

School of Architecture

**MSArch**

**Studio + Seminar**

**Descriptions**

**How Emails Grow Tomatoes:  
Architecture, Data and Agriculture**



Top: Aerial from Google of Greenhouses, Westland, The Netherlands  
Bottom: Aerial from Google of Facebook Data Centre, Clonee, Co. Meath, Ireland

**Agenda**

Hot Farms is a year long, research seminar and design studio that explores the spatial potential of symbiotic systems. Specifically, it applies scientific and geospatial research of data infrastructure and agriculture toward the design of new spatial scenarios that combine food production with data storage. It aims to utilize the vast amount of heat currently expelled from data storage facilities into the atmosphere (incoming cold air is used to cool the servers and the warm exhaust is then released) for the production of food, to not only solve the exhaust problem but more significantly to identify how the combination of data and agriculture might inform new configurations of landscape and architectural space at local and regional scales. In other words, we will explore new spatial configurations based on the premise that your twitter account is a resource for food.....**TWITTER FEEDS!**

## **Industrial Symbiosis + Design**

Industrial symbiosis combines aspects of two or more disparate industrial processes into a synergistic relationship, for example, waste from data becomes a resource for agriculture. *The Foundary*, in Cleveland, Ohio combines a data center with aquaculture. The exhaust heat from servers keeps water to just under 74 degrees, the optimal temperature to breed Sea Bass. In Montreal heat from a bitcoin mine is used to farm crickets (cricket powder is high in protein) while a facility in Bessières, France uses heat from an incinerator to produce over 5,000 tons of tomatoes per year in an adjacent facility. *Greenfarms*, in Ontario utilizes heat from an ethanol plant in its 45 acre greenhouse. In all arenas of study, it is now recognized that the future integration of systems (data to energy to food to trash) into urban and regional environments is not merely a question of efficiency and function but is also a question of design. Design has the capacity to ask questions; propose scenarios and offer stories that articulate how metabolic systems shape environments. In this context, the seminar and studio understands “industrial symbiosis” as an environmental strategy by integrating data and food production systems, and more significantly, as a design tool to envision the future planning of a regional territory.

Research in the seminar will be technical and spatial and range from high density food production and forestation to historical and contemporary agricultural formats and typologies, supported by theoretical and design texts on the topic of data and agriculture.

