

THE MAP IS NOT THE TERRITORY

Multi-Layered, A.I. Generated, Non-Human Vision of a City

UCLA AUD Technologies Studio Winter Quarter Tech Seminar
Wednesday 10:00 am - 1:00 pm @ IDEAS Seminar Room 02

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AT: Tucker van Leuwen-Hall, Lecturer, tuckervlh@ucla.edu



Generated Walking Tour of TalinnSeoulSplit, Laure Michelon 2021

"Not seeing anything intelligible is the new normal. Information is passed on as a set of signals that cannot be picked up by human senses. Contemporary perception is machinic to large degrees. The spectrum of human vision only covers a tiny part of it. Electric charges, radio waves, light pulses encoded by machines for machines are zipping by at slightly subluminal speed. Seeing is superseded by calculating probabilities. Vision loses importance and is replaced by filtering, decrypting, and pattern recognition."

-- A Sea of Data: Apophenia and Pattern (Mis-)Recognition p.1 Hito Steyerl

COURSE ABSTRACT

The premise of this Tech Seminar is loosely based on the 1988 cult classic "The Live" directed by John Carpenter. The main character is a homeless man named Nada who stumbles on a pair of sunglasses that when worn allows him to see the "real" message beneath the propaganda. Instead of sunglasses, we will employ a variety of camera lenses, machine learning models, generated content, and post-processing techniques to generate layers of the city and allow us to navigate our constructed reality. Each project will explore how the design of the complex ecology of city streets, buildings, and its surrounding signals, symbols, and fixtures can be rethought in relation to the cities non-human or other inhabitants (driverless cars, urban sensors, data packets, bugs, animals, drones, etc.) We will use procedural modeling to generate new urban conditions and machine learning algorithms to examine existing conditions and augment and transform them by embedded machine sensing and artificial intelligence. We will study how non-human points of view within these contexts will engage in a dynamic evolutionary process, and how such dynamics may be made visible and useful to the architects and urban designers.

PROJECT OVERVIEW

The quarter-long project will focus on a single generated city area in Unity as seen through multiple lenses, layers, and non-human users. This non-human user could be a bug, car, data packet, amazon package, animal, robot, drone, etc. Students will utilize Unity, C#, VR, various machine learning models, procedural generation, and Agisoft Photogrammetry to construct a detailed 3D model of a city block. Students will also research machine vision as it relates to their non-human user. Based on this analysis students will utilize convolutional neural networks to transform their site models to support their selected user and represent this in an immersive VR environment. Design elements that we will target include building facade treatments both tectonic and graphic, street furniture, paving patterns, and formal building design.



Digital (EDITED) Tunis, Laure Michelon 2021

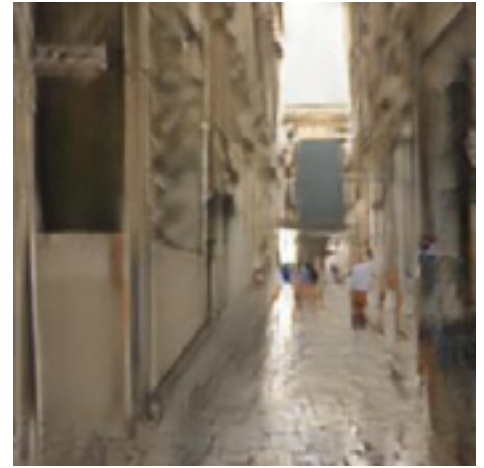
COURSE ORGANIZATION

The class will be broken into groups of 4 or 5, and each group will work on one project that explores procedural modeling, VR, machine vision, and various machine learning models. Class will be held in person Wednesday from 10:00 am - 1:00 pm in the far Seminar Room 2 at IDEAS and will be supplemented by on-line tutorials and presentations. The first half of the quarter will focus on procedural modeling and layering various machine learning models and texturing methodologies inside Unity. After midterm the course will focus on transferring this environment into VR with a focus on the user vision and experience.

