

Advanced
Synthesis
Option
Studios

F19/S21



S°/-

INTRODUCTION

This is the catalog of Advanced Synthesis Option Studios F19-S21. We are listing the four semesters to give students in all of our studio programs the opportunity to plan ahead and chart a direction. In these advanced and specialized studios, there are opportunities for BArch, BA, MAAD, MUD, MArch students to work alongside each other. The 18 unit Thesis Studio occupies a Spring semester. To prepare a viable proposal there is a required 3 unit mini Pre-Thesis in the preceding Spring and a 9 unit Thesis Seminar in the Fall .

STUDIO SELECTION PROCESS

The faculty will determine the studio allocations before the beginning of each semester, (in August for the Fall and in December for the Spring semesters). Students are invited to consider the upcoming studios and express their preferences for the immediate semester in the light of their short, medium and longterm interests and ambitions.

SUBMIT

We would like to receive a discursive response to the options available, with preferences expressed for at least three S20 studios with a minimum 100 words for each, describing what you would contribute to and gain from working in that studio. In addition, we ask that you set out the longer term trajectory that could be the outcome of taking any of these three preferred studios. Thus you will put the immediate set of objectives for S20 into a larger context. Please could you return your response on the GOOGLE FORM linked to the email invitation by 12pm on Sunday 1st December 2019. Students who are studying abroad for the S20 semester need not submit their preferences. Students who are taking F19 Gruber Commoning the City studio are already confirmed for S20 Kline and do not need to submit preferences. We would ask that all Thesis students, whether BArch or MArch complete the form. There will be an invitation for another submission of F20 preferences in July '20 for the Fall studio allocation process.

The S20 studio allocations will be announced on Wednesday December 11th 2019.

Mary-Lou Arscott AADip RIBA
Studio Professor + Associate Head
School of Architecture
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*Cover image;
from installation by Denis
Maher 'A Second Home'
2016-2019*

*Still from film directed
by David Bernabo 'Site
Specific, a History of the
Mattress Factory' 2017*

F19

Future Tense Dense - Akhil Badjatia
Future Fiction - Heather Bizon
Design Build - Porch - Liza Cruze/Steve Lee
Bouca Social Housing - Gerard Damiani/Mark Shapiro
Subject to Change - Jeremy Ficca/Francesca Torello
Commoning the City - Stefan Gruber
Terminal Systems - Hal Hayes
INFRAstructure - Christine Mondor

S20

Migration Medium Mirage - Mary-Lou Arscott
Low-Relief - Josh Bard/Francesca Torello
Thesis - Heather Bizon
Design Build - ToolTrailer - Liza Cruze
House for a Gardener - Dana Cupkova
Hardcore Lectores - Nathalie Frankowski/Cruz Garcia
Cooperative Housing - Stefan Gruber
Humanizing Brutalism - Hal Hayes
Commoning the City - Jonathan Kline

F20

Modular tower - Akhil Badjatia
Design Build - Porch - Liza Cruze
Landform Studio - Gerard Damiani
Swiss Timber - Jeremy Ficca
Commoning the City - Stefan Gruber
Transformation of Waste - Hal Hayes
Urban Systems + Spaces - Christine Mondor
More-Than-Human Cities - Nida Rehman

S21

Border business - Mary-Lou Arscott
+++ - Josh Bard/Francesca Torello
Thesis - Dana Cupkova
Design Build - Sugar Top - Liza Cruze
Cohousing Urban Acupuncture - Stefan Gruber
Frozen Music Bogota - Hal Hayes
infrARCHITECTURE - Eddy Man Kim
TBD - Ann Kalla Professor
Commoning the City - Jonathan Kline

**Advanced
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F19/S21

F19

- * **Akhil Badjatia**
- * **Heather Bizon**
- * **Liza Cruze/Steve Lee**
- * **Gerard Damiani/Mark Shapiro**
- * **Jeremy Ficca/Francesca Torello**
- * **Stefan Gruber**
- * **Hal Hayes**
- * **Christine Mondor**

FUTURE ~~TENSE~~ DENSE

Affordable Housing in a high-rise form

Akhil BADJATIA

Mediocrity reigns in too much architecture...
The result is quantity without quality and density
without differentiation...- *Aaron Betsky*

*This studio will undertake a design project with high
ambition for design quality within a tight set of constraints:*

- you will have (15) weeks to design a 250,000 sf, 20-30 story tower to SD/DD
- each team will have a similar program but a different developer client
- each team will work with consultants for Structure/MEP/Civil/Real Estate
- market pressures, along with budget and construction will drive the design



Background

Pittsburgh like most other cities in the United States has a housing crisis. There is a 17,000 unit shortfall of Affordable Housing units within the city limits. The city's topography creates an additional challenge, further disenfranchising those needing accessible housing. Although there are many organizations working on housing solutions, most, if not all, are considering low-density developments with even less considering universal design. This studio proposes a high rise, universal design based affordable housing alternative.



