Imagine if all the energy that is put into games was directed towards recreating the real world around us. Why not? What we do in a game is create a simplified model of the world so that it’s easier to know what behaviors we can do to win or lose, or what kinds of strategies might work.

City of Hope is city gaming, in which the interaction of an engaged field of objects, New York City, uses game mechanics in relation to rules and challenges to result in object moves, for the ‘possibility’ of connecting formal game analysis with research on controlled designs and user experience.

What is it that I want to accomplish? I want us to radically rethink how we think about things. All of this is to pose a question or perhaps even a challenge to designers and architects: how would design and architecture change if we seriously considered things as independent agents whose ability to affect change was due in large part to complex interactions and interdependencies that did not privilege humans as primary motivators? Or even further: what if things could in some part determine, or at least map out, their own destiny, either independently or in relation to the other things around them? What if we designed and built from the perspective and world view of things themselves. In turn, the ability to simulate real life through gaming and experiment with outcomes like in the alternate-reality game “World Without Oil,” which took players through a global oil crisis and explored options for handling it could give us an added edge in planning for better living spaces. Trial-and-error could happen in the virtual world (at least to some degree) instead of the real-life one. It’s important to recognize the potential good that can come of sparking humanity’s inner child.
Cartooning Disbelief

JOSEPH FRANCIS RAMIRO
Advisor: Elena Manferdini

Cartoons inspire fantasy comprehension, able to oscillate between readings of familiarity and magical worlds of representations. It is through the relationship of the cartoonish graphic and physical materiality that produces an ambiguity of ones perception. This thesis seeks to address the cartoon and its ability to challenge normative views of urban planning, specifically the city skyline.

The cartoon requires a certain level of abstraction. In order to operate effectively, cartoons are composed of a collection of signs and signifier, which allow us to suspend our disbelief of their representation. We understand the character Roger Rabbit as a rabbit, but also that he does not reflect rabbit-hood. It is through the character’s posture, features, and coloration that allow us to create imagined personality. Cartoons also do not operate within the physical limits of our world. Some leap over buildings, gain instant strength from cans of spinach, or get blown up by the always-faulty line of ACME merchandise. Cartoons inherently have elastic physical qualities and are able undermine predetermination of the material qualities that they represent.

The skyline, an artificial horizon attainable only from a distance, serves as a unique physical representation of a city. Typically, this representation is choreographed by the city’s programmatic and economic drivers. This thesis favors a cartoon character and narrative driven skyline, challenging the rules of programmatic-based arrangements.

This thesis focuses on the interior skyline of Chicago, created by the Chicago River. The proposed skyline assembles various character interactions along the riverfront, producing pareidolia effects not only of each character but also their relationships with other buildings. The projections of features and coloration reverse roles to introduce plural readings of the same mass. The projection of cartoonish graphic materializes into physical features while the projection of features wrap the characters as graphic. Many characters are not designed to acknowledge adjacent buildings but will produce new imagined realities.
This thesis explores a compositional tactic of architecture through a dialogue between planar and volumetric processes; defined as dialoguing between architectural vernaculars such as plan, section and elevation but also the remnants of its dialoguing process (process trails). This involves a linearity in spatial concept, resulting in an execution of spatial sequence, and providing a vision of architecture expressing itself by means of a family estate in Rancho Palos Verdes, California.

It begins with an immersive study of two architects: Frank Lloyd Wright and Peter Eisenman. Frank Lloyd Wright in the Kaufmann House (Fallingwater House) gravitated to a seemingly planar architecture, composing and calibrating pin wheeled planes around a chimney core. Peter Eisenman in House VI gravitated to a seemingly volumetric architecture, composing and calibrating volumetric elements that appeared to be self-recording through transformational indexes.

Thus, the house begins with vectors, oriented directions of architecture derived from contextual information. Volumes interpreted through remnants of contextual information, used to inform plans, elevations and sections. Planar information is at first autonomously conjured, then imposed to autonomous volume, and finished with a dialogue of both.

It ends with a house comprised of process and remnant, of plane and volume, of linearity and sequence. Regurgitations of the mind, influenced and refined by the eye.
Are the enormous structures we see today really ‘big’? These structures are big in the sense that they compete with other structures like themselves for prominence. They reach higher for the skies and they spread out to stamp their footprints into the ground. They carve out places in the skyline and they are as conspicuous from afar as they are up close. They are understood immediately.

Is it possible to have a truly big building that is not totally comprehensible, whether observed from afar or proximately: a building that is read as tantalizing clues but at the same time is quite large? Can there be a building that competes with the city not only through sheer size and proclaimed individuality [which actually reinforce the existing qualities of the city] but also through the subtle subversion of the visual and organizational constructs of the urban fabric? Can there be a building that when experienced at close range only allows an impression of immediacy, not allowing a full comprehension of the structure? This thesis will explore and attempt to realize such a structure.

The object that inspires the sublime is always big. At a distance it might appear as a large, abstract totality, less concerned with differentiated features than with a larger figure. But up close, a new quality emerges, one that disassociates the particular from the whole. As an architectural object, a structure of such massiveness and elusiveness would have to be large enough to take on the qualities of the natural sublime, but at the same time a new set of qualities, both urban and architectural would have to emerge, expanding the definition to that of the urban sublime.

The urban sublime is composed of antithetical couplings or dualities. The first is the relationship of near to far. As stated, from afar the urban sublime is an abstract totality, but when experienced up close a new quality emerges. Here the experience is one of immediacy; differentiation is legible but the totality of the mass cannot be fully comprehended. One is confronted by a feeling of overall, non-contextual unexpectedness and unpredictable strangeness. Architecturally, this kind of experience can be achieved through development of featurelessness or weak features. Within these features, hierarchy and scalar relationships are minimized in favor of an absence of the composition of differentiated parts or volumes.