REQUIRED TOOLS

Unity 2019.4.33
Visual Studio 2017
Laptop with a GPU greater than or equal to a NVIDIA GeForce 1080
Oculus VR Headset
Google Colaboratory + Google Drive

Optional: Agisoft Metashape, Blender, RenderDoc, Quixel Bridge, Cloud Compare



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SCHEDULE

Week.01	W.01.05	Class Introduction, Group Formation, Project Planning Tutorial - intro to Unity and C# Tutorial - city mesh creation
Week.02	W.01.12	Student Work Presentation Tutorial - Unity + Barracuda + style transfer Tutorial - style transfer using PyTorch in Google coLab
Week.03	W.01.19	Student Work Presentation Tutorial - added functionality in Unity and C#
Week.04	W.01.26	Student Work Presentation Desk Crits + Screen Recording
Week.05	W.02.02	Student Work Presentation Desk Crits and Midterm Prep
Week.06	X.02.XX	Midterm Week (Midterm date TBD)
Week.07	W.02.16	Tutorial - intro to VR
Week.08	W.02.23	Student Work Presentation Tutorial - adding in UXUI and details
Week.09	W.03.02	Student Work Presentation Desk Crits
Week.10	W.03.09	Desk Crits and Finals Prep
Week.11	X.03.XX	Finals Week (Final date TBD)

GRADING CRITERIA

10% Class Participation and Engagement
10% Group Participation
20% Homework Submissions
20% Midterm Presentation
20% Final VR Game
10% Final Presentation
10% Attendance + Punctuality

DISCLAIMER: ALL THE CONTENTS OF THIS SYLLABUS ARE SUBJECT TO CHANGE AND REVISION AT THE SOLE DISCRETION OF THE INSTRUCTORS.

ATTENDANCE POLICY:

Each unexcused absence will result in the reduction of one letter grade from the final grade. More than 2 unexcused absences will result in a failing grade.

FINAL SUBMISSIONS:

It is a requirement of this course that all students submit course materials digitally by the end of quarter. Failure to do so will result in the loss of one letter grade. Please follow this procedure in digitally submitting your work: All students are required to submit all final project boards, drawings, animations, photos, and videos. Drawings, boards, and photos should be provided at 300dpi. All animations and videos should be provided as a MP4 file.

UCLA CAE (Center for Accessible Education):

If you are already registered with the Center for Accessible Education (CAE), please request your Letter of Accommodation on the Student Portal. If you are seeking registration with the CAE, please submit your request for accommodations via the CAE website. Please note that the CAE does not send accommodations letters to instructors-- you must request that I view the letter in the online Faculty Portal. Once you have requested your accommodations via the Student Portal, please notify me immediately so I can view your letter. Students with disabilities requiring academic accommodations should submit their request for accommodations as soon as possible, as it may take up to two weeks to review the request. For more information, please visit the CAE website (www.cae.ucla.edu), visit the CAE at A255 Murphy Hall, or contact us by phone at (310) 825-1501.

ACADEMIC_POLICIES

This program uses video recording or other personal information capture for the purpose of facilitating the course and/or test environment. Pursuant to the terms of the agreement with UCLA, the data is used solely for this purpose and any vendor is prohibited from disclosing this information. UCLA also does not use the data for any other purpose.

Students may not distribute recordings or other instructional materials provided as part of remote learning by faculty, teaching assistants, or invited guests.

To all UCLA Students:

UCLA is a community of scholars. In this community, all members including faculty, staff and students alike are responsible for maintaining standards of academic honesty. As a student and member of the University community, you are here to get an education and are, therefore, expected to demonstrate integrity in your academic endeavors. You are evaluated on your own merits. Cheating, plagiarism, collaborative work, multiple submissions without the permission of the professor, or other kinds of academic dishonesty are considered unacceptable behavior and will result in formal disciplinary proceedings usually resulting in suspension or dismissal.