Above Image: Aerial Snapshot of East Liberty, taken from the Allegheny County GIS website. Site highlighted

Left: Quarter Mile, Affordable Housing project, 2013
Richard Murphy Architects

Site

The site is situated in the heart of the East Liberty neighborhood of Pittsburgh. Currently, the site has separate buildings for Citizen's Bank and CVS Pharmacy with a surface parking lot. The property is located within a 5-minute walking distance to commercial offices, groceries, other retail and religious facilities and 15-minutes walking distance to healthcare facilities. It is also situated well for those requiring access to multiple routes of public transportation.

Program

Working in groups, the semester-long design project is to design a residential high-rise building in the heart of East Liberty. A general program will be provided to the studio as a whole, however each group will develop their own precise programs based upon their client's brief, own judgements of the site and the project group's market analysis. The buildings must be designed in compliance with Universal design principles and aggressively pursue Sustainable design goals, as set out by the client.



Studio Schedule

We will meet weekly, MWF from 1:30 to 4:20. I am considering a visit to either Chicago or NYC, in early September, to see precedents of interesting developments. The trip is subject to access to enough properties to justify a trip. It would be optional for student attendance.

Above Left: *Bosco Verticale*
Milan, Italy, architect Boeri Studio, 2014

Above Right: *280 Spear St.*
San Francisco, CA, architect Studio Gang Architects, 2019

Learning Outcomes

1. Teamwork, how to work effectively together to achieve a complex goal
2. Developing high rise building design skill
3. Integration of building systems
4. Real world challenges of design and working with a client
5. Maintaining design integrity throughout the development of the design



F19

		STUDIO CALENDAR				
		WK	M	W	F	notes
Aug	26_30	1	1.30 2.30 3.30 DAY 1 assembly	Site Visit	Tentative Client Introduction via conference call	
Sept	2_6	2	1.30 2.30 3.30 Labor Day no classes		Group Presentation of Site Analysis Site Model	
	9_13	3	1.30 2.30 3.30			
	16_20	4	1.30 2.30 3.30		Conceptual Design Presentation (Internal, teams present to each other)	
	23_27	5	5pm KATHRYN ANTHONY 1.30 2.30 3.30	AB IN CHICAGO VOLUNTARY TENTATIVE VISIT TO CHICAGO TO SEE SUCCESSFUL DEVELOPMENTS		
Oct	30_4	6	1.30 2.30 3.30			
	7_11	7	5pm JAMES GARRETT 1.30 2.30 3.30			
	14_18	8	5pm FRANKOWSKI+GARCIA 1.30 2.30 3.30 Mid-Semester Presentation 50% Schematic Design Presentation Client in Attendance	REVIEW WORKPLAN FOR REMAINDER OF SEMESTER	MID SEMESTER no classes	
	21_25	9	1.30 2.30 3.30			
Nov	28_1	10	5pm KATHRYN GUSTAFSON 1.30 2.30 3.30			
	4_8	11	5pm LUIS VIDAL 1.30 2.30 3.30			
	11_15	12	1.30 2.30 3.30		85% PROJECT REVIEW	
	18_22	13	5pm RAMI el SAMAHY 1.30 2.30 3.30			
	25_28	14	5pm RAY GASTIL 1.30 2.30 3.30	Thanksgiving no classes	Thanksgiving no classes	
Dec	2_6	15	1.30 2.30 3.30		1ST+3RD FINAL REVIEWS	
EXAM WEEK	9_13	16	1.30 2.30 3.30 Final Semester Presentation 100% Schematic Design Presentation	TUESDAY ASOS FINAL REVIEWS		

FUTURE FICTIONS

IDENTITY, AESTHETICS, AND THE AMERICAN CITY

HEATHER BIZON



Background

Projections into the future can often become mere fantasy escape. But an aesthetics of a speculative realism can produce scenarios that directly comment on our own moment in time through advancing a particular crisis into the near future. These scenarios are often great lenses for a critical engagement with contemporary problems.

In many ways architecture is always a future speculation. This can be as simple as proposing a new lifestyle for a client's domestic environment, or as grand as imagining a new city with new social relations. This aspect of architecture places great pressure on the representations that create the plausibility of this new reality. If the aesthetics of a future reality can be articulated to a point where the familiar becomes strangely other, these speculations can gain political influence; they can build new audiences, new constituencies. How architects have made aesthetic arguments through different mediations is of crucial importance for the discipline of architecture, both past and future.

What will be the role of architecture in relation to the different issues that exist today accelerated into tomorrow?



IMAGE LEFT: "Untitled" from the series, *Memorials*. Filip Dujarden, 2012

IMAGE ABOVE: 'Exquisite Corpse', Jake Chapman, *Dinos Chapman*, 2000

The mashup methodology has seamlessly assumed a defining position with global cultural production. The complexity and variety of technique embedded in the mashup presents the architectural operation the mixing, blending and reconfiguration of existing inputs (political, cultural, typological, social) to produce a new outcome. Rip, remix, recombination, postproduction, but/copy, supercut, hack, culture jamming, slice, aggregator, sampling, appropriation cut-up, collage etc... To fully appreciate a representation, the viewer or listener must understand this 'worlding' aspect: an image does not simply present an object or a moment but represents a world.