The coupling of contrary emotions or associations might also begin to define the qualities of the urban sublime. For example, the sheer size and power of the urban mass is capable of engendering anxiety, menace or even terror, but at the same time it might be rendered familiar. While this quality might be evoked through the more figurative or the abstract, the duality of menace and familiarity represents an affect of the urban sublime.

If the (literally) big suggests that design is eclipsed by quantity, the urban sublime suggests that as a subject for design, size again matters.
This thesis investigates how architecture can begin to generate through the use of shadows, by studying the relationship of building to shadow and shadow to building. The building and shadow discover different ways of communicating with each other, look at the effects of architecture, and have them turn into societal functions.

Through the analysis of the sun trajectory during different periods of time, one can start to modify the skin and begin to design specifically with the shadows. Using the shadow projections as the primary design tool and the object as a template, the final graphics are produced through cuts and skin modifications to the building, therefore controlling the effects of the shadows. By butchering the building, a choreographic effect of shadows begins to appear, creating interesting graphics on the ground/canvas, engaging with the surroundings, and working as a mediator between the building and its context.

By designing from the inside out, the shadows begin to transform and project light from within the interior of the building, permitting the light to avoid every practical reality that conforms it. With the movement of light through time, a disjunction is created between the formal and the graphic on the site surface.
Recognizing that one of architecture’s strongest postural communications is its volumetric profile, this thesis explores the manipulation of that profile and its various readings. More specifically, it seeks to extend the comprehension of this reading in which architectural form is perceived. The project proposes to prolong this perception by extending the understanding of architectural experience related to values of time and observation through formal constructs (as opposed to mechanical or technological means). It is within this territory that modifies the coherence of object to form to produce prolonged results.

The operative technique in which the project is derived studies the object as observed, and its properties relating to exterior profile, context, and shape definitions internal to the objects overall profile (volumetric shape). Specifically it is the shape definitions comprising the observed figure internal to the exterior outline (what we comprehend as building articulation) that are used to re-form its coherence. This geometry, defined as the “inline,” is experimentally investigated in varying scales as spatial, structural, programmatic, and circulation devices.

The inline, being the operative mode in which an object shape is produced, manipulates these definitions through cuspidal transitions. A geometry that when applied to the object inline, allows for the profile edges to transition to surface form via the cuspid point. Defined as “profile to form,” the geometry corrupts the understanding of an objects shape by means of clarity and obfuscation, replacing it with a new hindered coherence of the volumetric shape, extending the duration of understanding and ultimate value of its own ontology.
Disfiguration of ideal geometric figures allows for interpretative interventions within the thesis. Any ‘Acts of Architectural Correspondence’ will, by composition, be separated by the intelligence and patience of the group. This follows from the assumption made by Steven Johnson that “we are often better served by connecting ideas than we are by protecting them.” Is Architecture becoming a narrative language for organizing forces with systematic geometric convolutions?

Transparency of information in research and development with origami languages and architectural tectonics guide the logic of geometric oscillation. Systematizing material practice creates a ‘science’ out of craft that can only be acquired through disciplined perceptual awareness.

Parametric physicality can simplify the equation of production, a measurement of productivity. From light waves, our eyes and nervous system acts as filtration devices to gauge the chemical, electrical and magnetic pulsing bodies of our biological environment. Internally, our clocks are wound by the substance in our daily lives and with time, build prisms of memories. Through wit, the foundations are built such that they can investigate change and develop strong and weak connections between centers.

Here, deep in the sea of expanded fields, we search for our substantial ratio. This assemblage of ratios corresponds to groups and justifies alignment amongst the tides and obstructions based on function.

Geometric potentials tucked away within a flexible substructure help develop a new sense of inheritance with our collective potential. Based on the construction of differential axi, color fields display information to experience ourselves.

The resultant Sum of the character in this set remains dependent on variables which become concrete. Memory might not be shared, but embedded. This thesis deploys algorithms with cases of intuitive exception to the value of work. The techniques beyond painting challenge conceptions of tectonics and modeling techniques with an induced iterative self-criticism. Architecture’s analogy extends beyond animal species to include botanically inspired metabolism.

Arrow. . worrA
Image:: Kashmir Cypress Tree
Folding from enveloped seed... leaf ... pulp... paper...
into this thesis: A Temple Template
ART 1 FACT :: CREATE ION
Knowledge: Dream :: Fossil : Memory

The Parts 2 Folds + Sum_folds* push *Sum_folds-pull S Differential folds spin n n mnnN
Coding Beauty from CMY:RGB::B:W spiral refraction and geometric limitations through mixed media art.
JUGAAD
PRIYANK VIRENDRA SHAH
Advisor: Wes Jones

Pronunciation: \\ju-gaad\\
Function: Noun, Adjective, Adverb
Etymology: Sanskrit meaning Jugati, Hindi meaning Yukti

n. The gutsy art of overcoming harsh constraints by improvising or creating an effective solution using finite available resources. An off-the-cuff or jury-rigged solution, inventiveness, ingenuity, cleverness.

Jugaad is an antidote to the complexity of India—a country with mindboggling diversity, pervasive scarcity and exploding interconnectivity.

This thesis is an attempt to curate a movement across the globe for establishing a community that develops modest strategy to take advantage of waste resources, production over-run and found objects. It aims to create an open source network for novel ideas to set the community into motion. Jugaad will facilitate fast and expedient ideas where every participant of the community would be a composer. Jugaad will promote innovation in a broader perspective including lifestyle, design, architecture, music, literature, DIY catalogues, politics, art, filmmaking, sports, education, etc.

The ambition of this project is to convey the potential of this spirit to suggest an alternative model for non-structured innovation that can offer a radical approach to challenges faced by the contemporary world. It certainly raises the question: What can jugaad show to the rest of the world? Jugaad has always been around. Jugaad starts with everyday improvisations. But, it is also an underdeveloped force within the way we approach almost every activity in our life from games to design, architecture to fashion, city planning to a political revolution.

