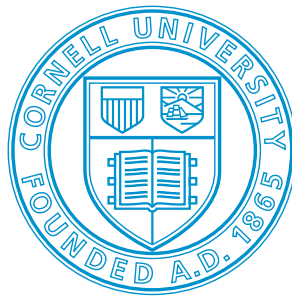


COLLEGE *of* ARCHITECTURE, ART & PLANNING
DEPARTMENT OF ARCHITECTURE

SPRING 2016
OPTION STUDIOS



Frontier Urbanities / Amazonia

Territorial Projections and the Geopolitics of Climate Change



This studio explores the phenomenon of frontier urbanization in the Brazilian Amazon and its relations with colonial history, contemporary political-economic processes, territorial transformations and climate change. The studio aims to project possibilities for transforming this process into new urban paradigms, or forms of frontier urbanities that support social, economic and ecological complementarity between urban environments, societies, and 'natures'. Students will engage in a week-long field visit to Amazonia, and develop a body of documentation – photography, film, sketches, interviews – as a resource in anticipation of design work. Combined with historical research, this material will constitute a cartographic archive to be published.

The studio will focus on sites where large-scale developments are driving the process of frontier urbanization, interpreting them as exemplary conditions for developing a research-based design project that begins with the mapping of the geographical, morphological and ecological transformations of urban contexts and the corresponding social and natural environmental horizons affected by urban economic interests that constitute the expansion or contraction of frontiers. The studio has a tripartite structure: i) research/mapping and fieldwork, ii) programmatic articulation and site selection, iii) design projection.

BERLIN – city between memory, renewal and amnesia

Department of Architecture Spring 2016

Arch 4101/4102 5101, Arch 5116 Arch 8913 Option Studio

Prof. Werner Goehner

The influx of international money after reunification resulted in extensive building activities all over Berlin with the result of a high degree of forgetfulness relative to its recent history. With the recent Turkish Russian tension the spectre of the Cold War raised its ugly head again. In the light of the widespread forgetfulness about recent historical events in Germany and Berlin, it is the objective of the studio project to keep the memory of the Cold War alive. The site for the Cold War Media and Information Center is located in close proximity to an area where the remnants of one of the byproducts of the Cold War – the Berlin Wall – are best preserved. It is envisioned that the Cold War Media and Information Center serves as an entry into the larger preserved Berlin Wall memorial area along Bernauer and Garten Strasse.

The site for the Cold War Media and Information Center has to be interpreted and conceptualized relative to the Berlin history, its infrastructure and the physical context. This conceptualization will become one of the guiding principles for the design of the Center, demonstrating the interrelationship between city and building. In connection with a one week field trip to Berlin, it is intended to provide the student with ideas, concepts, tools, techniques and methodologies to recognize, analyze and critically assess the contemporary urban dynamics of Berlin. The studio will have to manage a multidimensional program within a difficult urban context. Berlin will serve the studio as a field of investigation and experimentation.



Low-Res

Department of Architecture

Spring 2016

ARCH 4101/4102/5101/5116/8913

Micheal Jefferson, Visting Critic

Suzanne Lettieri, Visiting Critic



The studio will be sited in Suriname, a sparsely populated country and among the smallest in South America, which continues to sustain cultural, political and economic links to the Dutch since its independence from the Netherlands in 1975. As a result, evidence of Dutch engineering feats such as the dykes, dams and canals to mitigate flooding are pervasive. Yet increased sea level rise, expanding flood prone territories, high annual precipitation totals, and maintenance costs often supersede these engineered solutions. Despite systemic flooding, water is among the most valuable of Suriname's natural resources and has come to play an important role in its burgeoning ecotourism industry which relies on coastal and riparian areas both as destinations and conduits for access to the country's vast interior rainforest. Thus, while serving as an economic driver, this hydrologic abundance is also what defines its vulnerability.

