Course Focus: SPEED TRAP

This summer we will take the opportunity to explore the properties of speed, motion, and time-based studies in relation to geometry and form generation. We will look at the stop motion or freeze-frame photography as a starting point and trigger for our workshop endeavor. Eadweard Muybridge's Animal Locomotion, a collection of 700+ collotype plates could be viewed at the USC digital library. His pioneering work in the photographic studies of motion and in motion-picture projection has widely influenced the world of arts and sciences. We will also examine the affective outcomes of dynamism represented in the paintings and sculptures of the Italian Futurists. These two canonical precedents will serve as a layer of knowledge-based investigation and visual/formal reference for the workshop.

Our fiercely, fast-paced software and media development can often be motivated by a cultural mindset of streamlined, problem-solving. It is safe to say that demand that is applicable to all trades, including architecture, is placed on a constant, tooling-up modus operandi. The tools you are learning at the moment may inevitably be obsolete. Therefore, it is imperative that you do not treat this workshop as a merely a software demo but rather to seize this opportunity to expand your visual skills repertoire. In eight days, we will be devoted to various digital techniques as an introduction to a range of speculations on the problem of visual representation and the morality of data manufacturing. The lesson we hope to establish here is aimed towards a longer trajectory of one's education in the area of visual studies. The clock starts now.

Course Objectives: integrating digital operational strategies into a design method

Commanding the ability to fluidly navigate through a vast array of virtual applications, design media, and digital fabrication technologies, affords incredible potential to develop, test, produce and communicate both spatial ideas and their corresponding physical components with great clarity. This course is designed to provide a fundamental introduction to three-dimensional digital modeling for architectural representation and fabrication using Rhinoceros 3d - a NURBS surface modeling program. We will intensively focus on a specific region within this array: design strategies / techniques used by contemporary architects as a way to organize and test operational strategies used in digital design process through the use of complex NURBS constructs developed, and refined in digital tools introduced in this course.

Teaching Method

Exercises using Rhino will begin at an elementary level and quickly progress through advanced modeling techniques. Prior knowledge of three-dimensional modeling is not necessary. In concert with Rhino, we will perform exercises using several third-party plug-in programs that will be introduced throughout the course. Demonstrations of these tools and techniques will be made at the outset of each workshop session and the corresponding daily exercises will be presented in class. Most of the time will be spent rigorously sharpening the essential tools and skills at hand through direct practice. The exercises will be supplemented by discussions, assigned readings and presentations of exemplary precedents and relevant projects in development.

A selection of student work will be documented in an associated blog and exhibited in a gallery format after the completion of the course.
Student Learning Outcomes

- Develop awareness of a contemporary conceptual ability to strategize and to compose descriptive and expressive spatial information. Graphical conventions, concepts and theories will be examined through the practice of digital production for representation.

- Learn through the process of analytical and critical development in architectural communication systems for design studio courses. Procedures will entail fundamental skills for graphical diagramming, orthographic drawing, three-dimensional modeling, rendering with current software, and computational and fabrication modeling techniques.

- Realize multiple forms of basic visual communication techniques by delivering complete, formatted, and timely submissions of high-quality, clear composition graphic outputs.

Course Requirements: Computer Hardware and Software

You will be responsible for providing your own laptop conforming to the following minimum performance requirements:

- Intel-based Multi-core CPU (i-7 or Xeon)
- 4GB RAM
- 500MB disk space
- DirectX 10 Capable graphics cards
- Windows 7

Note: Virtualization systems such as VMWare and Parallels are not recommended.

Rhinoceros 3d v4 and VRay Plug-in for Rhinoceros are available for purchase. An order form will be provided in the near future. This software is expected to be installed and functioning prior to the first day of class. Any other plug-in software is available for free download and will be installed prior to their use in this course.

Core Modeling Software: Rhinoceros 3d, VRay Plug-in for Rhino, Grasshopper Plug-in for Rhino
Core Representation Software: Adobe Illustrator, Adobe Photoshop

Required Readings:


Suggested Text:


Statement for Students with Disabilities

Any student requesting academic accommodations based on a disability is required to register with Disability Services and Programs (DSP) each semester. A letter of verification for approved accommodations can be obtained from DSP. Please be sure the letter is delivered to me (or to TA) as early in the semester as possible. DSP is located in STU 301 and is open 8:30 a.m.–5:00 p.m., Monday through Friday. The phone number for DSP is (213) 740-0776.

Statement on Academic Integrity

USC seeks to maintain an optimal learning environment. General principles of academic honesty include the concept of respect for the intellectual property of others, the expectation that individual work will be submitted unless otherwise allowed by an instructor, and the obligations both to protect one’s own academic work from misuse by others as well as to avoid using another’s work as one’s own. All students are expected to understand and abide by these principles. Scampus, the Student Guidebook, contains the Student Conduct Code in Section 11.00, while the recommended sanctions are located in Appendix A: http://www.usc.edu/dept/publications/SCAMPUS/gov/. Students will be referred to the Office of Student Judicial Affairs and Community Standards for further review, should there be any suspicion of academic dishonesty. The Review process can be found at: http://www.usc.edu/student-affairs/SJACS/.

Emergency Preparedness/Course Continuity

In case of emergency, and travel to campus is difficult, USC executive leadership will announce an electronic way for instructors to teach students in their residence halls or homes using a combination of Blackboard, teleconferencing, and other technologies. Instructors should be prepared to assign students a "Plan B" project that can be completed at a distance. For additional information about maintaining your classes in an emergency please access: http://cst.usc.edu/services/emergencyprep.html