This thesis aims to explore the spirit of jugaad for coming up with fast and expedient solutions in a time of scarcity and complexity through collective collaboration by radically hybridizing the existing environments using social media as a catalyst and jugaad becomes a case study for the broader interest of discipline.

The entire process of jugaad would be documented in form of a semi text-semi visual book that will demonstrate the spirit of jugaad.
Society’s addiction to speed, technology, and smoothness has produced a world of isolation, sensory detachment, and predictability. From the shiny plastic surfaces of automotive design, to the latest anti-aging wrinkle smoothing creams, and the polished iPhone devised to never leave the hand, smoothing has proliferated and saturated our streets, faces, thoughts, and more importantly architecture. However beautiful and appealing these objects may appear, they have never been guiltier.

In architecture, the smoothing effect has created mere objects of visual seduction, deprived of sensory invitation and discovery, intimacy and nearness, and mystery and uncertainty. Leaving behind overstated smooth forms that transmit a frictionless, streamlined, and dissolved materiality in favor of forms that radiate gritty, earthy attributes, this thesis revisits rustication as a medium to challenge architecture’s dependence on current assumptions of beauty and reclaim our undivided attention. Divorcing rustication from its strong associations with solidity, permanence, and impregnability, Smooth Criminal’s veil shifts the discussion of surface articulation to that of porosity, transparency, and curiosity. Smooth Criminal explores the beautiful in the ugly, the rough in the smooth, and the sublime in the grotesque to produce a new breed in architecture, one that brings roughness back, celebrates imperfections, engages the senses, generates conflicting emotions, and create an environment in which fact and fiction coexist.
The figure is like a person and the grid is like the grass. They have a relationship to each other, but they are also independent of one another. This project defines a relationship between figure to grid. The figure is an object (maybe a cloverleaf), and the grid is an ongoing boundless field. They start from two opposite ends: the figure originates from reality, whereas the grid starts with abstraction. The figure is a sign, a symbol, which has a one-to-one relationship with the meaning it represents. The grid, on the other hand, is an abstraction that holds reality at a distance.

The new constructs are at times a gridded figure and at other times a figured grid. The gridded figure is at the scale of the building, and the figured grid is at the scale of an architectural part. They are free to modify and influence each other in response to the project’s site, program and form.

The project borrows a reference outside of architecture and brings it into the domain of the discipline. The Dom-ino House uses architectural parts to compose a “sign system;” can we instead start with an outside reference as our base vocabulary, and what are the minimal things necessary for it to be architecture? What are the signs, notations and geometry that warrant legibility in architecture? A person can trample on grass and slippery grass can make people fall. When, and how, is grass-trampling + falling-on-grass “architectural”?

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The pattern can be defined as a discernible arrangement or sequence found in both the natural world and manmade design. As such, the elements of a pattern repeat in a predictable way, easily discernible through human analysis. People have always been intrigued by the intricacies and beauty of legible or vague patterns in nature. These patterns inspire our art and have even led us into ingenuity. Legible patterns can easily be seen because of its repeatable nature. However, when people feel these patterns continuously, the emotion generated can be one that is good, a feeling of stability and order, or bad, a feeling of boredom or apathy. In a search for more challenge, humans look for obscure patterns to locate new sequences or arrangement beyond a human’s normal perception. Due to the limitations in visual acuity, these obscure patterns are difficult to approach; however, this is becoming less of an obstacle because of the advancements of science and technology. Defined rules such as algorithms can now be used to sequence patterns that are impossible to see without the aid of computers and those patterns can be translated and reproduced into visual objects.

My issue is to transform the legible patterns used in architecture into obscure patterns through a technique of slumping glass. Glass architecture first began in the age of Modernism to construct the Crystal Palace. It was created using legible patterns, and even today much architecture has followed this use of glass and metal. Slumped glass alters the glass optically so light reflection and refraction projects as an obscure pattern on another surface. The use of slumped glass alters the legible pattern into an obscure pattern of “ever-changing light play” and creates a new visual aesthetic expanding past the limitations and boredom of the legible. By transforming regular glass used for legible patterns into slumped glass, an obscure pattern can be reproduced and even expanded by aggregating these glass panels. Through stacking and shifting of these slumped panels even more variance can be achieved in the pattern. Architectural aesthetic can be expected to continue expanding between legible and vague patterns.
The exploration of the relationship of inside to outside has been a constant in the discipline. Two main approaches have flourished in the architectural discourse in the past decades: the visual perception of exterior and interior, and the physical relationship of envelope to interior mass. The first approach builds upon the degree of transparency within the envelope, revealing or hiding the interior. The latter, on the other hand, examines the mutual influence of two independent objects, creating a physical relationship.

This thesis seeks to combine both vantage points to create a novel way of building enclosure. *Naked* aims to fuse envelope and interior mass in order to produce an enclosure that offers more visual potential and spacial variety than conventional solutions.

The interior mass is “squished” against an invisible envelope with significantly smaller volume—a restricting boundary. This decrease in volume without a simultaneous reduction of surface area provokes an interfolding of the compressed object, creating spatiality inside and outside. The result is a hybrid that incorporates qualities of both envelope and interior mass.

Additionally this achieves a visual ambiguity in the reading of the building, challenging the observer’s perception. Areas of compression/contact become a threshold between exterior and interior. The invisible boundary’s imprint appeals to the observer’s intellectual engagement to be recreated or become aware of. Simultaneously the degree of compression is reciprocal to the degree of transparency, partially revealing the interior.

