Hedge is comprised of thousands of pounds of plastics, repurposed byproducts of a local industrial process, creating a synthetic “vegetation” in the courtyard of CAM. To help offset weight, we designed an ultra-light netting of resin-imregnated carbon fiber strands that, while having incredible tensile strength, become brittle after hardening and thus we could not tie knots in the material to create the net. Instead, we looked to bobbin lace weaving, a tradition of making lace developed in the sixteenth century in which several pairs of strings are twisted together and share long edges to create friction and strength to hold the pattern. We digitally scripted a morphing diagrid that responded to the site context, desired visual densities, and structural considerations then translated the pattern onto plywood panels and hand-wove the fibers using the bobbin lace technique. The result is a hybrid digital and analogue craft process that capitalizes on the efficiency of digital design and the dexterity and social aspects of handcrafted work.
While the immediate site is the courtyard of CAM, Hedge explores a deeper relationship with its urban context. Corbusier’s apartment for Charles de Beistegui (1929-1931) serves as a reference here, its rooftop garden walls redacting the skyline of Paris to include only the iconic Arc de Triomphe and Eiffel Tower. The high walls of the shared space between the Pulitzer Arts Foundation and CAM similarly reduce the view of the city to the formidable New Masonic Temple (1926), at once iconic and forgotten, in a state of perpetual decay. Our script adjusts the density of “vegetation” to preserve views of the redacted skyline while simultaneously lightening the load in the center of the steel span from which the project is suspended.

1. Rooftop garden at Le Corbusier’s apartment for Charles de Beistegui
2. CAM courtyard view towards the New Masonic Temple
1. String prototypes for bobbin lace weaving technique
2. Construction drawing locating parts on a carbon fiber panel overlaid on photograph of the panel-weaving process
Without direct knowledge of each formula, we designed parametric shape grammars that responded to the dimensions and material characteristics of each of seven types of plastic while also embedding plant-like behavior on a spectrum from tall pointy “grasses” to smooth squat “Lily pads.”

1. Tessellated geometries responding to material properties and plant-like behaviors
2. Elevation locating carbon-fiber panels and plastic components relative to structural, visual, and behavioral inputs.
Warp Tower: 10

Site: Jakarta, Indonesia
Program: 10 Story Office Tower
Year: 2010
Instructor: Ken Tracy

Ikat is a technique in weaving where the warp or weft, or sometimes both, are resist-dyed before being woven on the loom. In Indonesia, warp ikat is often performed on a backstrap loom where the weaver, leaning back into a strap that is in turn connected to the loom bars, provides the requisite tension on the warp. The whole apparatus is attached to a fixed point. As the threads are dyed, the resist wrappings allow small amounts of dye underneath them, creating a “blur” effect in the final product. Often mystical, symbolic, and intensive, Indonesian ikat patterns are manifestations of a complex society. Gender roles are reinforced in the production of these textiles while the floral patterns and abstract geometries provide the requisite aniconic imagery associated with Islam.

A tectonic concerned with Indonesian identity locates the project. Using digital fabrication as a contemporary craft, the typical office building becomes Jakarta: rooted in antiquity but fully immersed in the 21st century.
Diagram showing four phases of warp ikat: first, a pattern is laid out by tying dye-resistant material to warp; second, warp is dyed and dye-resistant material is removed (blur effect); third, the dyed warp is strung onto loom causing slight slippage of pattern due to the elasticity of the material (slip effect); fourth, completed textile woven with weft material.

Diagrams showing preparation of warp on the frame from top and side views.

Diagrams showing weaving process on loom from top and side views.

Diagram showing characteristic ikat effects; “phase” and “multi” change the loom length from the original frame length thus allowing phasing in the final pattern.