To draw out the tenuous desire for occupation along coastal and riparian areas, the studio will examine tourism and the eco-resort typology as a program that struggles with issues of flooding and infrastructure yet benefits from its unobstructed access to water and nature. Here, tourism embodies the contentious relationship with water in which proximity is not merely desirable but necessary. By its nature the eco-resort is acutely aware of its context. It operates as a mediator between dichotomous conditions: global/local, tourist/resident, manicured/wild and is enriched by the same environment that threatens it. Established as an alternative to the harmful effects of mass tourism on environment, ecotourism is defined by minimal infrastructures that limit flows of resources and people. The studio will investigate and analyze the remote, yet formulaic architectures produced out of these conditions, and develop resort typologies that actively relate the seemingly distinct sites and scenarios of coastal and riparian tourism.



Biosynthetic Robotic Fabrication: Digital Handcraft & Weird Tectonics Materially-Directed Generative Fabrication

ARCH 5116, ARCH 8913 & ARCH 4101/4102, 5101: Option Studio

Department of Architecture Spring 2016; 6 Credits

Instructor: Jenny E. Sabin, Teaching Associate: Jingyang Liu Leo

Robot: SULLA; ABB IRB 4600; payload capacity = 45kg; 2.05m reach and 6 axis rotation

This is a digital architecture and robotic fabrication studio with an emphasis upon user feedback through handcraft and external bioinspired datasets and models. We will focus upon materially-directed generative fabrication inspired by natural systems, specifically natural composite structures (i.e. bone, sea sponges). The studio aims to advance materials research and robotic digital fabrication through questions that probe the economical, ecological and cultural production of complex built form in architecture. While nonlinear concepts are widely applied in analysis and generative design in architecture, they have not yet convincingly translated into the material realm of fabrication and construction. How have these advancements impacted material practice in architecture, engineering and construction at economic, technological and cultural levels? How might we address these issues during the design process? The main thrust of this studio concerns the evolution of material and digital complexity through radical experimentation in robotic fabrication and digital handcraft.

This is a design research studio where material and tectonic applications will emerge throughout the course of the semester. Students will design, generate, fabricate and produce 1:1 scale material and structural element(s). The studio will engage intermediate to advanced levels of computational design. We will focus primarily upon 3D printing or additive manufacturing through robotic fabrication with the following themes: Static and interactive robotic drawing; Materials research; Natural systems and composite structures; Additive manufacturing and custom end effectors and sensors; Component and part fabrication; 1:1 scale prototypes and structural elements



THE COMFORT OF LIGHTNESS : PRIMITIVE CONSTRUCTIONS

Andrea Simitch w/ Lorena del Rio

Spring 2016
Option Studio



To live lightly, to amplify our relationship with the environment, to construct logically, to innovate materially, to trace the ephemeral: these will be the opportunities and challenges of this Spring 2016 Option Studio THE COMFORT OF LIGHTNESS. We have been invited, as one of 12 international architectural programs, to participate in the 6th LIXIL International University Architectural Competition: the design of a house. Thus this studio is dedicated to the development of a domestic structure that will be submitted for this architectural competition. Once submitted (in mid March 2016), the studio will produce a related publication and exhibition of the project's development and final submission. The winning entry will be built in northeast Japan, in the Memu Meadows of Taiki-cho, (<http://www.lixiljsfound.com/category/2013016.html>) and members of the winning team (in collaboration with Kengo Kuma's design practice) will be responsible for the project throughout the construction phase. Kengo Kuma will also serve as chair of the competition jury.



carnival THEATER

Proposition:

It seems that urban architecture most often succeeds whenever there has been a loosely scenographic sensibility combined with a situation whereby observers become participants. For example, abandoned railroad lines and factories are becoming favorite parks. And this appears to be increasingly common in the realm of theater. In carnival exists the public possibility of every structure.