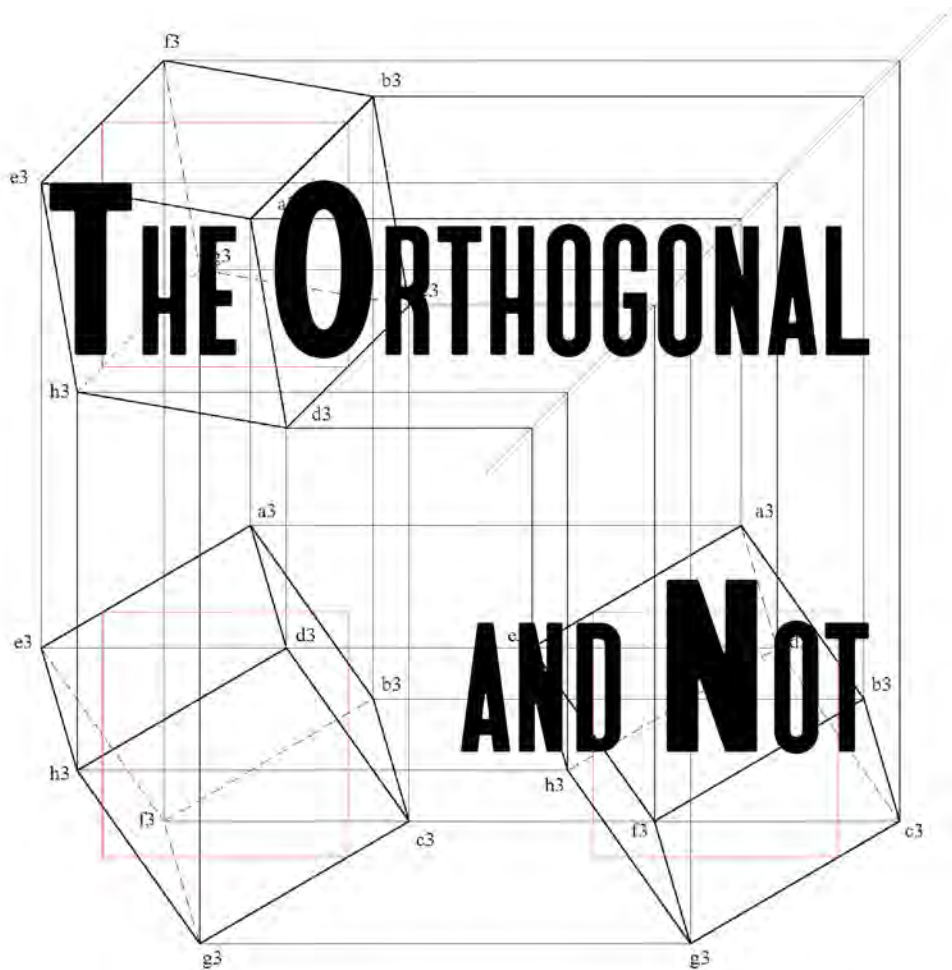
## **Products**

The final product for the seminar is a research booklet, that will act as a manual for the design projects that follow in the spring semester. Design projects will comprise a series of short movies, models and drawings that in combination explain the spatial opportunities possible if emails could grow food. A symposium and technical workshop(s) will augment student research. Schedule and contributors TBD.

## **Site**

The site for the research is Dublin, Ireland which is currently one of the largest data clusters in Europe with 47 data service farms in operation. Focus is on the area around Dublin, alongside the M50 motorway, a ring road sound the city and the T50 fiber optic cable, approximately 45 km from the city center, where data storage facilities currently cluster for easy access to the fiber. Vast amounts of heat is exhausted from these clusters, to the point that the vicinity around the data centers is rendered a microclimate. The physical context for these data farms is banal and un-designed as the boxes are built with little regard for site qualities and local residents. There is continuous controversy in Ireland over the government’s willingness to attract data farms since they do little for the physical community and given they are automated do not provide employment in the area. A hyperscale facility might only employ 30 people. Ireland has the third highest emissions rate of any European country, a third of which comes from the agricultural sector.

*The seminar and studio are supported by the SOM Foundation Research Prize, 2020, which was created in 2018 to cultivate new ideas and meaningful research with the goal of addressing critical issues of our time. This year’s topic, “Shrinking our Agricultural Footprint,” seeks to define new spatial conditions that reduce our agricultural footprint and advance approaches to sustainability and resiliency in the short- and long-term future.*



## studies in eccentric geometries, tectonic improbity, and politics

This seminar takes as its premise that in architecture, as in other cultural fields, a set of disciplinary concerns develop that are unique to the field. This set of concerns is neither a fixed code nor a canon; the concerns are apt to be contested and subject to extrapolation, abandonment, or rebuttal. Rather, what they provide—at any given time—is a more-or-less common arena for creative discourse and disputation. Today, disciplinary interests in architecture are viewed by many as disengaged from the world and its pressing needs. This seminar posits instead that it is precisely from architecture's disciplinary obsessions that we create new ways to engage and reflect upon the world. The seminar and subsequent studio will look at a series of narrowly defined excursions into geometric eccentricities that arose in the later decades of the twentieth century. These will be contrasted to normative geometric and tectonic conditions that dominated architecture for centuries—including during modernism. In these eccentricities we will trace a tendency that sought to systematically dismantle architecture's propensity for order, control, and probity. A parallel line of research, initially led by two MAD-Crit students and later undertaken by all, will examine the cur-rent—contested—status of the monument and its implications for architecture and cities.