“Digital Loom” studies: An image of Chuck Close is decomposed into a single, continuous row of pixels that are then mapped onto a digital string which may be parametrically controlled to allow the image to slip in and out of phase with itself.
1 Plexiglas model of floor plates woven around service cores.
2 Façade study.
3 The program is understood as a continuous string of spaces, and are woven between the two cores. Fenestration is controlled by strings of data describing solar orientation, height, and Quibla (direction to Mecca).
4 Digital programmatic and massing models.
5 Exploded diagram relating program “string,” façade openness, a typical plan and ground-level plan.
Digital Evolutions introduced digital modeling, parametric work-flow, and fabrication techniques in a variety of two and three-dimensional media to document the imagined development of a hypothetical animal species.

Students began with an analysis of drawings by Ernst Haeckel (1843-1919), a German biologist, naturalist, philosopher, and artist who promoted and popularized Charles Darwin’s work in Germany, but whose own alternative theories of evolution have subsequently been discredited. Students used Grasshopper and associated plug-ins to exploit the powerful flexibility of parametric design to iteratively adapt these studies to various imagined environmental conditions. Working in pairs, students crossbred their species, synthesizing ideas concerning skin, support systems, pattern, and kinetics, finally modeling this fictitious entity with a geometrically rationalized material system—a fabricated fabrication.
Artifacts
Phaeodaria-Siphonophora
Siphonophora
Peromedusa I
Dorataspis
Calocyclas
Phaeodaria
Art Forms in Nature
Spumellaria
Phaeodaria II
Flagellata
Peromedusa I
Peromedusa II
Spumellaria
Phaeodaria II
Peromedusa-Phaeodaria-Spumellaria
Peromedusa-Flagellata
Collaged “carpet” of source material
Exhibit Description

Drawings
01 Phaeodaria-Siphonophora
02 Siphonophora
03 Phaeodaria I
04 Flagellata
05 Peromedusa I
06 Peromedusa II
07 Spumellaria
08 Phaeodaria II
09 Peromedusa-Phaeodaria-Spumellaria
10 Peromedusa-Flagellata

Artifacts
11 Phaeodaria-Siphonophora
12 Siphonophora
13 Peromedusa I
14 Dorataspis
15 Calocyclas
16 Phaeodaria
17 Art Forms in Nature
18 Spumellaria
19 Phaeodaria II
20 Flagellata
21 Peromedusa II
22 Discomedusa
23 Peromedusa-Phaeodaria-Spumellaria
24 Peromedusa-Flagellata
25 Collaged “carpet” of source material
26 Exhibit Description
In "How to do Things with Words," J. L. Austin’s seminal 1955 essay concerning linguistics, the "performative utterance" was defined as a verbal statement that could not be understood as merely true or false, but rather one that needed to be assayed as "happy" or "infelicitous." That is, these utterances were performative in that something was actually done by saying them, such as taking wedding vows or christening a ship. The right circumstances (not already married, authorized to ceremonially name the vessel, etc.) must be met in order for the words to perform. Thus emerged a co-dependent network of words, people, and actions that perform a perfect storm of "doing." When the situation was "happy," these spoken words were transformative.

Beyond the field of linguistics, the concept of performativity had a profound resonance. Branko Kolarevic describes the effect:

It shifted the perception of culture as a static collection of artifacts to a web of interactions, a dynamic network of interwoven, multilayered processes that contest the fixity of form, structure, value or meaning. Social and cultural phenomena were seen as being constituted, shaped and transformed by continuous, temporal processes defined by fluidity and mediation; thus a performative approach to contemporary culture emerged.1

Architecture, no longer under the binary constraints of a culture of specificity, could challenge the one to one relationship between space and program once tantamount to good design. In place of Modern neutrality, wherein space and program are equalized or neutralized for the sake of flexibility, contemporary practices seek "vagueness." As Lars Spuybroek notes:

In opposition to neutrality, vagueness operates within a differentiated field of vectors, of tendencies, that both allow for clearly defined goals and habits for as yet undetermined actions. It allows for both formal and informal conduct. But more importantly, it also relates them through continuity; it puts them in a tense situation of elasticity.2

Specific yet flexible, possible though undetermined, vagueness attempts to harness and capitalize on cultural flux. Enabling the current while allowing for the future, it is the ultimate transmutable condition of space.

