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Barnard and Columbia Architecture

ARCH UN3312 - Special Topics in Architecture: *Virtual, Augmented & Built Realities*
Semester: 2021 Spring A
Meeting times: W, F: 2:40p-5:25p
Room: Zoom

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Office Hours: by appointment

Keiichi Matsuda, *Hyper-reality*, 2016

Course Description:

Advancements in technology today is making real the possibility of occupying the digital space of computers. Speculations on this digital realm within popular culture imagined an alternate reality that existed in parallel with the real where one could enter and exit freely. However, we may not fully realize that we are already living alongside this virtual reality as it augments our everyday lives channeled through spatial technology like our smart devices. The rapid growth of spatial computing continues to push us towards new levels of immersion as advancements in virtual, augmented, and mixed reality (collectively XR) takes us both into the space of the computer and layers data on the built environment further blurring the boundary between the virtual and the real.

The virtual, though, is not exclusive to the digital and exists within the narratives and symbols embedded in our built environment as expressions of desire, place, and culture. While we may take for granted that the virtual is always there, it behooves architects to explore the virtual critically to both gain an understanding of its role within the built (and unbuilt) environment and to directly engage with its inherent spatial, experiential and immersive qualities. If instead, architecture's engagement with technology remains limited to the

production of images we risk reducing architecture to affect. XR technology offers a critical tool with which to examine how the virtual in architecture can be expressed experientially as it also calls into question our very notion of the real.

This course will task students with critically exploring the boundary between the real and the virtual utilizing Unity 3D video game development software, or game engine, to apply layers of the virtual as augmented reality applications overlaid onto more traditional modes of architectural representations as part of a deeper analysis of historically significant architectural projects.

Prerequisites:

All students must have completed an architectural design studio prior to taking this class. You should also be familiar with using digital modeling software.

Student Learning Objectives:

1. Visually communicate architectural concepts and research using discipline-specific techniques.
2. Work independently and in collaborative groups on design research projects.
3. Verbally and visually communicate architectural concepts in multiple media formats.
4. Understand the historical and theoretical context for the application of the virtual and related concepts in architectural design and discourse.
5. Utilize software and technology traditionally reserved for game development for architectural and spatial propositions.
6. Utilize, at an advanced level, digital and analog fabrication in the design process.

COURSE REQUIREMENTS, EVALUATION, GRADING:

This course is comprised of two projects that will require students to work individually and in pairs. Pairs will be assigned based on each student's project preferences. Each student will receive an individual grade based on their work throughout the duration of both projects, the reviews, and final submission.

Project 1: Deconstructing Narrative (individually)

As a warm up towards non-linear experiential thinking, students will select a film from the list below and deconstruct the traditional narrative form, which typically follows a temporal sequence or a chain of causal events, into a non-linear narrative of experience. Students should conceive of their selected film as a series of spatial, social, and symbolic relationships that manifests itself as a spatial experience expressed through modes of architectural representation such as plans, elevations, sections, models, collage, renderings, etc.

Films:

Cabinet of Dr. Caligari. Dir. Weine, Robert. Decla-Bioscop. 1920
Metropolis. Dir. Lang, Fritz. Universum Film. 1927
The Passion of Joan of Arc. Dir. Dreyer, Carl Theodore. Société générale des films. 1928
The Rules of the Game. Dir. Jean Renoir. NEF. 1939
Rashomon. Dir. Kurosawa, Akira. Daiei Film. 1950
Wild Strawberries. Dir. Berman, Ingmar. AB Svensk Filmindustri. 1957
L'Avventura. Dir. Antonioni, Michelangelo. Cino del Duca. 1960
Last Year at Marienbad. Dir. Resnais, Alain. Cocinor. 1961
An Autumn Afternoon. Dir. Ozu, Yasushiro. Shochiku. 1962
Cleo from 5 to 7. Dir. Varda, Agnès. Ciné Tamaris. 1962
Playtime. Dir. Tati, Jacques. Specta Films. 1967