Site

Pittsburgh, and the American Midwest presents a unique setting for the issues of accelerationism. Where East meets West, in the overlooked regions, Pittsburgh and its neighboring geographies present uniquely American scenarios – testing beds for issues of politics, social conditions, infrastructure, and identity. The primary questions that the studio will ask for this situation are: How will the aesthetics of the background reality in Pittsburgh be altered in the next two decades?

Pittsburgh is situated as the gateway to the American Midwest. The City and its surrounding suburbs, is a city of neighborhoods; each with its own rites and rituals. Neighborhoods are separated by both physical boundaries, marked by iconic landmarks, as well as socio political and economic differences. The entire City will be considered as a potential site for the development of future scenarios.

“How to represent, and through which medium, the sites where people meet to discuss their matters of concern?” *Bruno Latour* “From *Realpolitik* to *Dingpolitik* or *How to Make Things Public*”

Project

Each student will choose an issue that is currently in crisis in America today; ranging from the cultural to ecological, which form the identity of the built environment. The task then is to document the state and impact of these issues in Pittsburgh, in the future year of 2039, as viewed from the year 2059. The future is now past. All forms of media are available for these speculations. The two key questions pertain to; plausibility as established through representation, and the aesthetics of realism.

These scenarios will set the stage for a re-imagined “site,” that will consist of specific programmatic, cultural, technological, ecological and economic issues. Architectural design will respond to these as the new reality of the future. The final review will be the presentation of a documentation of a “new” building that was completed 20 years in the past.



Subversion is not to invent the “new” from scratch. In the questioning of the inputs to the architectural operation, through observation, challenging the conventions and pushing them to the brink of failure. Within the para fictional, play within the conventions allows for one to question, test, and interact with context. Hoax, prank, blague, parody become a prankster activism; an Aesthetics of Doubt.

Therefore, a roughed-up accelerationism through aesthetics is interesting. One can take what is happening now and push it forward. This push can have the qualities of estrangement through how it emphasizes and contradicts the real. As such, we can interrogate the American Identity of the City of the Future.

IMAGE TOP RIGHT, OPPOSITE:
PET bottle, silicone with pigments, Plexiglas cab, wooden plinth, *Embodied Objects*, Pamela Rosenkrantz. 2015

IMAGE MIDDLE RIGHT, OPPOSITE:
Toy Stories, Gabriele Galimberti, 2014

IMAGE TOP LEFT, OPPOSITE
Banksy, Shredded Art. 2018

**Operations**

The semester will begin with a series of representational experiments looking at the conventions of contemporary architectural mediation. The goal is to challenge these conventions to explore their aesthetic and communicative potentials. It will also consist of readings, lectures, and discussions regarding the studio topic of accelerationism, aesthetics, and contemporary issues the American City encounters.

The building designs will be fully represented through sets of architectural representations, based out of the initial representational exercises from the start of the semester.

How architects have made aesthetic arguments through a variety of different mediums is of crucial importance for the discipline of architecture, both past and future. In subverting not only the image but the conventions of contemporary architectural mediation, the goal is to challenge these conventions to explore aesthetic and communicative potentials. Using found images, objects, digitally manipulated photographs, video, animation, furniture, food, websites, publication material street spaces, architecture – the list goes on, the mediums of our reality, appropriation and remixing questions the medium itself and our reality.

It is through interaction, experience, and discourse we create our identities. As designers and makers, it is in the process of making proposals and making reactions where collaboration and dialogue coupled with making as thinking, test and create new futures. The overlaps and frictions that are created through multiple mediations as the most provocative zone for architectural work. These multiple mediums translate techniques, concepts and aesthetics between themselves, constructing architectural arguments.

Select References

- Boris Groys, *In the Flow* (London: Verso, 2016)
- The Politics of Aesthetics, Jacques Ranciere, 2004
- Easterling, Keller. “Extrastatecraft.” Verso, London, England; 2004
- Lambert-Beatty, Carrie, “Make-Believe: Parafiction and Plausibility*” *OCTOBER* 129, Summer 2009
- Ayata, Kutan & Young, Michael. “The Estranged Object”, *Treatise*, 2015
- Steyerl, Hito, “In Defense of the Poor Image” *e-flux journal* no. 10 (November 2009)

PORCH

A DESIGN-BUILD INTERVENTION WITH WILKINSBURG'S COMMUNITY FORGE

Steve LEE + Liza CRUZE

“But if you consider the present to be merely an instant between the past and the future, just a passing moment, then to neglect the past and future for the present is bad quality indeed.”

Robert Pirsig, Zen and the Art of Motorcycle Maintenance

Eduard Sekler defined the tectonic as

“...a certain expressivity arising from the statical resistance of constructional form in such a way that the resultant form could not be accounted for in terms of structure and construction alone.”

