

## TANGIBLE, TACTILE and TACTICAL

**MR+D Digital Fabrication Workshop (October 28 – 31)**  
**Lead by Karl Daubmann**

### WORKSHOP OBJECTIVES

The MR+D Digital Fabrication Workshop will try to accomplish multiple objectives within a very short time frame. At the most basic level, students will be exposed to the various software applications and workflows required to produce CNC milled objects. Beyond technical know-how, the workshop will give students a deeper understanding of the technological implications on design afforded by digital fabrication. The workshop will operate with craft influenced methods, using hands-on, empirical, iterative experimentation as a means of learning about materials and hard and soft tools.

An ethos of making exists that uses defined limits of materials and/or equipment to shape the design process. Of course, any form of technology can be miss-used or the envelope can be pushed, but the limits must first be understood. All tools have limits and basic parameters that influence their use. Examples of these limits might include bed size, max cutting area, max depth, etc. If understood, managed, and synthesized into the design process, these limits have the ability to push back and become generative. Digital fabrication is productively defined by these limits in a way in which rendering and visualization can not be. While there are many examples of brute strength being used to make something, (forcing a tool to do something it is not designed to do or a material to take a specific shape), these limitations can and should be viewed as design opportunities used to frame design thinking. An example of this limit transformation has to do with a 3-axis router. A 5-axis router can generate more complex forms but the limitations of the 3-axis router (pedagogically speaking) make casting or vacuum forming a logical next step. The 3-axis router is unable to produce undercutting – limiting a design process in one trajectory opens up another.

Another objective is to connect students with materials. The workshop is viewed not only as a means of teaching computer modeling skills, but is also a means to get students engaged with matter. The workshop is a synthesis of thinking and making both digitally and physically. A key aspect of the workshop and the technology is to make physical, tangible, and tactile things that can be touched, held, and tested based on real world stimuli. To these ends digital fabrication is bringing about a renewed interest in sensuousness in architecture and design. The intent is to test techniques and tactics, allowing ideas to emerge from the open-ended experimentation, not to represent pre-existing ideas in matter. The products of the workshop are not about building theories or concepts but to make things to be handled – or ideally, fondled.

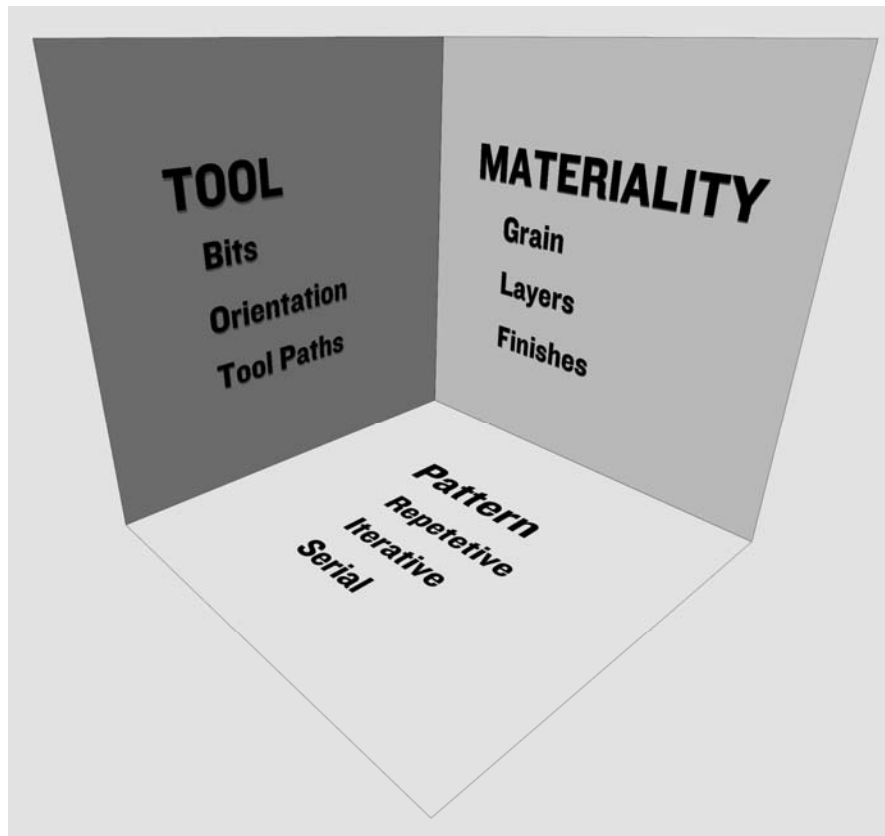
Miyake



Porsche



A simple operational matrix is used to organize and charge the design and production related activities of the Tangible, Tactile, and Tactical Workshop. For organization and equipment time constraints, students will work in groups of 3 (+/-) for the duration of the workshop. Within each design session, each group will engage two planes of the matrix; mixing and matching the 3 sub-categories to produce 9 - 12" x 12" prototype tiles. As the workshop progresses, the 9 tiles from each session will build on the expertise from the previous session. The scalability of the work will be augmented through digital means to illustrate the potential for repetition and assembly of the tangible prototypes.



## PRELIMINARY SCHEDULE\*

THURSDAY (Oct 28)

12:00 – 2:00

Initial Meeting with MR+D

Introductory Lecture and Discussion of Workshop Objectives

2:00 – 4:00

Rhino / Surfcam Introduction

4:00 – 6:00

Design / Working Session Part I

FRIDAY (Oct 29)

12 – 1

Pin-up and discussion of work

1 – 6

Design / Working Session Part II

SATURDAY (Oct 30)

12 – 1

Pin-up and discussion of Work from previous day

1 – 6

Design / Working Session Part III

SUNDAY (Oct 31)

10 – 12

Final meeting discussion of work

\*The schedule may be adjusted at the discretion of the instructor.

## ROTATION

### THURSDAY AFTERNOON

|        |          |          |
|--------|----------|----------|
| Group1 | Material | Pattern  |
| Group2 | Pattern  | Tool     |
| Group3 | Tool     | Material |

### FRIDAY AFTERNOON

|        |          |          |
|--------|----------|----------|
| Group3 | Material | Pattern  |
| Group1 | Pattern  | Tool     |
| Group2 | Tool     | Material |

### SATURDAY AFTERNOON

|        |          |          |
|--------|----------|----------|
| Group2 | Material | Pattern  |
| Group3 | Pattern  | Tool     |
| Group1 | Tool     | Material |

