

TOOLS FOR SHOW

RADICAL REPLICAS – POTENT PROTOTYPES

Tools for Show is a course about creating interactive prototypes for storytelling and architectural communication. Taking the idea of discovering multiple identities, characteristics and qualities of an object through its replication, students will create a series of virtual and analogue duplicates.

Working through the design and implementation of a virtual and physical prototype will equip students with a particular toolset and connections for an expanding occupational field of display and exhibition design. The final display projects will form an exhibition of prototypical installation methods in itself.

The class format is hybrid between a rigorous technical coursework and a theoretical investigation into questions of copying. Weekly readings accompanying practical assignments, guest lectures and field trips will accompany technical demos and workshops. Ultimately, the goal is to work with emerging tools in a critical and open ended way. Rather than formulating a prescribed path of working with a certain software, the goal is to develop a curiosity and methodology of working with an ever changing set of emerging tools and techniques.

SPRING 2020

VISUAL STUDIES

A4968-1 and A4969-1
200 BUELL HALL
Thursday 11 AM – 1 PM

THESIS

What does it entail to tell stories about objects in novel ways? How can we change the reading of something through its display?

Adapting methods used in digital prototyping, model making and fabrication, this course looks at the interrelationship between the digital and the physical through methods of prototyping and agile design used in product development. While architecture traditionally is seen as a one-off, unique and specific work, this class is interested in architecture as a scale-able system, as an endless replication and proliferation of an idea or a concept.

The process of copying is one of reductions, additions and transformations. Even the most meticulous copies can be uncovered as fakes. In this course we are interested what happens in these processes of translation, and how one object can become richer and more multi-layered through showcasing it through various media.

Constantly working between the physical and the digital, the class emphasizes a deep understanding of methods of re-production, or how to transition between various states of the same object.

"If media is understood as the multiple means of storing and transmitting information, then the copy must be understood as its total manifestation."

Ines Weizman

PREREQUISITE

A familiarity with 3d modeling, including Rhino and 3dsmax modeling is preferred but anyone is welcome. The course content is scale-able and will work for different levels of experience.

SESSION A – RADICAL REPLICAS

01. SCAN

In this section students will learn how to 3d scan objects at different scales- from XS to XL – including the urban scale. The section will be looking at various scanning methods including photogrammetry, Kinect and point clouds.

02. MESH

We will then learn about mesh processing, cleaning up meshes and 3d printing methods including Meshlab. We will look at texturing meshes, how to work with various materials and properties of meshes to achieve different visual effects.

03. PRINT

The class will complete the cycle by 3d printing one of the scans at scale. We will also look at representation methods specific to 3d scans – since the mesh resolution is very high specific drawings and representation methods are needed. We will look into texturing, editing the textures, scans with different lighting conditions and create drawings of the various interpretations of a mesh.

end of phase 01

At the end of phase 01 students will present a collective architectural model that will serve as a blueprint for phase II. We will have a digital and physical model, as well as drawings.

SESSION B – PROTOTYPES

O1. AUGEMENTED REALITY

Now we have multiple copies of the same object: the original, the virtual copy as an STL file and a physical replica. The class is going to use AR tools such as Torch to upload the models to the cloud. We are now going to start telling a virtual story around that object.

O2. MIXED REALITY

We will design a way for the physical and the digital artifacts to coexist. What can be told through a virtual application, vs what can be told through a physical one? How do they co-exist? Can one inform the other?

O3. REALITY?

We will think about how to create an common archive, where all the objects will be drawn together to form an exhibition.

end of phase O2

We will present these virtual and physical artifacts in an exhibition format instead of a final review. Guest critics will be invited to participate in an exhibition.

SCHEDULE

RADICAL REPLICAS

- Week 1: Introduction: Architecture and Authenticity
- Week 2: Doppelgänger- 3d scanning O1 - Photogrammetry
- Week 3: Evil Twin - 3d scanning O2 - Photogrammetry
- Week 4: on site scanning
- Week 5: Mesh optimization - Meshlab
- Week 6: 3d printing
- Week 7: Presentation

POTENT PROTOTYPES

- Week 8: Introduction: Prototyping principles
- Week 9: Physical replicas - working at a larger scale casts, milling and sculpting
- Week 9: on site scanning
- Week 10: AR - working with Augmented Reality
- Week 11: Interaction Design
- Week 12: MR - working with mixed reality
- Week 13: work session
- Week 14: Final Exhibition

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GRADING

The final project of this class will be a collaborative effort – we will make an exhibition together which requires students to effectively communicate and work together. In that sense grades are as much determined by collaborative effort as by individual performance.

40% Grades are based on class participation, including discussion of readings

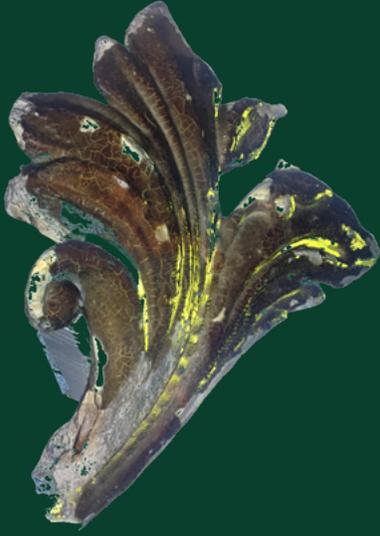
30% weekly assignments

30% the quality of the final project

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- *Inside the White Cube: The Ideology of the Gallery Space*
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- Ines Weizman: *Architectural Doppelgängers*
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- Wigley, Mark: *The architecture of the mouse*, *Architectural Design*, 11/1/2010, ISSN: 0003–8504, Volume 80, Issue 6, p. 50
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MOODBOARD



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VISUAL STUDIES