### *Tectonic Improbability: non-orthogonal grumblings*

We will examine the progression of increasingly eccentric, atectonic works of architecture over the last fifty years including earlier antecedents through formal studies, geometric diagrams, and timelines. We

will examine ways this progression put into question—among other things—orthogonality and rectitude, the coincidence of building form with architecture’s drawing conventions and ground as architecture’s stable substrate. This will be contrasted to current reactionary formal impulses. We will examine these opposing tendencies of the present and near-past architecture and propose that the urge to return to stability, while perhaps inevitable in our uncertain and troubling times, is also made impossible by the disciplinary difficulties introduced in our recent past. The seminar will develop knowledge and tools for this undertaking to be employed in our subsequent spring design studio.

*Politics: Monuments and Civic Life*

Architecture is still largely executed through commissions involving a great deal of money, resources and labor, and arises to serve a client’s personal, corporate, institutional, or governmental needs. This has likely always been the case, but so has the architect’s delicate task of neither rejecting nor uncritically reflecting and projecting those circumstances and that power. In architecture, attempts to create explicit political expressions often result in built platitudes of indifferent form. However, characterizing any architecture as autonomous is also illusory. Executed in the midst of larger events architecture is inevitably colored by those events, shaping—even if unconsciously—their tenor and sensibility, and altering its reception by the world. This relationship will be examined in a parallel set of studies that considers the present, contested, status of the monument and through that examination explores the changing relationships between architecture and art, politics, and social life.

## **A Mixed Bag of Activities and Experiments**

Given the unusual circumstances of this semester, we have designed a programme that is part survival guide, part hobbycraft, part manifesto. We will instead use a mixed bag of activities and experiments - crafting, thinking, getting out of the house, drawing, baking and so on to make lots of different propositions that merge the disciplinary with the domestic,

Social distancing, working from home and the other measures we are all taking right now have altered traditional relationships. We want to explore this potential. We want to know what it means for architecture when the studio is also your bedroom or your kitchen. When the personal interferes with the professional. When high theory sits side by side with your knitting or your Playstation. Could our enforced circumstances help us to see the architectural qualities of the everyday world around us? Or can we transform the everyday into a disciplinary pursuit?

Architecture has always been a very big but very weak discipline. That's to say its ambitions are to transform the world. But its means and methods are a rag bag of different forms of knowledge - part professional, part disciplinary, part historical, part social science, part politics, part ... (and so on). Architecture encompasses the world as a designed thing, but also all the designed things in that world (like Ernesto Rogers says, from the spoon to the city). It crosses scales from the individual to the collective, the private to the vastly public, the personal to the social. Or rather it occurs at the intersection of all these things. The forced intersection between our lives as designers and our lives at home will hopefully - despite all of the difficulties of finding new ways to work - also allow us to imagine another kind of architecture.

2019-2020  
Research Seminar + Studio  
Instructor: Andrew Zago



Phi Bonsecours

*Quand l'histoire rencontre le contemporain pour faire naître un lieu de culture*