Forms of Academic Dishonesty

As specified in the UCLA Student Conduct Code, violations or attempted violations of academic dishonesty include, but are not limited to, cheating, fabrication, plagiarism, multiple submissions or facilitating academic dishonesty (see below for detailed definitions). While you are here at UCLA, you may find yourself in a situation where cheating seems like a viable choice. You may rationalize to yourself that "Everyone else does it"... Well, they don't. And will that matter when YOU get caught? NO! If you are unsure whether what you are considering doing is cheating, just ask yourself ...how would you feel if your actions were public, for anyone to see? Would you feel embarrassed or ashamed? If the answer is yes, that's a good indicator that you are taking a risk and rationalizing it to yourself. If after reviewing the information below, you are still unclear about any of the items – don't take chances, don't just take your well-intentioned friend's advice – ASK your TA or your Professor. Know the rules - Ignorance is NO defense. In addition, avoid placing yourself in situations that might lead your TA or Professor to suspect you of cheating. For example, during an exam don't sit next to someone with whom you studied in case your answers end up looking "too similar." Alternatives to Academic Dishonesty Seek out help – meet with your TA or Professor, ask if there is special tutoring available. Drop the course – can you take it next quarter when you might feel more prepared and less pressured? Ask for an extension – if you explain your situation to your TA or Professor, they might grant you an extended deadline. See a counselor at Student Psychological Services, and/or your school, college or department – UCLA has many resources for students who are feeling the stresses of academic and personal pressures (see list below) Remember, getting caught cheating affects more than just your GPA. How will you explain to your parents, family and friends that you have been suspended or dismissed? How will it affect your financial aid award and/or scholarship money? Will you be required to, and be able to pay back that money if you are no longer a student? If you live in the residence halls, where will you go if you are told you can no longer live there? You have worked very hard to get here, so don't cheat! If you would like more information, please come see us at the Dean of Students' Office in 1206 Murphy Hall, call us at (310) 825-3871 or visit our Web site at www.deanofstudents.ucla.edu.

Cheating Unauthorized acquiring of knowledge of an examination or part of an examination Allowing another person to take a quiz, exam, or similar evaluation for you Using unauthorized material, information, or study aids in any academic exercise or examination – textbook, notes, formula list, calculator, etc. Unauthorized collaboration in providing or requesting assistance, such as sharing information Unauthorized use of someone else's data in completing a computer exercise Altering a graded exam or assignment and requesting that it be regraded Plagiarism Presenting another's words or ideas as if they were one's own Submitting as your own through purchase or otherwise, part of or an entire work produced verbatim by someone else Paraphrasing ideas, data or writing without properly acknowledging the source Unauthorized transfer and use of someone else's computer file as your own Unauthorized use of someone else's data in completing a computer exercise Multiple Submissions Submitting the same work (with exact or similar content) in more than one class without permission from the instructor to do so. This includes courses you are currently taking, as well as courses you might take in another quarter Facilitating Academic Dishonesty Participating in any action that compromises the integrity of the academic standards of the University; assisting another to commit an act of academic dishonesty Taking a quiz, exam, or similar evaluation in place of another person Allowing another student to copy from you Providing material or other information to another student with knowledge that such assistance could be used in any of the violations stated above (e.g., giving test information to students in other discussion sections of the same course) Fabrication Falsification or invention of any information in an academic exercise Altering data to support research Presenting results from research that was not performed Crediting source material that was not used for research

Places to go for help when you are feeling overwhelmed and need personal and/or academic assistance:

(In addition to the resources listed below, you can get assistance from a counselor in your college/dept., check out the current schedule of classes under "Academic Counseling" to find the location and phone number)

- Counseling and Psychological Services Wooden Center West: (310) 825-0768 www.caps.ucla.edu
- Letters & Science Counseling Service A316 Murphy Hall: (310) 825-1965 www.college.ucla.edu
- Academics in the Commons at Covell Commons: (310) 825-9315 free workshops on a wide variety of issues relating to academic & personal success www.orl.ucla.edu (click on "academics")
- College Tutorials: at Covell Commons: (310) 825-9315 free tutoring for ESL/math & science/composition/and more! www.college.ucla.edu/up/ct/
- Lesbian, Gay, Bisexual, and Transgender Resource Center Student Activities Center, B36: (310) 206-3628 www.lgbt.ucla.edu
- Office for Students with Disabilities A255 Murphy Hall: (310) 825-1501, TDD (310) 206-6083 www.osd.ucla.edu
- Dashew Center for International Students and Scholars 106 Bradley Hall: (310) 825-1681 www.internationalcenter.ucla.edu
- Student Legal Services A239 Murphy Hall: (310) 825-9894 www.studentlegal.ucla.edu
- Dean of Students Office 1206 Murphy Hall: (310) 825-3871 www.deanofstudents.ucla.edu