New York’s Park Avenue is the chosen setting for the project because of its long tradition of curtain wall office buildings and high-rises dictated by zoning restrictions. *Naked* uses the restraining setback laws as constructive constraints. Without breaking out of the obligatory grid, the result is a building with more geometric diversity and ambiguous appearance than its modernist neighbor’s.
THE SPACE IN BETWEEN

LUIS GERARDO TORNEL ENCINAS

Advisor: Elena Manferdini

Façades always are understood as exterior conditions on a building, read as a surface problem within architecture. These problems can be addressed in many different ways, from geometrical approaches, the materials that conforms them, and through a set of proportions or an architectural order. Because of this, buildings are related to each other by their size, orientation, materiality, and the limits in which they exist. But this relationship is not concerned with how the user lives and experiences the space between two or more external surfaces. The surface problem can also be approached from the relationship between what happens on the interior of the building itself, either making a direct connection to it or denying what the interior condition is. The interest of this thesis is to explore the possibility of generating an experience that is perceived by the user as an interiority condition within two or more exterior surfaces.

This thesis aims to define a new way of relating architectural elements and the space generated between them by observing their relationship. The possible generative tension between them challenges how the user perceives the overall ambience. The attempt is to analyze the relationship of exterior and interior, not trying to state which of the two needs to govern the other nor to define if there is a correct hierarchical relationship. The idea is to generate a set of exterior conditions by combining two different but recognizable architectural orders; the process of combining these elements will be driven by a set of given vanish points located in relation to the project’s mass. The combination of these elements will be achieved through projecting their geometrical features into a middle surface, which will be redefined by the overlapping and deformation of the projected geometry, becoming the result of both elements interacting with each other. This way the exterior conditions will have a direct connection that relates them. The space in between the elements then will have an intention, generating the interiority condition but not being related or without revealing the actual interior condition of the building.

The exterior condition of the project is conceived as a solid surface, in order to be perceived as a generic mass that aims to hide the internal condition of the project, and is not related to its surrounding, this being a way to state the way this project believes buildings relates to each other in the present. By analyzing how Il Tempietto by Bramante in Rome and the anamorphic sculptures by Jonty Hurwitz work, the project is based on the condition present on both pieces where a central piece interacts with its surrounding.

The Tempietto deformed a set of rules based on proportions and the use of classical elements in order to be perceived as perfect on its own. The surroundings act as an enhancing element to achieve a perception of perfection. On the other hand, the anamorphic sculptures invert this relationship between center and surrounding. The surrounding element is deformed and reflection on the centerpiece is what reveals the normal aspect of the deformation. The intention of the project is to use both ways to relate the center with the surrounding and by combining them, generate a language to be applied as the external condition of a building that can stand on its own.
Design takes on a unique vernacular when form promotes legibility through difference. However, density in Architecture innately challenges humanistic ideas of “space,” particularly in a domestic understanding. Introducing a formal idea of a heap pile as a strategy for utilizing part to whole characteristics, this architecture arrives at a position asserting object autonomy within a metropolitan context. Mixed-used housing becomes the premise for generating formal ambitions of novel spatial complexity.

Instinctive form development, much like Kolwoon City in Hong King or the hillside Favelas in Brazil, suggests a pattern of density development that maintains a consistent geometric field from very different individual parts. The recurring elements, such as window openings, box unit types, and roof components, are distributed with slight distinction that on a local level suggests difference. However on a larger regional level, a consistent composition is evident, unifying parts together to form a whole. The instinctive form logic of these two precedents is derived out of socio-economic and cultural triggers. The aims of this Wilshire & La Brea design is to create its own instinctive form logic that stems not from humanistic drivers but that of pure geometric initiators from an arbitrary or found object.

This alternate organizational logic introduces advanced opportunities for reconditioning program. This exploration began with redefining the characterization of a “heap” distinctively from a “stack” or “pile.”

Stack: An orderly arrangement of objects respective of tangential faces and balanced form.

Pile: A loose or informal assemblage of objects resulting in a conical form.

Heap: An irregular or precarious composition of objects, unbalanced and merged together by forces other than gravitational influence alone.

The features that distinguish a stack from a pile are the changes in the x, y and z-axis. The heap and pile formation are more closely related; however, the heap becomes distinct as an excessive pile. The threshold from one organization to the other is based on intersection and imbalance.

Generating densely, as a means to apply techniques related to collective form, has allowed for geometric exploration in field-like conditions and cluster forming. Thus, experimenting with this heap-density naturally produced complex special conditions that can be rationalized and strategically deployed as a mixed-use housing solution.
The traditional model for designing a city mandates that “buildings go in a city.” This thesis asks, “How do you put the city in a building?”

As Los Angeles’ population continues to grow and densify the city, new buildings must adapt to meet new needs in a way that modernist buildings, particularly towers, do not.

To incorporate urban space into a building, it is helpful to understand the city as a series of destinations. The proximity of these destinations and the movement between them determines the way we interact and share experiences and information. It is the responsibility of urban architecture to mitigate the impact of the city on our environment whilst fostering human interaction. Therefore the application of urban space at the building scale is necessary.

This thesis seeks to explore new possibilities for the design of a tower, considering the relationship of circulation and structure as a means to create spaces appropriate for our interconnected society (urban space). This project adapts a helix model (ref. Kurokawa Helix City 1961) to the design of the contemporary tower: the concept is to house the city in a helical mega structure and wrap the circulation within it. The inherent infrastructural properties of the helix provide a viable model for vertically housing the network of a contemporary city. Moreover, the linear urban space of L.A., in the form of its boulevards, lends itself well to a helical configuration; the line becomes the spiral and space changes drastically.

A technique for rippling the facade in relation to the city and adjacent exterior conditions, the development of helical circulation paths, and interior voids will provide the basis for the design of a tower that will re-figure the ground in the sky.
Adding to existing buildings is commonplace in architecture preservation; very often a continuation of the building style and volume in a discrete and lavish manner. Aiming for overall cohesion, examples like these populate many new districts adjacent to downtown and dense urban areas. Los Angeles and its downtown historic district will be no exception to this trend.