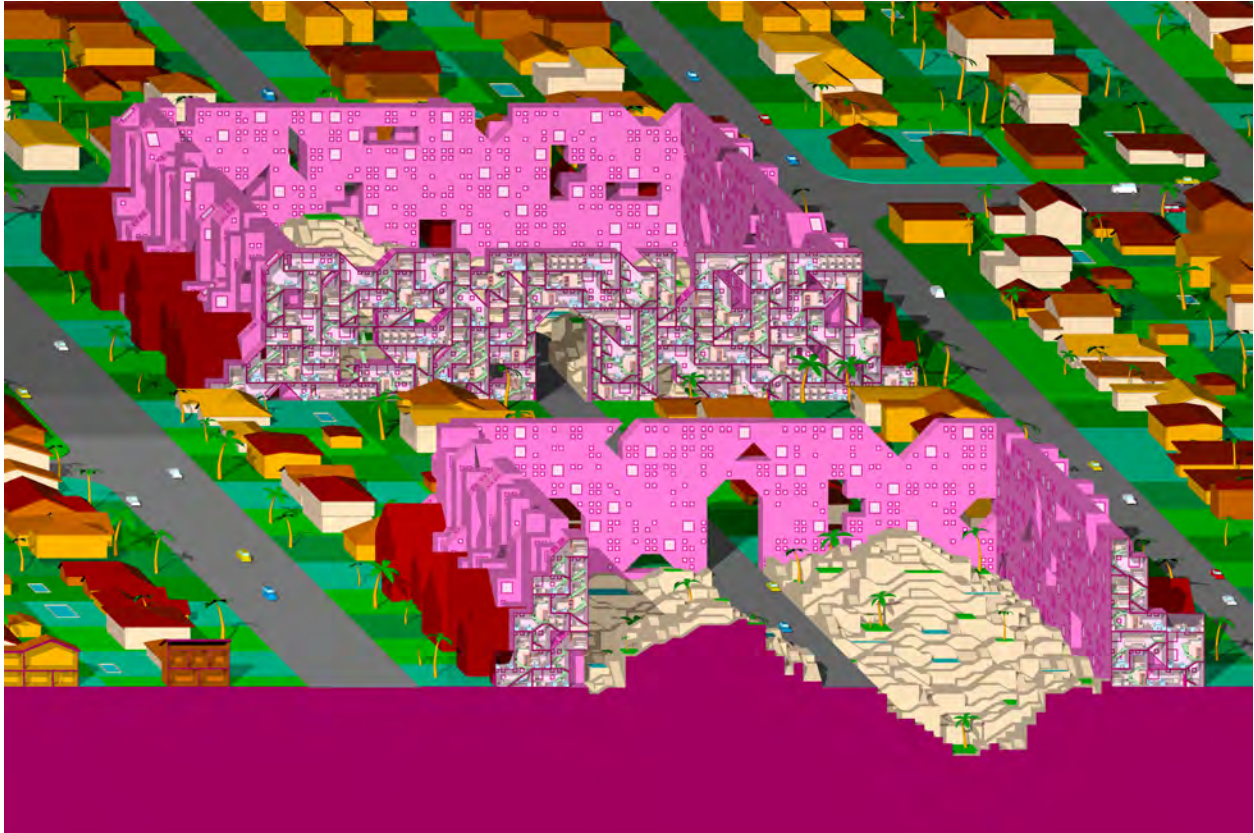
This studio presents an opportunity to work with Phi, a major emerging arts organization in Montreal, Canada in their development of a new arts center. By their own description: “*the Phi ecosystem is now made up of the Phi Foundation for Contemporary Art, the Phi Center, Studio Phi as well as numerous partnerships with local and international cultural institutions. Phi imagines, produces, disseminates and offers world-class artistic experiences in several disciplines, including contemporary art, music, cinema, digital arts and new media.*” In order to expand their operations and public presence, Phi has acquired a significant group of buildings and open space in the center of Old Montreal which — with buildings dating to the 17th century — is one of the oldest urban areas in North America. In the near future, they will be undertaking a major architect-

tural intervention on this site. In preparation for that, and by way of expanding their range of imagined possibilities, Phi is inviting several architecture schools in Canada and internationally to conduct design studios on this topic. This is one of the studios.

This studio is receiving funding from Phi to cover a substantial portion of each student's travel cost for a visit to Montreal in February. It is coordinated with a parallel graduate studio at the Southern California Institute of Architecture (SCI-Arc) in Los Angeles which will travel to Montreal at the same time. It will also coincide with a visit from a Canadian university, creating an opportunity for students to interact with other institutions. While in Montreal, in addition to a site visit and meetings with Phi, we will tour the Canadian Centre for Architecture (CCA) one of the premier architectural archives in the world. Representatives from Phi will visit UIC at the end of the semester at which time the studio will make a formal presentation of our work. In the near future, at the conclusion of the studios' work, Phi intends to host an event and/or publication that collects and presents all of the work in a public forum.