Parallel to vagueness is the notion of continuity, without which the disparate elements yielding differentiation would not be held in tension, and their performative role would be lost in translation. NOX architects, inspired by Frei Otto’s analog computing, find systems of material interaction that simultaneously construct and reveal differentiation with-

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2 Kolarevic & Malkawi (2005), 168.
The notion of the “performative” is a framework for understanding transformation. A “performative utterance,” in contrast to a “constative statement,” must meet a set of normative conditions in order to be deemed successful and affect change. Shaping the land is a performative act, imbuing the earth with intention while reforming its prior composition. The present topography of St. Louis represents a superposition of performative actions, millennia of natural and human processes that coexist in the written record of landscape.

As the independent City of St. Louis considers reincorporating into St. Louis County, a new city hall for a consolidated region celebrates the act of reunification by extending the city as a land-bridge across the void at the Mill Creek Valley. Manifest as a landscape of performativity, it is the construct wherein the laws that govern everyday life are made and the rituals of everyday life are performed. Thus, the new landscape establishes a new normative: the law of the land.
1. One-million-year logarithmic timeline of the geology and landscape of St. Louis
2. Pedestrian plaza
3. Southbound traffic
4. Northbound traffic
5. Counsel chambers
6. Metro platform
7. Grand stairs
8. Bathrooms
9. Workspace
10. Conference rooms
11. Private office
12. Structural light wells
Walking and thinking are inexorably paired. The mind is set free when the body experiences the rhythmic motion of ambulation. Inspiration reveals herself in the interstices between periods of intense concentration. A walk to the café becomes a chance encounter with a reclusive colleague. An idea develops between the office and the laboratory. A bicycle ride cleanses the mental palette.

The International Center for Advanced Renewable Energy and Sustainability (I-CARES) in Phoenix, Arizona houses five researchers whose work is critical. Situated in the North Mountain Preserve, the laboratory is an oasis of hope in an increasingly hot desert.
The challenge posed by the design of this 2500 SF West Village apartment was to accommodate a second level for bedrooms while maintaining the architectural integrity of the industrial loft characterized by exposed concrete beams and tall south-west corner windows that offer natural light and panoramic views of the Hudson River. We inserted a cantilevered wood-clad volume, the Sleeping Capsule, that houses a master bedroom suite and a guest room that leaves the perimeter windows unobstructed. This floating volume is both a striking sculptural presence as well as an element whose faceted shape defines a series of linked double height spaces—entry hall, media-home office, circulation path and living room—that wrap the south and west edges of the loft. The floor of the Sleeping Capsule folds from north to south to create a circulation path linking the guest bedroom, bathroom and master bedroom with enough head height to clear the deep concrete beams. Steps join this path with elevated platforms for the master and guest beds. The underside of the Sleeping Capsule’s folded floor creates a faceted ceiling that creates a lower circulation path and a higher kitchen/dining area.
A black oak stair core intersects the Sleeping Capsule, subdividing the space beneath it into two zones, a kitchen/dining area and a den. The perimeter of the loft is lined with storage closets along the north and east walls, and built-in cabinets beneath the windows.
252 Seventh is the fourth domestic project commissioned by one of JSA’s first clients. Rather than rely on walls and doors to define conventional rooms, three rectangular storage walls, inspired by the serial Minimalist sculptures of Donald Judd, subdivide the loft into parallel activity zones—living/dining, bathroom, and bedroom. LED light coves illuminate the black stained walls that appear to disappear into the ceiling. A fourth storage wall lines the entire length of the north wall of the loft and also visually links front and back. Operable panels can be opened to reveal a home office and a Murphy bed, transforming the front of the loft into a multi-purpose live/work area.
The abstract storage units stand perpendicular to but never touch the side walls of the loft, defining two parallel zones—a circulation corridor and a viewing slot that passes through the kitchen and bathroom. They both allow uninterrupted views from one end of the apartment to the other.