This thesis takes an alternative starting point for this tendency in building preservation, by looking into the problem of “the addition.” By avoiding the easy composition which characterized much of the postmodernism and deconstruction periods in architecture, this thesis focuses on the problem of “Filling” rather than simply “Adding.” Therefore situating the problem either as “non-compositional,” wherein composition takes place at a radically different scale and in complete independence from the problem of old & new.

This is evident in the way new massing additions occur (new programs) on the top of the old building, but also in the radical de-facing of the original building; hence completely altering the character of the building as a whole.

In line with recent developments which accentuate and refine this tendency, this thesis proposes an ambiguous contrast between new and old: one that substantially and productively blurs this long held distinction and in doing so, describing new figural and superficial relationships which are either transparent or completely opaque in relation to the functionality of the building.
The tradition of architectural profession has a set of geometrical or spatial operations in which the form of architecture is constructed. These operations are represented as an architectural working space through which the geometry or space of architecture is described traditionally by a set of drawings—typically, plan, section, elevation, axonometric, and perspective. An operating assumption of my thesis is that the mechanics of the working space in which geometry or space is described in architecture has a strong effect on what kind of architectural form is produced.

In our current situation, architecture can be understood as operating in two distinct categories. Based on the traditional working space, one is a problem of the translation and transformation from two-dimensional (2D) representations into three-dimensional (3D) objects. The other one could be described as a solely 3D problem. Projects in the former category are the consequence of a series of drawings. Projects in the latter category are independent from any kind of 2D media. Drawings in the former are the primary generator of the project, containing all information of the object. Drawings in the latter are solely produced from the object, which resists total comprehension without the 3D model.

As we know, architecture drawings are considered a result of projections from 3D objects. The mechanics of the traditional working space of architecture are usually based on orthographic projection or oblique projection, which are generally parallel projection. So as a projective geometry, the objects in the first category of architecture do not have full three-dimensionality, while the objects in the second category do.

As a project, this thesis attempts to alter the mechanics of traditional working space, by which geometry is constructed, instead of geometry itself to explore 3D formal possibilities of architecture. By turning parallel projection into spherical projection for the translation between drawings and objects, drawings can be used as both representation media and geometrical generator to provide fully 3D information for architectural form. As a result, an ambiguous condition between the two categories of architecture will be achieved: a fully 3D object is created through mechanics of architectural working space that is based on the 2D/3D relationship.
ARCHITECTURAL EROSION

SHITONG ZHANG
Advisor: Wes Jones

This thesis suggests that population density reflects the value of the particles, which compose the solid by its accumulation.

After decades of development, Detroit had a dramatic reduction in size and population, resulting in high poverty rates. This led to the decay of the central city area. A huge amount of spaces were abandoned.

When Detroit was prosperous, its population reached the city’s maximum occupancy. If we assume that the buildings of the city are like boxes, full of particles, when Detroit started the depression, the particles were taken away from the box, and the leftover void appeared in a random pattern.

There are mainly three ways to reflect this prosperous-depression cycle through architecture and all of them can be concluded in a set of antonyms: destroy & rebuild; collapse & expand; erode & regenerate. The first two scenarios require similar conditions—multiple building surfaces that should be worked on, manpower to deconstruct and construct, limited time for the work to be done, and therefore to make the building according to the plans before the disassembling. There is nothing wrong with these two processes, they are just not exciting. In the third scenario, however, only when the whole building surface acts as one single continuous surface does it have the fundamental qualification for the zero manpower transaction—the erode & regenerate process.

Under this process, the vector of the city’s population density will directly “drag” the building surface system, therefore the motion vector within the building, together with multiple vectors for space and time, will react on this form animation and simultaneously cause the gravity change in accordance with time. In other words, the reason behind the forever changing form is the erosion from the particles, rather than the erosion of the building.

Through the invasion of a new language, the hierarchy contained within the existing modernism and art deco buildings is broken up and reverberates beyond expectation in an organic way.
In the early 1800s, a significant cultural reform took place that had direct ramifications upon our society. This reform, known as the Industrial Revolution, brought mechanized productions to society. During that period, exposed structural elements were used as industrial decoration to incorporate the identity of the building and to manifest the advanced technological development. Steel and glass were used for the first time as materials for architecture, airplanes and cars; forms were determined by their functions without redundant decorative elements.

However, as the aesthetic and technological changed, new forms and materials were employed as the façade of the machines and buildings. In this case, progressively, the appearance of such productions no longer followed their uses and decorative elements began to appear more and more frequently. The forms began to be perceived as a medium for expressive manifestation instead of constructed out of necessity.

This project attempts to explore the potential of mechanic aesthetics. Industrial elements are not attachments of the building anymore but the architecture itself. Pipes, I-beams, and other structural and mechanical elements are not only decorative but also functional. The boundaries between the real and surreal become blurred. Both use and misuse of industrial assembly are manifested and incorporated in the project. Thus, a new aesthetic is established and studied as a prototype for the post-industrial society.
...you lay in the half light
exhausted, rich,
with your face turned sideways on the pillow
and I traced the exquisite line of your profile, dark against the white...
– Dudley Randall, *the profile on the pillow*

In architecture an abstract planar shape lends itself more easily to a figural legibility than a geometric form. This figural legibility benefits from the efficiency and immediacy of planar representation. The profile is the planar representation of form. Its crude nature makes it strong and accessible, and has the potential to suggest a variety of near-literal reading in a way that geometric form cannot. *Black Attack* examines the profile as a critical distinction between geometric form and graphic shape. The aim of the project is to enhance the graphic aspect of form without flattening it. And further, to provoke the sensation of near legibility. The project is a redesign of Chicago’s main public library designed by Thomas Beeby—intentionally chosen as a subject to provide a counterpoint to its postmodern design. In this new project, there are five completely distinct flat profiles generated from a single, fully three-dimensional architectural form. One can experience each of these profiles by changing one’s viewpoint. The graphic property of the building form—the sensation of the black profile—creates a new public experience.
This thesis proposes a new tension between part-to-whole. As a result, a new kind of monolithic architecture emerges, that consists of integrated but highly autonomous sub-solids and an archipelago of interior spaces.