*Phi Bonsecours* is a project in formation. While the studio will produce concrete building proposals, there is first a need to define the institutional and urban vision of the project. Accordingly, the first portion of the studio will be spent in intensive research of the context, and the current state of arts organizations. This first portion, done collaboratively with the SCI-Arc studio, will be to outline a number of viable avenues for the project including the relevant disciplinary approach. Under that rubric, building proposals will be developed either individually by each student or in small teams.





Tyler Ohnmeis 2018

# what if...? then...

## Urban-scaled Architectural Speculation in the American South

In an effort to engage the city productively, this seminar and studio sequence will explore the formal and programmatic possibilities of invented large-scale metropolitan architecture.

In a back-and-forth process with key historic projects we will develop a series of design-based scenarios that leverage specific qualities of the city, and will seek to mine these scenarios for their formal possibilities. Formal and spatial invention will be our goal.

With a catalog of formal possibilities, we will search for sites, choosing them for their latent possibilities. Next we will play out scenarios, and push programs beyond their logical extremes. Ecological, economic, and political justifications will be employed as necessary.

But first we will speculate on what might have been. We will look back at projects of the past and interrogate them for what they might have been. Through a process of collage and montage, we will speculate on how the introduction of difference might have changed these projects. The studio will operate in a “slack space” to allow us freedom from the historical and theoretical significance of the key historic projects. For example, we will ask questions such as: What if Superstudio’s Continuous Monument had an interior? And, what if Yona Friedman lived

in Houston (instead of Paris)? Although we will look carefully at megastructure projects of the recent past, our references will also include the Tower of Babel and the Ponte Vecchio. We will appropriate and hybridize. We will play with megabuilding types like mat buildings, wall buildings, and mound buildings.

Our speculations will not be supported by any hard evidence, nor will they be able to be proven. They will be imaginary and factually questionable. But we will create coherent and precise (graphic) arguments for our speculations. We will develop a formal language. We will pursue multiple possible scenarios, compiling a catalog of speculations.

With the addition of site, we will imagine new urban-scaled architectural figures. The studio's site is somewhere between Houston, Atlanta, and Miami. These cities are famous for many things, but density is not one of them (see Koolhaas's "Atlanta" essay in SMLXL). Rather it is the wide variety of lifestyles possible in the warm climate that has attracted millions to move there. These cities are therefore the perfect sites for macro and micro architectural experimentation.

With the addition of program, we will imagine new forms of collective associations as promised by Modernism. Whereas Modernism proposed rationality and singularities to deal with the problems and potentials of the city, we will play with irrationality and multiplicities. We will engage density directly. But heeding the predicted future of the "Generic City" in which cities become indistinct from one another, this studio will begin with a contrary hypothesis: we will view globalization as reinforcing differences in patterns of localized urban behavior, formal uniqueness and infrastructural specificity.

With the addition of infrastructure, we will posit that architecture can be both/and — it can be both about growth and about the environment — through the manipulation of form and the tactical deployment of ecologically based systems.

## The Federal Center

### Introduction

Chicago's Federal Center is one of Mies's least acclaimed buildings. He had little input into the design, leaving all but the highest level decisions to Gene Summers. It was designed so late in Mies's life that two of its buildings were built five years after he died. But it has some qualities that stand out. It is a microcosm of earlier project types, combining two towers, a long span building, and a plaza. The project as a whole is a self-contained summary of Mies's oeuvre, tied together by a clear and extensive use of the grid. The grid is continuous from paving to massing to curtain wall, even appearing in the plan of the long span post office building (which has a 65' column grid) and the square elevation of the courthouse tower. While the grid unifies the project internally, it also suggests connections beyond. Horizontally, the grid structures landscapes from city to farm. Vertically, the Chicago frame links the Federal Center not only with its immediate neighbors, but with framed buildings of different types throughout the Midwest.