The SoA has a long history of design-build as an important component of the pedagogy for our 1st professional degree programs.

The previous M. Arch program (1990's) relied on a year long introduction to the 3-year curriculum through the lens of design-build, with completed projects in Pittsburgh, western Pennsylvania and West Virginia.

Steve Lee lead the Solar Decathlon teams in 2002 (with Liza Cruze), 2005 & 2007 that also included the Schools of Art and Design, U.Pitt Engineering and the Art Institute of Pittsburgh.

John Folan created and has lead the Urban Design| Build Studio (2008) and Project Re_ (2014). John Folan will be leaving CMU at the end of the summer to be the new head at the Fay S. Jones School of Architecture at the University of Arkansas.

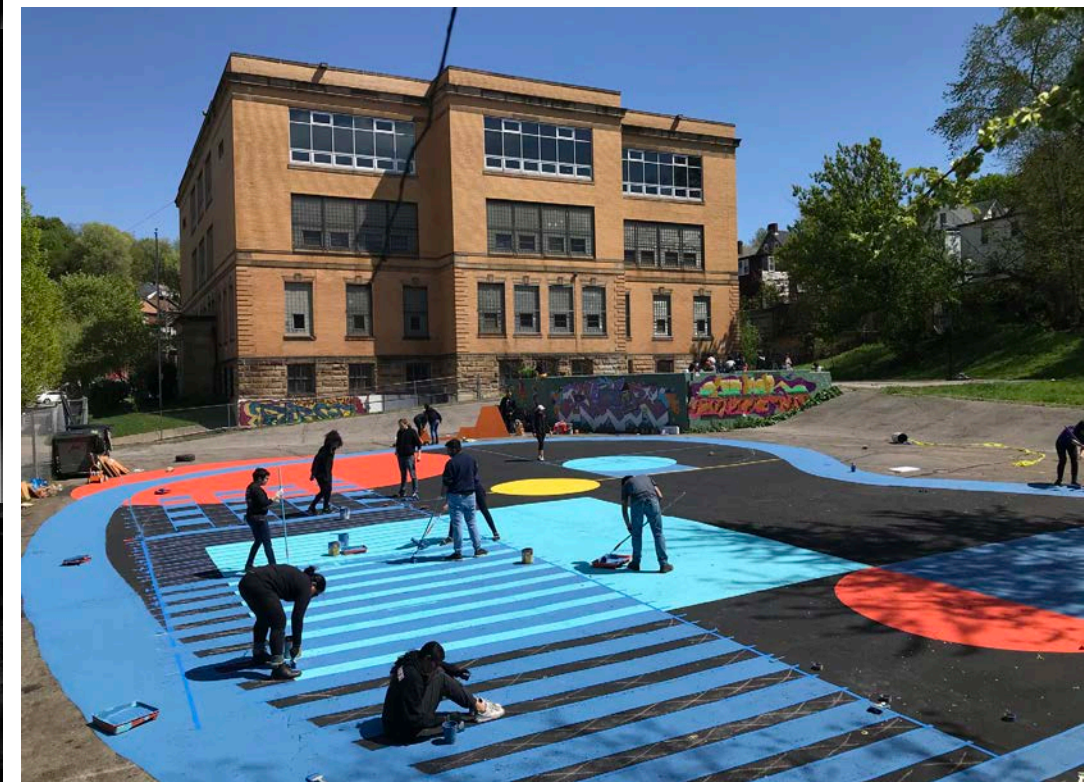


Above: Teeny Harris Pittsburgh images 1920-1960 from CMoA archive of 89,000 images online.



Left: Axonometric of Community Forge project proposal S19 Gruber ASO urban acupuncture studio.

Below: Community Forge playground in construction by S19 Gruber ASO studio.



Starting this fall, the Design Build Studio will once again be under the leadership of Steve Lee in collaboration with Liza Cruze and it is anticipated that projects going forward will be extensions of the urban studios run by Stefan Gruber and Jonathan Kline.

The F19 ASO design-build studio will consider the porch as a critical element of architecture mediating the realm between the building and the surrounding spaces.

The S19 ASO studio under Stefan's direction worked with the Wilkinsburg Community Forge and created a masterplan of improvements to the parking lot/ playground at the former Johnstone School in Wilkinsburg. The first phase of that masterplan was built by SoA faculty/ students, Forge stakeholders and community residents. An important proposal from the master plan was the creation of a porch on the west end of the building to directly connect the playground to the community room and toilets.

Program

The Forge stakeholders are excited about the opportunity to continue the collaboration with SoA and look forward to our creativity and vision. The drawings, renders, models, details and full-size prototypes we produce will be a crucial part of their fundraising efforts to secure the monies to construct the porch on site.

