Grad Spatial Computer Imaging
Thursdays 9:00 am - 4:00 pm
Sullivan Center, Rm 1227

Professor:
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Summary:

This class covers orthogonal drawing on the computer, dimensioning, accurate tolerance 3D modeling, very basic rendering with simple lights and textures, the creation of solid models for prototyping, the creation of developed surface models for prototyping on a laser cutter, and the creation to tool-paths for CNC router prototyping. An introductory class in drawing, describing, and making three dimensional shapes and spaces on the computer and the tools it can control. Serves as a basis for future developments of space, form and material in graduate design studios.

This class is structured to allow for varying levels of student. The first few weeks of the course will include introductory Rhino homework. Those already comfortable with Rhino are not required to complete these assignments. There will also be options for advanced students to complete more ambitious works.

Grading

To receive a passing grade in this class, students must:

Come to class. Try really hard to come to every class.

Attend all the critiques. This is mandatory. This not only means arriving on time, it also means actively (verbally) & constructively participating in *every* student's critique. If you sit don't participate in a classmate's critique, you will be counted as absent.

Set manageable goals for yourself, then work to achieve them. I will help with you on the setting part, the working part is your responsibility.

Be prepared for your critique. Since everyone will be actively critiquing your project, be sure to plan ahead for the things you'll need: make prints well ahead of time, think about what you'll say in response to questions that might arise, take a shower, etc.

Failure on any of these fronts will result in a much harsher evaluation of the others. Feel free to check in with me regarding your academic standing.

Research Project:

Each student will complete one research project over the course of the semester. The focus of this research will be a piece of consumer electronics chosen by the student (those seeking a greater challenge can pick two to fuse together). Consider the following when making your choice:

Pick a device that matches your comfort level with Rhino.
The device should be reasonably sized, inexpensive, and easy to find.
We will be disassembling our devices, so purchase at least two identical copies.
Ensure that the device is made to be taken apart easily - check for screws with common drives (e.g. Phillips as opposed to Torx).
Avoid devices such as cameras or CRT televisions that have internal parts that hold a charge long after being unplugged.
If you are uncomfortable with the prospect of working with wall voltage, pick a device that is powered by commercial batteries (like double As) or an external transformer.

Part 1 - Preparation
First break your device down into the smallest pieces possible. Leave all complicated/functional components intact. Take detailed notes as to the identity and original location of each part, no matter how small. These notes should be recorded in Rhino as an exploded diagram. We'll be constructing this diagram in two stages: first as a collection of simple solids, second as a refined version with detailed parts.

Part 2 - Design
Develop a proposal for the subversion of your device. At the very least, you must design and build a new enclosure/housing for the device that alters it in some fundamental way. The modification should affect both usability and aesthetic/conceptual impact. You may:

Preserve the original function or redirect it towards a new end
Add missing functionality or remove unnecessary features
Create a useful or a purposefully difficult object
Create a one-off or a design that lends itself to mass-manufacturing
Totally reform your device or create a physical add-on that attaches to improve/inhibit function

Part 3 - Production
Fabricate the new portions of your project. At this point, it's hard to anticipate where everyone will be, so the last part of the class will depend on your individual goals. There are many tools at your disposal that can be used for fabrication: 3D printer, CNC router, laser cutter and more.

Part 4 - Documentation
Collect all of your documentation images/objects/video/etc into one cohesive packet. We'll be completing this material as we go, so be sure to pay close attention to weekly assignments and back-up all of you work.