The studio will use new sources and combinations of grids, landscapes, and frames to propose alternative designs for the Federal Center.

The project will consist of a series of exercises before the midterm and a final project. Throughout the semester, research on the history and current experience of the Federal Center will supplement design.

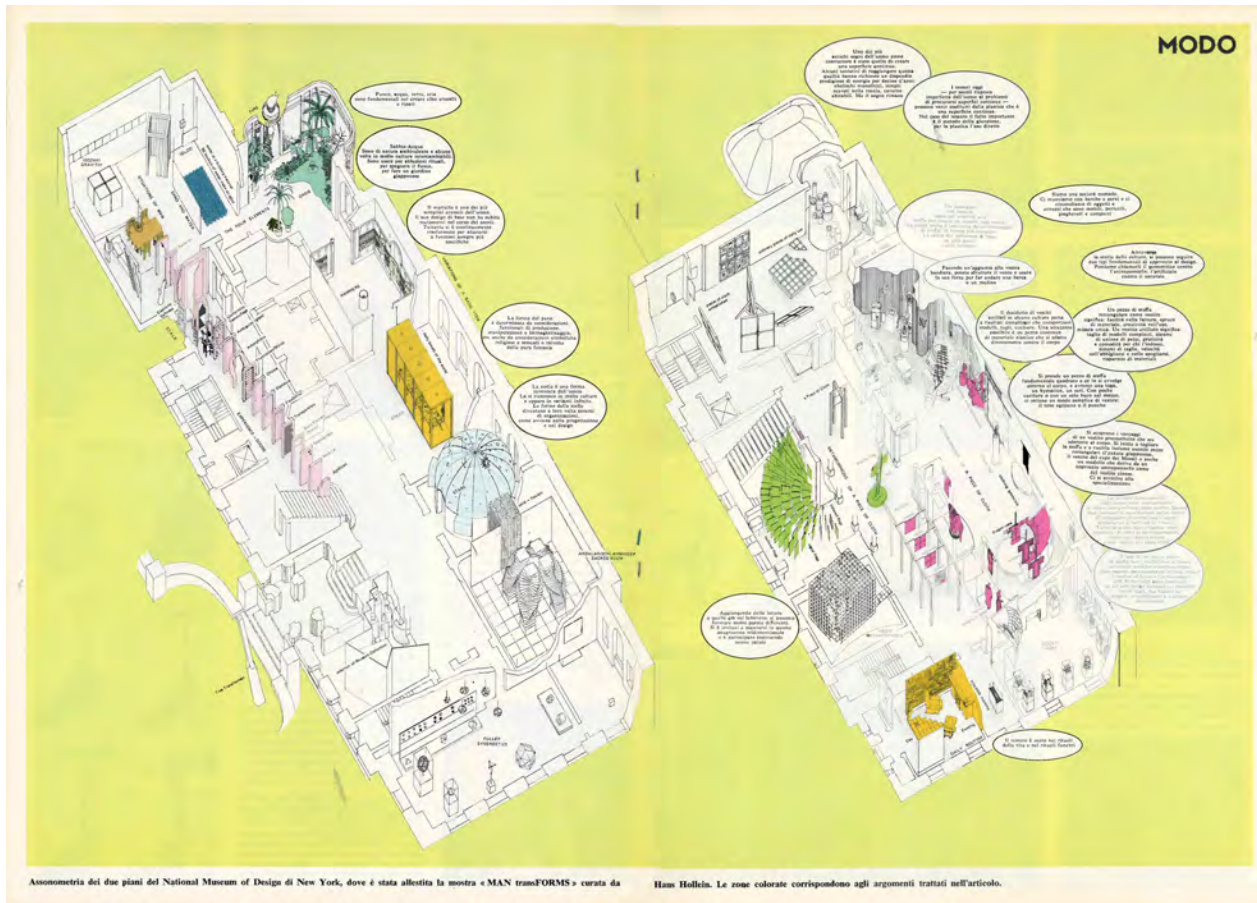


future has sunk into a swamp” because it was given over to “the domain of computer, automation, and information systems experts.” Subsequently, in an era of environmental degradation, financial (housing) crises, and other disasters, the future was conceived in terms of “what we are doing *for* it?”. With this reversal in agency, the future contracted and was replaced by the *extended present*. Within architectural culture, a socio-cultural idea of the future gave way to adaptive, responsive, and predictive designs, i.e. to the ameliorative.

Focusing on the period 1978-2018, we will examine the fate of the future in concept and proposition. Our research seminar will ask three questions: one, how has the future been generally conceptualized? two, how have architects conceptualized the future? and three, what projects have architects proposed for the future? Based on these inquiries we will produce an exhibition catalogue about the future. The catalogue will contain two parts: a forty-year image history of architectural futures (collective work) and a set of editorial statements about where futures need to go next (individual work).

In Spring, we will use the catalogue as a precursor to the design of a hypothetical Chicago Architecture Biennial exhibition about the future. Each of you will design a piece of it. A formal analysis of architectural exhibitions that have recently focused on futures (i.e. 1978-2018) will parallel and inform your projects. Across seminar and studio we will dredge the future out of the swamp.

2018-2019  
Research Seminar and Studio  
Instructor: Penelope Dean



Hans Hollein, *MAN transFORMS*, Cooper Hewitt, National Museum of Design, New York, 1976.