Studio Scope:

- Critical analysis of porches through global history
- Catalog of porches in the neighborhood including photos, measured drawings, structural systems, material systems, water control systems and vertical circulation systems
- Measured drawings of Wilkinsburg Community Forge porch site inside and outside including existing topography
- Individual Design Process | Design – Evaluate – Iterate
- Selection of design to be built – SoA faculty/ students and stakeholders
- Creation of design teams by system
- Construction of full-size prototypes on campus e.g. column-beam connections, eave details, rainwater system details, railing and stair details
- Critical analysis of aesthetics and constructability of prototypes
- Refine documents based on lessons learned from prototype analysis
- Complete documentation: construction documents, specifications, pricing, visual packages for fundraising, scale models, and prototypes
- Stakeholder meetings



Top: Mies van de Rohe on porch at Farnsworth House, IL 1951
Above center: Richard Neutra ChueyHouse, Palm Springs, 1956
Bottom: Gamble House, Pasadena, Greene and Greene 1908

Left: Solar Decathlon ToolMaster Trailer

**S20/F21**

The future Design Build Studios will be described in more detail as the funding commitments are resolved. It is planned for S20 that the Solar Decathlon ToolMaster trailer will be refurbished by the studio, including new PV system, mounting new stationary tools, new battery charging center and storage modules.

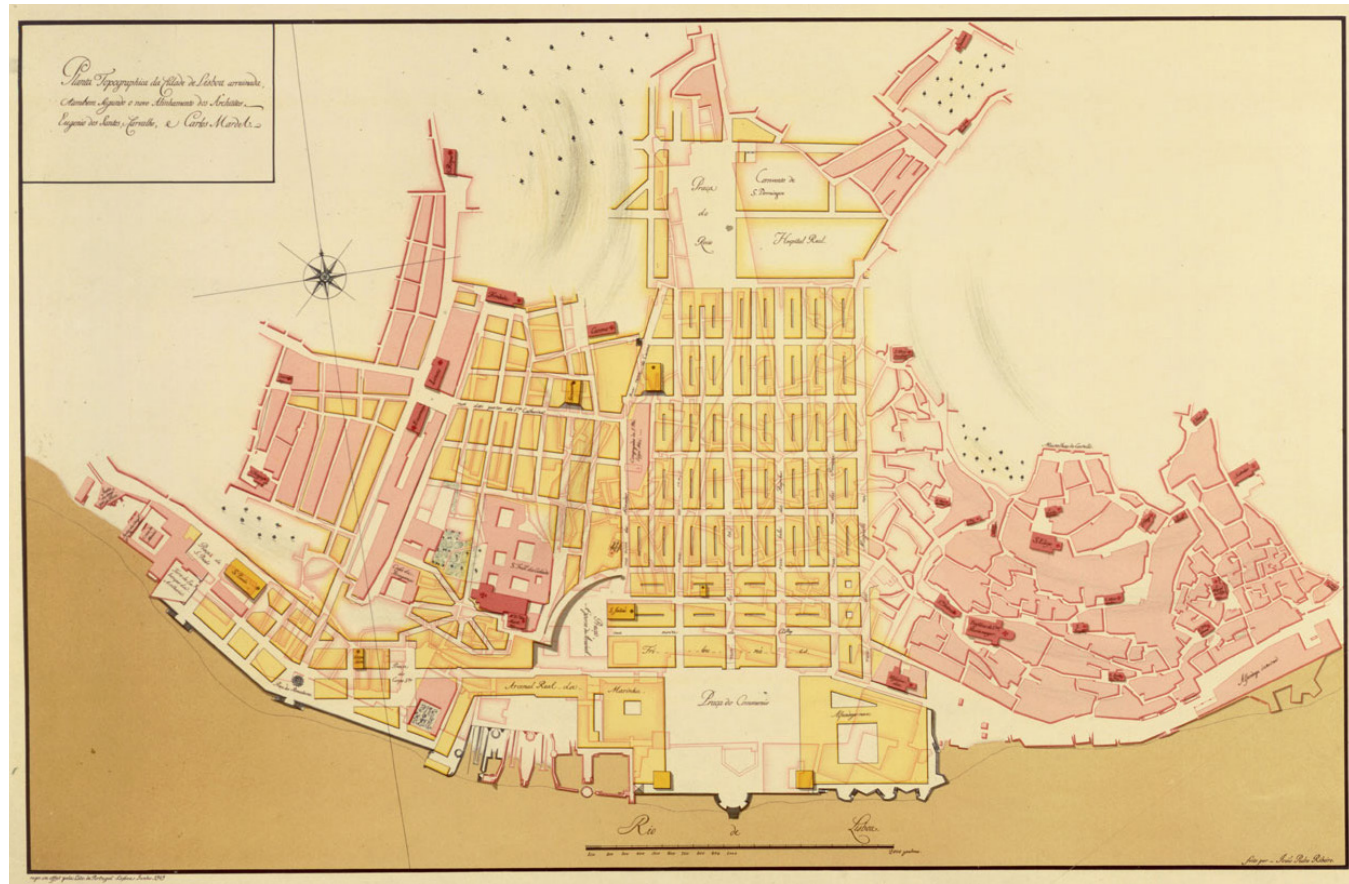


Above: 2005 Solar Decathlon, built in Donner Ditch, D. Chia, S. Way and X. Huay, 2005

BOUCA SOCIAL HOUSING

Making the City
Fabric versus Monument

Gerard DAMIANI
with Mark SHAPIRO



Above: Alvaro Siza
Top: Bouça Housing by Alvaro Siza

Background

At a time when much of the discussion in architecture seems to center around the generation of highly eccentric sculptural forms employing advanced parametric modeling software and advanced fabrication techniques, it might be well to remember that the most effective sustainable strategies may involve the creation of coherent, dense urban areas. We may also posit that successful urban districts and cities are made up of both normative fabric and exceptional buildings and spaces that create hierarchy and order.