2001: A Space Odyssey. Dir. Kubrick, Stanley. MGM. 1968
The Mirror. Dir. Tarkovsky, Andrei. MosFilm. 1974
Jeanne Dielman, 23, quai du Commerce, 1080 Bruxelles. Dir. Ackerman, Chantal. Paradise
    Films. 1975
Days of Heaven. Dir. Terrence Malick. Paramount. 1978
Sans Soleil. Dir. Marker, Chris. Argos Films. 1983
Brazil. Dir. Gilliam, Terry. Embassy International. 1985
Blue Velvet. Dir. Lynch, David. De Laurentiis Entertainment. 1986
Wings of Desire. Dir. Wenders, Wim. Road Movies Filmprodukion. 1987
Thin Blue Line. Dir. Morris, Errol. American Playhouse. 1988
Three Colors: Blue. Dir. Kieslowski, Krzysztof. MK2 Productions. 1993
In the Mood for Love. Dir. Wong, Kar-Wai. Block 2 Pictures. 2000
Eternal Sunshine of the Spotless Mind. Dir. Michel Gondry. Focus Features. 2004

Films can be accessed through Columbia's Library Services and many films can be streamed
through Digital Campus via Swank Motion Pictures.

https://library.columbia.edu/services/reserves/films.html

Many of the films are also available on the Criterion collection and many can be streamed
using the Criterion Channel using a 14-day free trial subscription. The Criterion Channel has
several shorts and useful content that may support your analysis of the films and filmmakers.

https://www.criterionchannel.com/

Project 2: Virtual Architecture (in teams)

Paper architecture is a term for conceptual and visionary projects that have been important to
the discourse of architecture but remain un-built, thus exists only on paper as virtual projects.
Students will select among the following list of virtual architecture projects to analyze using
concepts learned about non-linear experiential narrative from the previous exercise. Rather
than duplicating or recreating original drawings, students should place their project in the
historical context in which they were conceived and begin to overlay layers of history,
rhetoric, and context that are invisible but embedded in each project. Each project will include
a series of analytical drawings and physical models in combination with analytical digital
models and animations that will be overlaid on their drawings and/or models using
augmented reality.

Projects:

Sant'Elia, Antonio. *La Città Nuova*. 1914
Tatlin, Vladimir. Monument to the Third International, Moscow. 1920
Smithson, Alison & Peter. *House of the Future*. 1956
Xenakis, Iannis. *Philips Pavilion*. 1958 (built and dismantled)
Isozaki, Arata. *City in the Air*. 1962
Price, Cedric. *Fun Palace*. 1964
Archizoom. *No Stop City*. 1964
Hejduk, John. *The Diamond House A, B, & C*. 1967
Superstudio. *Life – Supersurface – Spring Cleaning*. 1971
Diller, Elizabeth & Scofidio, Ricardo. *The Slow House*. 1990
Woods, Lebbeus. *Terra Nova*. 1988-1991
Hadid, Zaha. *Cardiff Bay Opera House*. 1996

SCHEDULE:

Week 1 –   **Aura**

1.13   Lecture: Introduction to Virtual Reality + Project 1 Launch
1.15   Lecture: Aura

Readings: Benjamin, Walter. *The Work of Art in the Age of Its Technological Reproducibility* (29 pages)
Assignment: Film Selection
           Watch John Berger "Ways of Seeing"
           https://www.youtube.com/watch?v=Xdw3xRrBmlc

Week 2 –   **Phantasmagoria**

1.20   Discussion: Phantasmagoria
1.22   Workshop: Introduction to Unity

Readings: Benjamin, Walter. *Paris, The Capital of the 19th Century*, The Arcades Project (p. 3-13)
           Benjamin, Walter. *Paris, Capital of the 19th Century,* The Arcades Project (p. 14-26)
Assignment: Sketch Collages (due 1.20)

Week 3 –   **Dreams & Memory**

1.27   **Project 1 Presentations**
1.29   Discussion: Dreams & Memory, Project 2 Launch