## Whatever Happened to the Future?

In Spring, we will use our collective research as a starting point for the design of a hypothetical Chicago Architecture Biennial exhibition focused on interpretations of “the future.” With the understanding that exhibitions are one of many mediums of architectural design today—among books, buildings, images, and words—and with an understanding that the collective conception of “the future” is bleaker today than it has been in the past due to escalating environmental, financial, and demographic crises, our exhibition will address the question of not only how architecture might help reinvent a collective idea of the future, but also how it can communicate those ideas to a general public in ways that exceed conventional drawings, images, models, and words.

Fall 2018  
Topic Studio  
Instructor: Paul Andersen

Mismatched Buildings

Around 1850, Aaron Bird served the first cocktail in his New Orleans bar—a mix of Sazerac cognac, imported from France, and bitters made by the local apothecary. Legend has it that he served his drink in the large end of an eggcup, called a *coquetier* in French, which, when mispronounced, came to be known as a “cocktail”.

In some parts of the world, purity is king. In the U.S., we tend to prefer mixture. The cocktail is an example—in concept and in name—among many examples. Americans mix drinks and words, and in this studio, we’ll mix architecture.

The design process balances arbitrary juxtaposition with calculated imagination.

The first step, which we’ll do as a group, will be to build a list of buildings that are on the fringe of the canon. On one hand, they’ll need to have a strong architectural agenda—for instance, to make a clear case for a particular brand of repetition, composition, structure, idealism, scale, or other longstanding topic of interest to the field. But they’ll also need to have flown below the radar enough to be without an established history of interpretation.

Next, we’ll pair each building with a building type with a very different sensibility—with “sensibility” encompassing its logic and style. The mismatched type will be chosen for its potential to reframe the fundamental agenda of the original building. Ideally, the type will make a strong and contradictory statement on the issues that the almost canonical building foregrounds, regardless of how they align or differ in other respects. And the differences between a unique building and the broader category of a type will matter. For example, the quasi-canonical buildings will likely be refined, high architecture, while the types probably will be more ordinary.

The last step will be to combine each of the pairs to make a collection of mongrel buildings.