Left: The urban fabric of the 18th century Baixa, the central area of Lisbon, reconstructed after the 1755 earthquake and planned by the Marquês de Pombal

With this in mind the architecture and urbanism of Portugal, exemplified by the so-called Porto School, may be a salutary case study worthy of examination. This studio is for an advanced architectural design studio with a site located in Porto, Portugal.

The studio requires a ten-day study trip to Portugal in the summer (August) of 2019 to visit the site and study examples of relevant precedents by Álvaro Siza with a particular focus on the social housing at Bouça in Porto and well as the Quinta da Malagueira housing estate in Évora. Álvaro Siza's Bouça Social-Housing, Porto, Portugal

Álvaro Siza's Bouça Social-Housing, Porto, Portugal

Designed in the 1970s, the Bouça Social Housing complex in Porto, Portugal was developed by Álvaro Siza with Serviço de Apoio Ambulatório (SAAL) to address the housing crisis facing the country during a turbulent period that saw a military coup in 1974 and a right-wing coup in 1975.

Located on an triangular site on the urban edge of Porto along side of a rail line, Siza proposed a new type of social housing. Duplex homes with spacious internal dimensions were provided as two story stacked homes with the uppermost homes set back to provide outdoor space. The arrangement of these homes defined long, planted courtyards providing community spaces for the occupants.

Due to the volatile political situation, materials and funding were in short supply and only two of the four blocks were realized. A high wall to buffer the rail noise was not completed nor were the community facilities. However, in 2007 the rail buffer, limited community functions and the remaining housing blocks were realized nearly to Siza's original plans.

The studio will focus on extending the community on the western edge of the site on a small triangular parcel. The program will be the addition of a few housing units, a community meeting hall, an arts center and public service offices.



Site area marked adjacent to Siza's Bouça Housing.



Top Left Bouça Housing Plaza, Alvaro Siza
Top Right Porto Architecture School, Alvaro Siza
Bottom Left Leca Tea House, Alvaro Siza
Bottom Right Swimming Pool, Alvaro Siza



Preliminary Itinerary:

Arrive Lisbon: Introduction

Lisbon (2 days)

The urban fabric of the 18th century Baixa, the central area of Lisbon, reconstructed after the 1755 earthquake and planned by the Marquês de Pombal

The reconstruction of the Chiado and the Chiado Metro Station by Alvaro Siza

Terraços de Bragança urban infill by Alvaro Siza

Portuguese Pavilion Parque de Nasções by Alvaro Siza

Visit other Lisbon buildings and sites

Cascais (1 day)

Visit works by Souta de Moura, Gonçalo Byrne and Aires Mateus

Évora (2 days)

Quinta da Malagueira housing estate by Alvaro Siza

Porto (3 days)

São Victor housing by Alvaro Siza

Bouça housing by Alvaro Siza

Various other works by Siza, Souta de Moura and Fernando-Tavora and others including the Porto Architecture School, the Seralves Museum, the Tea House Boa Nova and tidal baths in Leça da Palmeira.

Return to Lisbon: Wrap up session.

SUBJECT TO CHANGE AND OTHER INEVITABILITIES OF TIME

Jeremy FICCA
Francesca TORELLO



The question now is more whether we can go with the flow, understand that we have made a complete (ir)reality in time and place, and can learn how to build within that world in a manner that creates a constantly changing relation between ourselves, other humans, and that consensual hallucination we have made.

– Aaron Betsky

Background

The recent fire and near collapse of Paris' Notre Dame Cathedral challenges expectations of architectural permanence while revealing the significant measures of restoration and preservation needed to maintain architecture through time. The striking video of Violet-le-Duc's burning and imploding spire, live streaming across the globe, stripped bare architecture's perpetuity to reveal the incomprehensible fragility of a structure that has stood for over 850 years. For some the images of a burning cathedral on the eve of the Christian holy week were representative of a world seemingly spinning increasingly out of control.