Readings: Aristotle. *On Memory* (8 pages)
           Aristotle, *On Dreams* (14 pages)
Assignment: Project & Team Selection

Week 4 –   **Spectacle**

2.3   Lecture: Derive
2.5   Discussion: Paris, Multi-media Capital of the 19th Century

Readings: Debord, Guy, *I. Separation Perfected*. Society of the Spectacle. 1967 (6 pages)
           Debord, Guy, *II. The Commodity As Spectacle*. Society of the Spectacle. 1967 (5 pages)
Film: Debord, Guy. Society of the Spectacle.1973 (88 min)
           http://www.ubu.com/film/debord.html or
           https://www.youtube.com/watch?v=IoUIHBSiVAY

Week 5 –   **Hyperreality**

2.10   Discussion: Perception
2.12   Workshop: Animation & Materials in Unity

Readings: Eco, Umberto. *Travels in Hyperreality*. 1986 (p. 11-26)
              Beaudrillard, Jean. *Simulacra & Simulation*, Jean Beaudrillard, Selected
              Writings. 1975 (p. 33-36)
              Beaudrillard, Jean. *Disneyworld Company*. Liberation. March 4, 1996 (p. 36-
              38)
              Venturi Scott Brown. Learning from Las Vegas. 1972 (p. 8-48).

Week 6 –   **The Digital Panopticon**

2.17   Lecture: Negative Architecture
2.19   Desk Crits

Readings: Han, Byungchul. *Psychopolitics.* Verso. 2018 (p. 55-76)
              Foucault Michel. *Of Other Spaces.*

Week 7 –   **Project 2 Due**

2.24   Presentations: Project 2
2.26   Workshop: Final Packaging

Readings & Assignments:

Participation in class discussions is vital to the success of this course. It encourages a
collective learning environment supported by the exchange of ideas developed from your
readings and assigned materials. Students are expected to have completed all of the
readings and assignments prior to attending each class in order to meaningfully participate in
the class discussion.

Workshops:

The completion of this course will require you to learn concepts, hardware, and software
interactions you may not be familiar with. This course will provide tutorials and conduct
workshops to cover basic concepts and tools but you will be expected to independently
research, learn, and problem solve topics germane to your specific projects using the many
web-based resources available to you including YouTube, online documentation, and forums.

Workshops, as noted in the schedule above, will take place at the Computer Lab in the Diana
Center unless otherwise noted.

Attendance:

Attendance is mandatory at all scheduled classes, field trips, and reviews. Each class will start promptly on time. Any student arriving after 10 minutes of start time will be considered late and anyone that arrives after 30 minutes after start time will be marked absent.

Absences due to acute illness, a personal crisis (e.g. a death in the family), religious observance, or for other reasons of comparable gravity may be excused. In all such cases, students must promptly email their instructor to communicate the reason for their absence and to arrange an opportunity to review any important information they may have missed.

Students who know they will miss one or more scheduled classes due to a religious holiday should meet with their instructor during the first week of classes to discuss their anticipated absences.

Unexcused absences, late arrivals, or early departures from class will reduce your course grade. Three non-consecutive absences will result in a grade reduction by one-third (1/3) of one letter grade (e.g., A- to B+). Three consecutive absences or four non-consecutive absences will adversely affect your final grade.

Hardware/Software:

All assignments can be completed using the resources available at the DAL. Additional computers and resources are available and the Media Lab at Milstein. It would be helpful to have a laptop running iOS 10.12+ or Windows 7 SP1+, 8, 10 (64-bit only) and a smart phone or tablet to display your projects such as an Android or iPhone/iPad. If you plan to develop your projects for the iPhone/iPad, you will need an iPhone 6s or higher, or an iPad 5th generation or higher. However, if your hardware does not meet these specifications, you can develop your project using an HD webcam.