This studio will investigate the capacity to reintroduce an aspect of carnival to urban life, and to challenge traditional monological concepts of theater, while still accommodating a broad spectrum of theatrical and operatic productions.

Process:

Each student will develop a series of “set” designs that will lead to the formulation of audience/performance relationships and eventually to the production of an urban theater as well as the manipulation of relevant context(s). We will meet with set designers, individuals involved with stagecraft, and some people involved with various contemporary theatrical movements.

Site:

An industrial area of Brooklyn, in New York City. A field trip will occur.

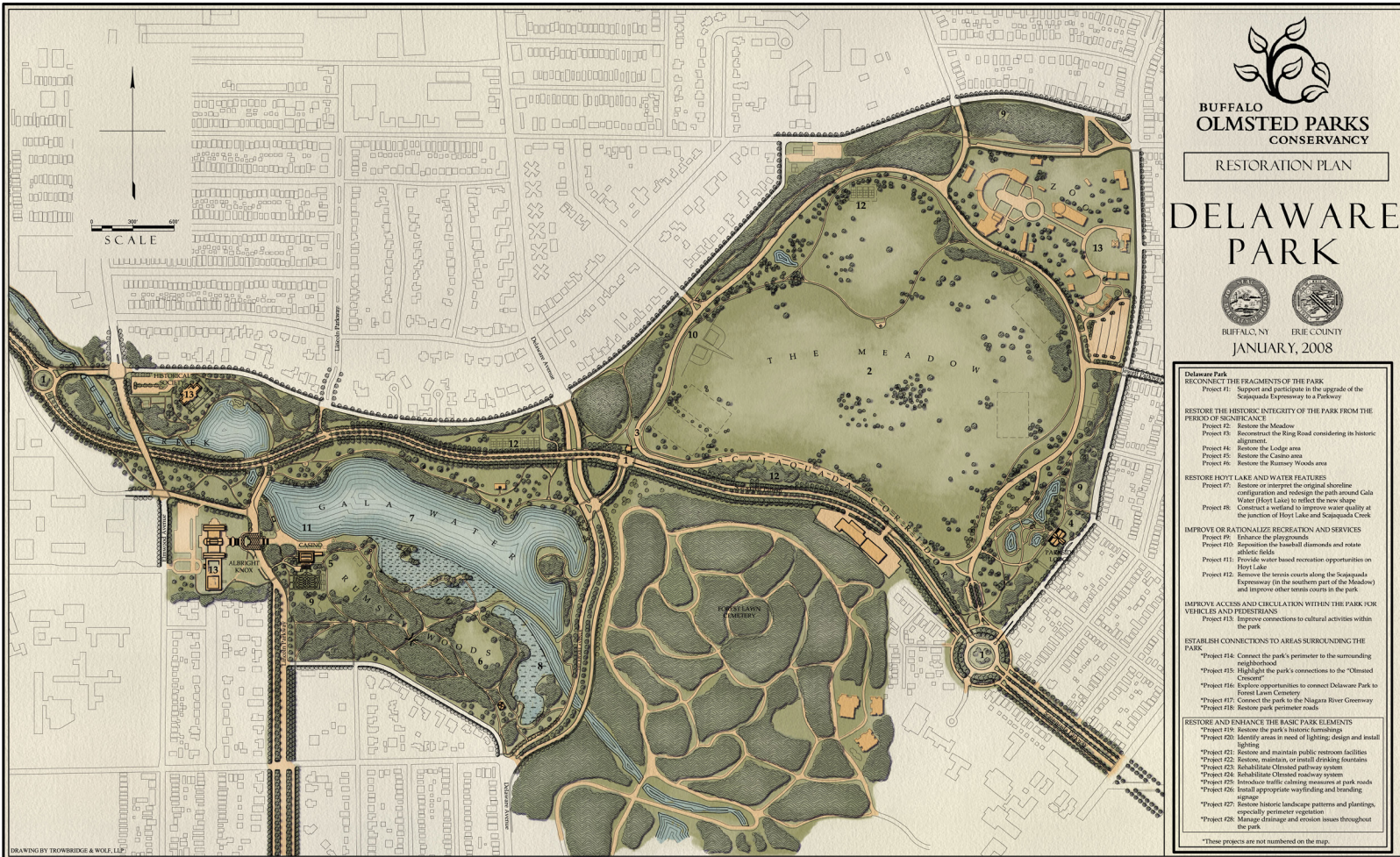
BUFFALO IMAGE SCAPES

URBANISM/MEDIA

Option Studio Arch 4101/4102/5101 & Arch 5116 & Arch 8913

Spring 2016, 6CR Graded

John Zissovici + Dennis Maher



The studio will investigate the vast new 'nature' of image flows emanating from networked communication devices, and the potential role of social media as a form of mass participation, to propose new networks of recreational space. We will also exploit innovations in visualization, like augmented reality, to s[t]imulate new forms of mediated recreational experiences, and test them in the popular imagination at their intersection with Olmsted's ideas of 'nature' and landscape.

Frederick Law Olmsted's 1868 comprehensive plan of a distributed system of parks and connecting parkways for a rapidly urbanizing Buffalo, was one of America's earliest and most comprehensive proposal for organizing recreational activity for a city's population. On offer in these dispersed reservations for 'nature', were Olmsted's artificially constructed 'natural' landscapes with their carefully orchestrated scenic views, later to be memorialized and used to promote the wonders of Buffalo through postcards. The plan's various components, which included adjacent natural landscapes containing an insane asylum and a cemetery, appeared distributed within a map of the greater city of Buffalo framed with rounded corners, a complete picture of the new urban life.

VILLA ADDITIVA

Design Research in 3d Printing

Department of Architecture

Spring 2016

Instructor: Sasa Zivkovic