It makes a hypothesis that monolithic architecture exists only when each part of the monolithic architecture is a different outcome of the same set of operations; thus each part has an inherent relationship to any other while still being physically different from any other. Such kind of monolithic architecture has its every part being an autonomous monolith in itself, and thus each part becomes as important as the rest and the whole. Therefore, it challenges the conventional understanding of part-to-whole relationship wherein the part is normally seen in direct compositional, proportional or tectonic relationship to the whole.

It criticizes traditional Monolithic Architecture in its reductive way of dealing with architecture by means of the envelope. In fact, in the essay Rodolfo Machado and Rodolphe el-Khoury wrote in occasion of the exhibition Monolithic Architecture, the problem of monolithic architecture is reduced to merely the development of a skin, in which non-monolithic objects are enclosed. This thesis takes a different approach to this problem, by introducing post-monolithic architecture; a fitting set of autonomous parts unified both physically and conceptually by an operational relationship.

The design starts with a single solid, a pure monolith, being divided using a script. At this step, the original solid consists of multiple parts, which are physically and operationally related to and dependent on each other. The next step is crucial, using the same script but with different conditions and different input parameters, each part is again divided. Some sub-parts of each original part are extracted, leaving open spaces. This step makes each original part contain sub-parts and also open pseudo-figural spaces. These combined operations create a new type of monolith, one whose parts are not subordinate but also formally and conceptually independent from the whole, that is autonomous and monolithic.

This hypothesis argues that the traditional method of reducing monolithicity in architecture to merely a skin problem cannot produce a comprehensive monolithic architecture. On the contrary, monolithic architecture can only be produced when we understand part-to-whole relationship to be omnipresent, wherein each part is not only subservient to the whole but it is a whole itself, therefore acting as an autonomous monolith. In other words, the post-monolithic architecture is a monolith mass consisting of an aggregate of autonomous monolithic volumes.
Movement has always been integral to Architecture’s existence. From the preparation of spaces for the freely moving body politic within the Greek agora and the Roman forum, through the fascination with movement in the plaster of Baroque cathedrals, and into the present infatuation with computer simulated agents as generators of architectural form, movement has never been far from the “why” of Architecture.

Architecture will embrace the idea of movement in a new way. Moving architecture engages new dimensions of duration at the disciplinary level, shifting the focus from the static transformational end states of architectural form to the choreographed duration of a moving architecture.
The project takes into consideration the development of the area adjacent to the Llogrebat river in the south west region of Barcelona. From the preliminary analysis of the region, it was discovered that the settlements that characterize both banks of the river are in fact predominantly industrial rather than residential, thereby preventing free growth.

The idea behind the project is to develop operations for bridging the two opposite sides of Llogrebat river, implementing and accentuating points of contact identified by the route of existing highways. The development of the new system of connections and interchange leads to the definition of new morphological types, as well as to the improvement of current conditions. Exploiting these new connections also recovers the historical core of the city, Barcelona's most populated and well defined urban zone. Interior space and will be freed from existing urban density and low historical presence in the area. The project takes into consideration the Llogrebat river's south west region of the area adjacent to the area.

FEDERICO PESSANI
This project's intention is to redefine the edge of Barcelona, where the urban fabric starts to dissolve into disparate elements scattered across a semi-natural plane instead of being perceived as a continuous state. The goal is to reconnect the city to its peripheral landscape through an articulated edge condition.

The scheme explores the peripheral condition of the coastline and the area around the Besós river. Both zones have a strong relation to the city center through a close proximity, but are disconnected from the city core. To reconnect the two sites to the city, the Cerdá grid is re-deployed as a strategy to re-densify Barcelona's edges and redefine the urban fabric of the periphery.

Cerdá’s intention for the grid was to create a uniform urban condition, maintaining a certain density and distribution of open space and public facilities throughout the city. This makes the Barcelona grid a coherent and continuous urban condition that can be used to counter the edge condition of a city falling apart. The grid serves as a formal and performative starting point to rework the grid in the transformation of the city, counter the edge condition of the site, and reconnect the two sites to the city core. To reconnect the two sites to the city core, the Cerdá grid is re-deployed as a strategy to re-densify Barcelona’s edges and create differentiated urban conditions within a recognizable urban form, allowing for the introduction of reformulating the Cerdá grid.

The intention of reformulating the Cerdá Grid is to create differentiated urban conditions within a recognizable urban form, allowing for the introduction of reformulating the Cerdá grid. The goal is to reconnect the city to the edge of Barcelona, where the urban fabric starts to dissolve into disparate elements scattered across a semi-natural plane. The project’s intention is to redefine the edge of the city by means of reformulating the grid and applying transformations to the current urban condition of the city, to achieve a more differentiated urban condition that can be used to counter the edge condition of a city falling apart. The intention here is to use the grid to create continuity, rather than the object-oriented development we see today.
This project explores creating new urban growth patterns at the northern edge area of Barcelona along the base of the Catalan Pre-Coastal Range. Generally, cities can be regarded as dense human settlements that are manifestations of emergent behavior. When cities grow, multiple elements such as human activities, density, infrastructure and geographical conditions act interactively and generate complex growth patterns that are manifestations of bottom-up collective intelligence.

"Swarm intelligence" offers a possibility to generate growth patterns and urban forms that are more responsive to bottom-up collective behavior. In the 60s, the Metabolists—Kurakawa, Maki et al.—attempted to design new urban growth patterns through the concept of "metabolic urban planning". Today, cities are more complex and should be more complicated and intricate. Cities are considered as dynamic, adaptive systems that are based on interactions between human activities, density, and emergent behavior. When cities grow, new urban growth patterns emerge that are superimposed on dense coastal ranges.

