: Avatars

Readings: Pan & Steed (2019); Yoon et al. (2019); Sun & Stevenson Won (2021)

Class 5 (T): Lecture on avatars, agents, and virtual influencers

Class 6 (Th): Readings Recap Presentation 2

VR Journey in class: Trip to AltspaceVR

Week 4: Social Interactions in Virtual Environments

Readings: Beall et al. (2003); Bailenson et al. (2004); Sykownik et al. (2021)

Class 7 (T): Lecture on cues and interactions

Class 8 (Th): Readings Recap Presentation 3

VR Journey in class: Trip to RecRoom

Week 5: Ethics

Readings: Slater (2021); Madary & Metzinger (2016); Maloney, Freeman, & Robb (2021)

Class 9 (T): Lecture on ethical considerations, regulations, and moderation

Class 10 (Th): Readings Recap Presentation 4

VR Journey in class: Trip to VRChat

Week 6: The Self and its Representation

Readings: Maloney, Zamanifard, & Freeman (2020); Freeman & Maloney (2021)

Class 11 (T): Lecture on representation in and outside of VR

Class 12 (Th): Readings Recap Presentation 5

Work on Final Projects

Week 7: Other Use Cases of Social VR + The Future of the Metaverse

Readings: Swati Bhatia's series on the Metaverse Part 1 and Part 2; Matthew Ball's 'The Metaverse Primer' essays

Class 13 (T): Lecture on the future of the Metaverse
Class 14 (Th): Readings Recap Presentation 6
VR Journey: Work on Final Projects

Week 8: Final Project Presentation
Class 15 & 16 (TTh): Presentations

Expectations

- Timely arrival and attendance for each class session
- Participation in class and office hours is strongly encouraged. Sharing your perspectives and experiences on the course topics will help others learn something new. You are encouraged to ask questions and elaborate on any ideas you may have. If you feel uncomfortable sharing in front of others, there will also be opportunities through office hours and smaller group activities to engage in conversations.
- Fair and inclusive collaboration and teamwork. The discussions and projects are meant to create a space for honest and intellectual growth. Be mindful and respectful of each other's experiences, perspectives, comments, and time.

Research Participation

This class is amongst one of the first courses to be taught inside VR. Hence, we are studying the process. Students will sign a consent form in the first week of the course, and will answer short questionnaires at the end of each discussion section (TAs will leave ample time each week to administer the questionnaire during section time). Stanford Institutional Review Board (IRB) has decided all students should fill out the surveys each week, and if students choose not to consent to participate in the study, then their data will be deleted. Neither the instructor nor the TAs will know which students have given consent, as that process will be monitored by an independent third party. Students should keep their decision about study participation strictly confidential and not discuss it with other students.

Grading Policies and Re-reviews

Your course grade will be based on participation and attendance in VR journeys, your Readings Recap presentation, reaction posts, and the final project and presentation. In completing course requirements, you are expected to abide by Stanford's Code of Academic Integrity and Acknowledging the Work of Others.

Grades will be based on the following scale:

A	93-100%	B+	87-89%	C	73-76%	F	Below 60%
A-	90-92%	B	83-86%	C-	70-72		
		B-	80-82%	D	60-69%		
		C+	77-79%				

If you have questions or concerns about any grade you receive, then you may submit a **1 page written request for grade re-review within three days** after you receive the grade. It is important to note that a grade re-review may result in a higher or lower grade as the instructors may review your entire assignment.

VR Support

A significant portion of this course will be taught in VR. Many of you will experience technical problems, and some of you may find the medium taxing. If you are experiencing any discomfort with the medium, or content within the medium, at any time, please contact the instructor, Eugy Han, or one of the TAs immediately.

A lot of problems will be solved by careful planning—for example, always charging the headset in advance on days it will be used and having batteries nearby for the hand controllers. We will be actively utilizing a Canvas Discussion Thread for technical questions. In general, you should try for about 20-30 minutes to find an answer to your question before reaching out to fellow students, the TAs, or the instructor. We are more than happy to help you when you're struggling, but we also want to know that you've tried to help yourself first. When you ask for help, let the person you're asking know what you've already done. This makes it easier to answer your question quickly.

Picking up Your VR Headset

If you do not have your own VR headset, we will provide one (Oculus Quest 2) for you for the duration of the course. We will be using a check-out system to ensure that everyone is able to use charged headsets for journeys during class. Headsets will be kept in McClatchy Hall. We will have assigned headsets for each student to use during class. If you do decide to check out a headset, please make sure to bring the headset back for each class to participate in the journeys.

Returning Your VR Headset

You will need to return your headset at the end of the quarter before you leave, in the last week of the course. We will remind you of returning the headsets as the end of the quarter nears. However, **ensuring the headset gets returned is your responsibility**. If you know you will be leaving campus early or if you miss the email from the teaching staff, please be proactive and reach out to anyone on the team who can help arrange a headset drop-off.

Again, you must return the headset with *all* the packaging and materials.

Students with Disabilities

Students with disabilities that need accommodations are encouraged to contact the Office of Accessible Education (OAE) as soon as possible (i.e., during the first week of classes, barring extenuating circumstances that prohibit this) to ensure that such accommodations are implemented in a timely manner. In general, and to ensure fairness to all students, the instructors will not make accommodations for disabilities without documentation from the OAE office. We also realize that VR is a unique medium and may present its own challenges. The Teaching Team will work with the OAE for any students who need accommodation.

Academic Integrity at Stanford University

Students are expected to comply with University regulations regarding academic integrity. If you are in doubt about what constitutes academic dishonesty, speak to the instructors before the assignment is due and/or examine the University web site. Academic dishonesty includes, but is not limited to, cheating on an exam (e.g., copying others' answers, providing information to others, using a crib sheet) or plagiarism of a paper (e.g., taking material from readings without citation, copying another student's paper). Failure to maintain academic integrity on an assignment will result in a loss of credit for that assignment—at a minimum. Other penalties may also apply, including academic suspension. The guidelines for determining academic dishonesty and procedures followed in a suspected incident of academic dishonesty are detailed on the website. For more information, visit: <https://web.stanford.edu/dept/lc/language/courses/academicIntegrity.html>

Sexual Harassment Policy

Stanford University strives to provide a place of work and study free of sexual harassment, intimidation or exploitation. Where sexual harassment has occurred, the University will act to stop the harassment, prevent its recurrence, and discipline and/or take other appropriate action against those responsible. For more information, please visit: the Sexual Harassment Policy Office. For confidential support, please contact CST (Confidential Support Team) at <https://vaden.stanford.edu/cst>.