We will be using Unity 2019 to develop your projects in augmented reality. While some manipulation of code will be required, you do not need prior coding experience to complete this course. However, you should be open to the possibility/necessity to use more advanced coding to realize your project.

Students without access to laptops can use the Architecture Computer Lab in the Diana Center which will have the required software pre-installed. This lab supports PC only. Should you want to develop on iOS, the Post-production Lab at the Millstein Center has Apple computers.

Grading:

Participation & Assignments	15%
Project 1 – Film Analysis	30%
Project 2 – Virtual Architecture	55%

POLICIES & STATEMENTS:

Honor Code:

The Barnard Honor Code applies to all students in this class regardless of academic affiliation. Approved by the student body in 1912 and updated in 2016, the Code states:

We, the students of Barnard College, resolve to uphold the honor of the College by engaging with integrity in all of our academic pursuits. We affirm that academic integrity is the honorable creation and presentation of our own work. We acknowledge that it is our responsibility to seek clarification of proper forms of collaboration and use of academic resources in all assignments or exams. We consider academic integrity to include the proper use and care for all print, electronic, or other academic resources. We will respect the rights of others to engage in pursuit of learning in order to uphold our commitment to honor. We pledge to do all that is in our power to create a spirit of honesty and honor for its own sake.

The Columbia College Honor Code and the Columbia College Faculty Statement on Academic Integrity can be viewed here:

https://www.college.columbia.edu/honorcode
https://www.college.columbia.edu/faculty/resourcesforinstructors/academicintegrity/statement

Academic Accommodations:

If you are a student with a documented disability and require academic accommodations in this course, you must register with the Office of Disability Services (ODS) for assistance. Students requesting accommodations will need to first meet with an ODS staff member. Once registered, students are required to request accommodation letters each semester to notify faculty. Accommodations are not retroactive, so it is best to contact ODS early each semester to access your accommodations. If you are registered with ODS, please see me to schedule a meeting outside of class in which you can bring me your faculty notification letter and we can discuss your accommodations for this course. Students are not eligible to use their accommodations in this course until they have met with me. ODS is located in Milbank Hall, Room 009/008. Columbia ODS is located in Wien Hall, Suite 108A.

Affordable Access to Course Texts:

All students deserve to be able to access course texts. The high costs of textbooks and other course materials prohibit access and perpetuate inequity, and Barnard librarians are partnering with students, faculty, and staff to increase access. By the first day of advance registration for each term, you should be able to view on Canvas information provided by your faculty about required texts (including ISBN or author, title, publisher and copyright date) and their prices. Once you have selected your classes, here are some cost-free methods for accessing course texts, recommended by the Barnard Library: find out if your faculty has placed the texts on reserve at Barnard Library or another Columbia library, and look for course texts using *CLIO* (library catalog), *Borrow Direct* (request books from partner libraries), *Interlibrary Loan* (request book chapters from any library), and *NYPL*. Students with financial need or insecurity can check items out from the FLIP lending libraries in the Barnard Library and Butler Library and can consult with the *Dean of Studies* and the *Financial Aid Office* about additional affordable alternatives for getting access to course texts. Talk with your librarian and visit the *Barnard Library Textbook Affordability guide*(*library.barnard.edu/textbook-affordability*) for more details.

Student Wellness:

It is important for undergraduates to recognize and identify the different pressures, burdens, and stressors you may be facing, whether personal, emotional, physical, financial, mental, or academic. We as a community urge you to make yourself—your own health, sanity, and wellness—your priority throughout this term and your career here. Sleep, exercise, and eating well can all be a part of a healthy regimen to cope with stress. Resources exist to support you in several sectors of your life, and we encourage you to make use of them. Should you have any questions about navigating these resources, please visit these sites:

- Barnard Students: https://barnard.edu/wellwoman/about
- Columbia Students: http://www.college.columbia.edu/resources Click on Health-Wellness
- Columbia GS Students: https://gs.columbia.edu/health-and-wellness
- Columbia SEAS Students: http://gradengineering.columbia.edu/campus-resources