HACKING & MAKING: At the beginning of the semester, the studio will collectively design and construct its own large scale 3d printer in Rand Hall. Better understanding the logic of the machine and being able to actively modify tools will allow for pushing the boundaries of 3d printed design proposals. Exploring feedback between manufacturing tool and digital model will become the main focus of hacking operations. This process involves mechanical engineering and modification of machine parts as well as control software. The studio puts an emphasis on physical making as a driver for formal and material explorations.

RESEARCH & MATERIALS: This studio aims to establish a collaborative research environment with the goal to generate knowledge and advance disciplinary discourse at the level of tools, processes, form, and material. Rigorously documenting research proceedings and making observations accessible on open source platforms online will be an important part of studio culture. Advanced material research will be conducted to optimize 3d printed prototypes and tests. The proposed 3d printer will either use PU-foam, concrete, or concrete foam as primary printing material.

DIGITAL TOOLS & EXPERTISE: Software, programming languages, and plug-ins such as Rhino, Grasshopper, Arduino, Kangaroo, Hoopsnake, Python, G-Code, and others are part of the architectural design- and mechanical tool manufacturing process. Introductory workshops and general technical support will be given in studio. All levels of digital and analog expertise are welcome (you don't have to be an expert in Grasshopper or programming to be a part of this research studio). Curiosity and the willingness to explore new tools as well as new design and fabrication processes is essential and imperative.

DESIGN & METHODOLOGY: 3d printing offers new and exciting formal possibilities for architecture - which will be explored in this studio. The ability to embed program elements and building systems directly into 3d printed components presents a paradigm shift towards integrated and intelligent manufacturing. Iterative and empirical testing of designs and material prototypes at various scales is an essential part of this studio's research methodology.

VILLA & SCALE: The studio will investigate the morphological transformation of a simple program: the villa. It is the ambition to build a large 3d printer, capable of manufacturing a small room-sized house with integrated building systems. Prototypes and designs will be tested at various scale throughout the semester; the final installation for this studio will be a collective full scale intervention on campus: the construction of Villa Additiva.