

# Five studies on process and scale

Studio class, MA/MFA Computational Arts. January 2017 Lior Ben-Gai

"The limitation of the static image is not simply that it lacks the flow that marks our visual perception of motion: Real change in the universe is often too slow or too fast for any responses of the visual system. The deeper lack is one of content. A single take belies the manifold event." [2]

In this ten week studio class, we will engage with the relative size of physical processes, both digitally and physically. Abstract as it may be, even if we assume that digital work exists outside of the physical world, it still relates to it in many ways, some of which we will explore together in this coming term.

Working in digital media, we often forget the physical world and its inherent constraints; We have the luxury to explore entirely new realities and consequent aesthetics, regardless of

material properties and scale. However, in the absence of physical boundaries and constraints there may be nothing to guide our creative process towards a definable outcome. Digital and physical reality are not opposites, nor are they the same. This term, we will focus on the often discarded relationship between the two by experimenting with various ways of **translating** physical phenomena into virtual representation and vice versa.

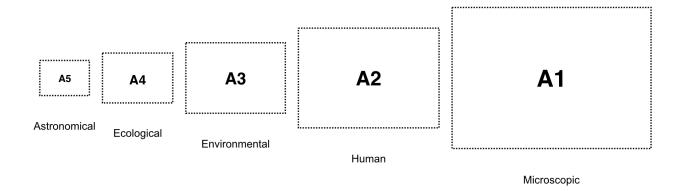
We will traverse five orders of magnitude, starting from gigantic and ending in miniscule. Each study will consist of two stages: First, Using nothing but keystrokes and mouse clicks, we will harness the power of programming languages and various computational methods to simulate / graph / assemble / synthesize or compose virtual representations of physical phenomena. Secondly, We will translate this virtual representation into a physical artifact.

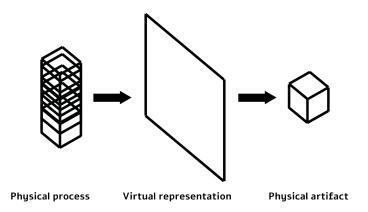
### **Process:**

Each Study will span three weeks as follows:

Week I	Week II	Week III
	Virtual Artifact presentations	Physical Artifact presentations
New study/scale introduced	Tooltip (useful methods)	
Group discussion	One on one tutorials	[

In each study, the virtual artifact is a computer program which performs a translation of a physical process of choice into the virtual domain. All five programs will have a fixed size of 841 by 594 pixels and may consist of either static or moving image. The physical artifact is a translation of the virtual artifact into the physical domain. Physical artifacts will use an increasingly larger format of the ISO 216 standard, from A5 to A1. In creating this artifact we may use any appropriate method, computational or otherwise.





# **Prerequisites:**

This course assumes intermediate proficiency with at least one graphics programming environment (ie: processing), including Object Oriented Programming, vector and raster drawing techniques and use of 3rd party code. Basic familiarity with graphics editing software (ie: photoshop), 3D modeling (ie:Blender) and 2D or 3D printing is encouraged but not required.

## **Final coursework:**

This course will conclude in a popup exhibition consisting of all five physical artifacts produced throughout the term. The final submission will consist of a digital portfolio which includes:

- Five physical artifacts (carefully documented in high resolution images)
- Five virtual artifacts (in image/video/gif/Binary format)
- A short essay (500 1000 words) describing your process.
- A zip file containing all original project files and (well documented) code.

#### **Notes:**

[1] EAMES, C., & EAMES, R. (1978). Powers of ten--a film dealing with the relative size of things in the universe and the effect of adding another zero. Santa Monica, CA, Pyramid Films.

[2] Morrison, P. and Morrison, P., 1982. Powers of ten: a book about the relative size of things in the universe and the effect of adding another zero. Redding, Conn.: Scientific American Library; San Francisco: Distributed by WH Freeman, c1982., pp. 8.