The point of all this is to design projects that are equally excellent and awesome—excellence being a function of our field’s intelligence and awesomeness being a kind of frisson, a gut feeling of exhilaration. Architecture needs both. The far ends of the spectrum offer overly specialized projects or hollow spectacle. Architecture’s recent reaction to a period of disproportional concern with being awesome has been to embrace history, the familiar, and even conventional work, often to the point of nostalgic or over intellectualized design. This studio is set up to use history promiscuously with the hope of making something new.

Fall 2018  
Topic Studio  
Instructor: Sam Jacob

## Performing Architecture

This studio at UIC has been characterised over the years by interests in a number of different ideas. These, in brief (and to differing levels of resolution), have been:

Representation, Remakes, and Architectural Propositions.

Previously, we have looked at how hybridising forms of architectural drawing can develop new ways of making drawings: How digital culture and technology allow us to intervene in the pixelated genetic code of the architectural image, how the technology and technique of digital drawing allows us to interrogate and speculate on the possibility of the drawing as a site of architectural argument.

Remakes - well, not only have we drawn in the manner of all kinds of other architects, we have made copies, replicas, and cobbled together collages from fragments of 'found' things.

In terms of proposition, last year, we 'remade' the Cultural Center. What started off as simply a convenient and - given the Biennial - a topical brief became something more interesting: A chance to think about Chicago's urban form, about how design can be used to develop an understanding of our circumstances, and how pre-existing real-life urban / architectural conditions can be mobilised as manifestos.

This year, we'll continue: The same, but different.

A new cocktail, a fresh set of ingredients, and, hopefully, producing very different results.

We will make sets of studies of vernacular architectures of Chicago (at things both ordinary and extraordinary, domestic and civic, within and outside of the canon), while also looking at big minimalist paintings of people like Mark Rothko, Barnett Newman, Agnes Martin, Carmen Herrera, Hans Hofmann, Anne Truitt ... People who make work where over large surface areas very little happens to great effect.

We will think how these things work both as surface and as space - as elevation, as plan, as section for sure, but also how as artefacts they produce spatial conditions at a 1:1 scale.

We will look at Adler and Sullivan's Auditorium Building, thinking of it in a number of ways: As huge urban mass, As complex interior and section, a mix of programme that folds the city into itself.

We'll try to decode its languages, significances, subtexts, politics and economics.

First we'll appreciate it, then demolish it, then remake it in ways appropriate for now.

We will work at scale - BIG from the start - using boldness and directness as a tactic to develop nuance and control.



As ever, we won't be sure what this will look like, how we will get there, or what it's really about until we arrive. Design itself is the tool of thinking and speculating, as well as the means of making developed architectural propositions.

But here's a speculation on what we might be thinking about:

What does the idea of performance in architecture mean? How do we go beyond the technical building science definition of the performance of a building, and not only as a space programmed to host performances inside? Instead, we'll try to reclaim the idea of performance as a way in which architecture brings itself into the world.

## Shaping New Objects



'Close Encounters of the Third Kind' 1977

Can architecture have shape (or multiple shapes) without producing a perceived whole (architectural form). Architectural form has many strengths, including its ability to be imageable and scalable in representation. Architectural form can be read, whether directly as a sign or subjectively in its awkwardness or ambiguity. It is often characterized as masses or figures within a field, assembled from parts that can either be smoothed or articulated for a determined reading.

Shapes in this discussion are relational. They are often fleeting and short lived as they rely on behaviors contingent to energy conversions, information feedback and sensorial variability of users. How can 'shape' learn from the strengths of architectural form, while developing its own unique proclivities to remain central to the discipline of architecture?

The site of experimentation is a vineyard and winery. The approach is to investigate new relationships between agriculture, space and the human body as cultural and technological pressures in synthetic biology, artificial Intelligence, and climate manipulation rewire assumed relationships - providing opportunities for novel architectural shapes.

### Representation:

Crafted still Images used to produce short videos accompanied by essays.  
(No diagrams or orthographic projects)