This project explores creating new urban growth patterns along the northern edge area of Barcelona.
The SCI-Arc Future Initiatives post-graduate program provides an integrated curricular focus on urban-scale issues. It is positioned as a center for the discussion of contingent and variable planning strategies and the development of new tools for urban research and design. Combining intensive research into the near-term future of cities with the use of open source design tools, SCIFI aims to invent new ways of modeling and testing design scenarios.

Taking the substandard conditions of some and connected by a new urban transit network, infrastructural projects were developed on three peripheral, yet contradictory, sites: the eastern edge of Barcelona’s periphery and around the areas of the Besós and Llogrebat rivers.

Working in resistance and often opposition to the notions of continuity and differentiation that Cerdá’s logic of small effects and small causes provides, three independent projects were developed on three peripheral sites around the base of the Catalan Pre-Coastal Range, along the coastline and across the areas of the Besós and Llogrebat rivers.

The projects address the edge conditions along the base of the Catalan Pre-Coastal Range, along the coastline and across the areas of the Besós and Llogrebat rivers.

Advisor: Peter Zellner

Big Causes/Big Effects

BARCELONA: Big Causes/Big Effects

The SCI-Arc Future Initiatives post-graduate program provides an integrated curricular focus on urban-scale issues.
YUYING CHEN

"Architects have to stop thinking in terms of buildings only. Built and physical architecture, freed from the technological limitations of the past, will more intensely work with the technological limitations of the present day. Since spatial qualities as well as the psychological ones The process of erection will get a new meaning, spaces will have more consciously have haptic, optic and acoustic properties. A true architecture of our time will have to redefine itself and to expand its means. Many areas outside traditional building will enter the realm of architecture, as architecture and architects will have to enter new fields. All are architects. Everything is architecture."

– Hans Hollein, 1966

DYNAMISM AND MONOLITHICITY

Explore the effects and opportunities of various forms of motion in architecture. Whether motion is intrinsic or extrinsic, materially represented or simulated, dynamism is undeniably a core component of contemporary architecture practice and discourse. I look closely at various and less frequent forms of motion, especially those that constitute the core of architectural practice and processes, a rhythm of construction and assembly that takes place within LACMA.

Supported by new composite materials, manufacturing technologies and aesthetic sensibilities, monolithicity became a multipole attribute for contemporary visual representation. Using fresh ideas and techniques associated with various forms of motion and dynamism, I consider monolithicity as a representational model rather than a material characteristic or construction system. I assume that in its representational and iconographic nature, dynamism and monolithicity are possible disciplinary intersections of the architect's role in contemporary society.
This project posits that the coupling of projection mapping with motion can provide opportunities to explore and investigate design and architecture-related issues, not merely as a choreographed spectacle or purely representational medium, but as a dynamic and interactive process capable of informing design and reconfiguring project mapping with motion can provide.

Simple robotic translations and rotations create a new space for designers to operate and the motion control is live and gestural. Projection combinations are not rehearsed and an interface in which specific motion and motion and projection feedback onto the physical model and projected back onto the physical geometry and generating new digital geometry. The tools of virtual projection and projection are composed in the digital type. The motion and stages between object and active process capable of informing design, mostly as a choreographed spectacle or partially design and architecture-related issues, not opportunities to explore and investigate projection mapping with motion can provide.
In the tradition of renaissance sculpture, when a monolithic object is given motion, its surfaces react elastically like fabric. As a result, the object becomes ambivalent of its real formal agency, arousing curiosity while only delivering ambiguity.

Our project explores the effects and opportunities of various forms of motion in architecture. Exemplified by simple displacements of primitive interior solids against a fabric skin, this shapes shifting conditions while at the same time enhancing and challenging the notion of monolithicity by questioning its fidelity. Thus, real motion is the internal tension that leads to the expansion of the form.

This investigation aims to rediscover a new relationship between the interior and exterior. So, dynamic change is the key point to find the new relationship. When a simple surface of façade transfers to an inclusive surface it is a stunning moment in the domain of architecture.

Thus, a cube is chosen as a strong monolithic object due to its simple minimal geometry and material. Various types of motion that happen with different techniques like pushing, rotating, sliding and pulling. By considering the material, textures and movements caused by the forms of motion, we investigated various expressions of form. The cube is chosen as a strong monolithic object due to its simple minimal geometry and material. The Robot House was used to achieve a closer understanding of our design intentions. In order to minimize the gap between the digital and the physical, we used the Robot House to test forms against the materials, the geometry and the movement. This investigation aims to rediscover a new relationship between the interior and exterior. So, dynamic change is the key point to find the new relationship. When a simple surface of façade transfers to an inclusive surface it is a stunning moment in the domain of architecture.
With morphological simplicity of expression through white architecture in Modernism, came a postmodern approach to reveal its inherent architectural qualities by manipulating material, void, and pattern.

However, following the 20th century’s -isms arise significance of emergence and co-existence in efficiency and mobility that suits norms of society in the modern era.

Manipulation of morphological and materialistic methodologies attempts to reflect the fast-changing flow of contemporary world.

Integration of ideas, from different societal backgrounds, of symbolic figure and efficiency, becomes the focus of this research project. To achieve a strong yet shifting figural image, existing façade that lacked symbolism has been replaced by solid, monolithic mass.

A faceted shell connects to a new monolithic mass capable of actual physical motion, hence a vertical shell connects to a monolithic mass.