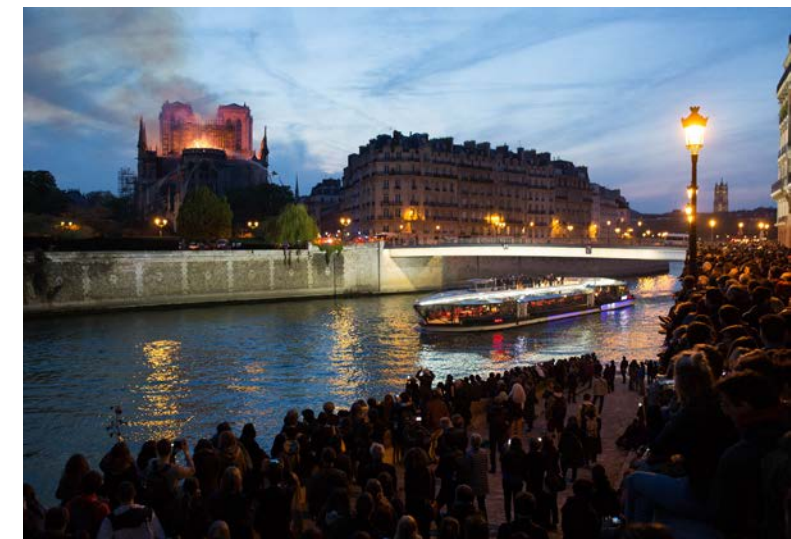
The ensuing weeks have revealed Notre Dame's complex, often misunderstood and overlooked history. A history replete with constructions, vandalism and restoration. Towers and Rose Windows withstanding, much of Notre Dame as we know it is the result of significant restorations by Violet-le-Duc over the course of 30 years in the middle of the 19th century. Le Duc's restorations sought to manifest an idealized gothic, "a process of reestablishment of a finished state that may have never existed". The iconic spire perhaps best embodies le Duc's motivations through a substantial departure from its preceding 13th century version, removed in the late 1700's due to wind damage. Le Duc's timber and lead clad spire was modern in its ambition to push construction techniques and materials to achieve a taller, more slender and delicate structure. Despite its modernity, the spire was in a way complimentary of historical conditions of construction in which buildings that were built over longer periods of time often evolved in response to technological advancement and cultural transition. These buildings were in a way living, never quite finished, slowly evolving with the times.

The recent decree from the French Senate to rebuild the cathedral exactly as it was before the fire, effectively terminating any design competition for the cathedral roof and spire, stands in stark contrast to declarations by French President Emmanuel Macron and others to rebuild in a manor representative of our time. These strikingly distinct positions reveal radically different attitudes toward the sustainment of architecture through time and the imprint of history upon our built environment. They foreground the tensions embedded within the preservation of an iconic national landmark.

Left Image: Notre Dame Cathedral interior following April 2019 fire, Christophe Petit Tesson, Pool via AP

Right Images: Notre Dame Cathedral site excavations, circa 1965

Notre Dame fire spectators, April 2019



Studio Project

Using the post-fire context and its extensive discourse related to the restoration of the cathedral as a point of departure, this studio foregrounds architecture's existence through time to challenge participants to reexamine architecture's historical pre-occupation with permanence. It aims to recalibrate one's understanding of a building's lifespan in the Anthropocene through a reevaluation of neo-liberalism's cheap energy and culture of disposal on one hand and the urgent need to address climate change and growing resource scarcity on the other.



The studio is organized through an initial phase of research followed by individual speculative design projects. The studio project consists of two complimentary components, a temporary large-scale worship space for use during the 5-year restoration of Notre Dame cathedral, and a cultural center, intended to offer educational content related to the restorations and history of the cathedral. Each element demands potentially distinct considerations of lifespan, durability and materiality. The studio will address both design elements concurrently and will require students to develop proposals that accommodate transformations of the site and its structures through time. It will challenge students to articulate a position regarding the durability and lifespan of architecture and will recalibrate considerations of materiality in response to transience and permanence.

Above Image: Nomadic Museum, Shiguru Ban Architects

*Right Images:
- Site Limits
- Campanile San Marco rubble, 1902
- Notre Dame entry fortifications during WWI, circa 1914*

**Studio Site**

The project is sited directly adjacent to the cathedral, within the culturally significant Parvis Notre Dame Place – Jean Paul II. This vast, heavily visited public space lies immediately west of Notre Dame's iconic towers and includes the subterranean ancient ruins of the Crypte Archeologique de l'île de la Cité along the northern portion of the site. These ruins unearthed during sitework in the 1960's, introduce layers of history dating from the Romans up to structures preceding Hausman's reconfiguration of Paris.

**Studio Organization**

Francesca Torello will engage in the studio on a part-time basis through initial research and strategic milestones during the semester. Her expertise as an Architectural Historian will expand studio discourse on themes of temporality, preservation and restoration.

Studio will meet weekly, MWF from 1:30-4:20PM. There may be an optional field trip / site visit to Paris, France the week of CMU fall break. This will be discussed in greater detail at the start of the semester to review costs and gauge student interest.