Mediating between movement and projection, monolithicity and motion become counterbalanced to assert one of phenomena described in Deleuze’s *Difference and Repetition*, the continuity in derivative.
This project investigates the questionable relationship between motion and monolithicity, two concepts that typically do not coexist in architecture. After researching what the notion of a monolith means for a building, the main focus became the feature with the most questions—the tectonics of a monolith. The geometry is an outcome of distorting and animating a traditional grid, which results in a composition of compressed, threethree-dimensional layers. The challenge is to find a density that switches from solidity to porosity, changes accordingly to the view and allows certain depth, redefining the idea of poche in architectural drawings. The refinement of the layering inspired a material research focusing on methods of deposition, the selection of materials, and the properties of joins. The selection of models represents different variations of the façade, investigating not only the ideas of motion but also light, shadow, and reflection. The project addresses size, scale, and the experience of space within the building. The project investigates the question of how architecture can be constructed, not just be a means of expression, but also a tool for creating movement and transformation.
ALBERTO ALFONSO
+ JUAN GABRIEL BENAVIDES MILLÁN

The Potential of Fracturing Architecture

While taking on the combination of the seemingly disparate notions of MONOLITHICITY and MOTION, the project purposefully creates (mis)perceptions and (mis)representations of solidity, joinery, texture and building typology. Through the means of a series of operations at multiple levels, this project investigates the mystification of the dualistic correlation between inside and outside, addresses the issue of part to whole relationships and probes the tenet of stability in architecture.

The integrity of a boulder-like mass is violated by shattering this piece and allowing the resulting “solid” components to move and assume manifold configurations. The shattering playfully applies a fictional materiality to the overall form and how it is put together, choosing to break the “boulder” along fault lines that allude to stone material behavior. Interiority, function, morphology and type are dynamic, interactive and integral to the project, allowing for the resulting “solid” components to move and assume manifold configurations.

The limits between interiority and exteriority are decimated once the integrity of the boulder is destroyed by the act of shattering. The perception of these limits is misled by combining relief treatments on the surfaces of the shards that come into contact with each other and by creating a field condition that is not clearly tectonic.

The different placement configurations of the moving parts create multiple instances of permeability, promenade and porosity. Likewise, interiority is affected by the different placement of activities inside and out of the composition. The moving parts create multiplite instances of tectonics and programmatic activities, coexisting and interrelating in different configurations of the composition. Spaces can expand and contract, suggesting different separate pieces of the composition, spaces different placement at any given point of the project.

ALBERTO ALFONSO + JUAN GABRIEL BENAVIDES MILLÁN
RHYTHM AND HUES
Motion and Monolithicity in Architecture

Instructors:
Marcelo Spina
Andrew Atwood

Running in parallel to SCI-Arc Thesis, the goal of the ESTM Final Degree Studio is to explore the effects and opportunities of various forms of motion in architecture. Whether motion is intrinsic or extrinsic, materially literal or abstractly implied, generative or descriptive, manufactured or performed, represented or simulated, dynamism is undoubtedly at the core of technological innovation in contemporary architecture practice and discourse.

In particular, the studio will look closely at various and less frequent forms of motion, especially those that constitute the core of architecture as a material practice in which among other processes, the studio will take as a central focus the study of a range of rhythmic and monolithic systems as a material practice, and explore the recent knowledge and experience in the field of robotics as means of both manufacturing and simulating new rhythmic motion. The studio will consider monolithicity as a representational model rather than a material characteristic, suggesting the possibilities of various contexts and conditions within a static project.

Rather than fall back into “animated form” through contemporary motion, we will look at motion through rhythm, that is the regulated succession of strong and weak elements, or of opposite or different conditions. Capturing and contrasting new rhythmic motion on robotics as means of both manufacturing and simulating new rhythmic motion, the studio will focus on a range of rhythmic and monolithic systems as a material practice, and explore the recent knowledge and experience in the field of robotics as means of both manufacturing and simulating new rhythmic motion.

Using fresh ideas and techniques associated with various forms of motion and dynamism, the studio will consider monolithicity as a representational model rather than a material characteristic. The studio will assume that in its representational and iconographic nature, latent muteness, scalar ambiguity and indifference to both program and context, lays a possible disciplinary interiority of the monolithic project. Dwelling in the very incongruity of the term as a dichotomy, the course will therefore aim to reframe and redefine a different dynamic lineage for the monolithic project.

Andrew Atwood
Marcelo Spina

Instructors:

Motion and Monolithicity in Architecture
RHYTHM AND HUES
ESTM is an intensive post-professional degree program. Rigorous and experimental, ESTM aims to define new platforms for design innovation, fusing digital and physical research within the rapidly evolving fields of computation, material fabrication, and advanced building systems. Utilizing the SCI-Arc Robot House – the most progressive facility of its kind in the US academic environment, and advanced research facilities as well as other platforms – ESTM faculty and students explore new production paradigms, envisioning the future of synthetic materials, free-form assembly, advanced fabrication, as well as other parts of the world’s most prominent and upcoming fields. Working with progressive architects, designers, and theorists worldwide, students propose the next generation of architecture in the form of specific projects, structural morphologies, sophisticated material prototypes, and complex construction systems.
Students Graduating 2013

Alberto Alfonso
Juan Gabriel Benavides Millán

Yuying Chen

Aličja Anna Chola

Brian Thomas Harms

Ehsan Jelveh Moghadam

Maria Kuzminskaya

Haejun Jun

Jung Huang

Federico Pessani

Sarah Maansson

Kenichi Kabeya

Sarah Maansson

Federico Pessani

Maria Kuzminskaya

Haejun Jun
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SCI-ARC

Director
Eric Owen Moss

Director
Hsinming Fung

Graduate Programs Chair
Hernan Diaz Alonso

Graduate Thesis Coordinator
Etienne Manfredini

ESTM Coordinator
Marcelo Spina

SCI-ARC Coordinator
Peter Zeller

SCIFI Coordinator
Peter Zellner

SCI-ARC
The Southern California Institute of Architecture

Postgraduate projects will be on view September 6-8, 2013.

GRADUATE THESIS 2013