COMMONING THE CITY

year-long research-based design project

Stefan Gruber
Jonathan Kline



**“Commons and
commoning
gesture
toward a new
understanding of
what it means to
create change, to
change ourselves
and our shared
everydayness—
and to move in
the direction
of a truly
emancipated
society.”**
- Stavros Stavrides

Background

This two semester research-based-design studio is focused on the bottom-up transformation of cities and explores how designers and planners can tap into the self-organizing behavior of cities in order to empower citizens to claim their right to the city. The first semester, taught by Stefan Gruber, will focus on collective case study research and the development of an individual design thesis proposal. The second semester, taught by Jonathan Kline, will support students in developing their individual projects culminating in an exhibition at the Miller ICA. This year-long studio is required for all second year Master of Urban Design students and open to 5th year BArch students and MArch students. For ASOS students the studio is an opportunity to pursue a year long thesis within a structured research context exploring urban commoning.

Research

The commons are emerging as a key concept beyond the binaries of public and private space for tackling the challenges of the contemporary city: How to build urban resilience in the face of dwindling resources? How to tackle growing inequity in the face of polarizing politics? How to articulate common interests despite increasing social individualization? And how to find agency as architects given the scope of these challenges? Here commons are understood as a set of practices dealing with the production and self-management of collective resources and spaces beyond contemporary forms of domination, such as class, gender or race. The studio's research will continue a collaboration with [ARCH+](#) and [ifa](#), contributing to the traveling exhibition *An Atlas of Commoning*, on display at CMU's Miller ICA from June 29. through September 23. In September the studio will participate in *Designing for a Commons Transition*, an international symposium on commoning that will be held on campus. In October the studio will travel to Vienna Austria for field work and primary research on cooperative housing and other citizen-led initiatives that contribute to making Vienna the most livable city in the world.



Opposite: *An Atlas of Commoning*
at the Kunstraum Kreuzberg
/ Bethanien, Berlin
Photo: © Sebastian Schels

Right: Open Space workshop on
international premier day of
An Atlas of Commoning
at the Miller ICA, Pittsburgh
Photo: © Sabina Klemm

Program

Fall: Research-based Design

During the fall semester the studio will collectively contribute to the development of an “Atlas of Commoning,” assembling case studies that critically explore practices of urban commoning in the US and Vienna Austria, and embed them in a broader context of societal transitions. Students will research both assigned and self-identified cases and produce summaries and comparisons in a shared graphic format. In parallel students will develop an individual thesis proposal for how practices of commoning might transform an urban community and site of their choosing.

Spring: Design-based research

Building on our collective research, the spring studio will focus on developing individual thesis and design proposals exploring issues of urban commoning. For the project students will be expected to take a personal position and formulate a thesis, expressed and explored through design. The site, program and general parameters of the project will be determined during the fall, allowing students to gather data and base materials over the winter break. Thesis projects will culminate with an exhibition and review in the Miller ICA and the creation of a final thesis book.



Above: Clearance - 2018 Spring Thesis Exhibition at the Miller ICA. Project: Yidan Gong - Commoning Gejiangyin Community amidst Wuhan Metropolitan.
Photo: Stefan Gruber



Opposite: Metathesis - 2019 Spring Thesis Exhibition at the Miller ICA
Project: Sujan Das Shrestha - [Neighborhood] Guthi; reframing traditional practices to develop agency through social transformation
Photo: Yang Gao

Learning Outcomes

In this studio you will develop skills for documenting, analyzing and critically evaluating precedents that act as catalyst for the bottom-up transformation of cities. You will learn to contextualize these spatial practices, and ultimately your own design practice, within a broader social, political and economic discourse. As you begin to better understand the forces at play in shaping the built environment and in turn how buildings shape us, you will learn to both question and sharpen the agency of architecture and reflect on alternative more collaborative modes of design and radical imagination. You will further experience how what is often conceived as binary opposition between theory and practice, thinking and acting, can in fact be intricately linked and lead to invigorating synergies. The hypothesis here is that every reading of an urban milieu is also projective, every reflection on what is, entails a projection of what could be, in short a latent design project for an alternate possible future. Utopia is typically thought of as something that lies in the future. Meanwhile in our research on practices of commoning, we will see that everyday utopias are in fact all around us. Accordingly, in this studio we will explore research based design as glance back to enact a future vision.

TERMINAL SYSTEMS

JFK Terminal 4 concourse expansion

Hal Hayes

I am arguing that, this matrix space brings to our art a new relevance, and even new aesthetic pleasures and political capacities. *Keller Easterling* *Metropolis*, April 6, 2015



Background

This studio will help students develop a strong, comprehensive, holistic design process and learn to seek inspiration from the design components and socio-cultural issues involved in a large, complex building project. The key semester goal is for the student to create a unique individual design that is a civic gateway celebrating New York, is completely responsive to the needs of the users, elegantly balances the many interrelated and interdependent performative systems that are critical to the function, and is a compelling whole that is greater than the sum of its parts.

Site

Terminal Four Concourse A, John F. Kennedy International Airport, NY

Scope

The studio project requirements will closely parallel the real project currently being planned for the expansion of T4, a new structure of approximately 10 gates, 100ksf connected through the existing six-gate, 75ksf Concourse A to the main terminal.



Above, and opposite JFK Terminal Four, SOM, 2001

Below: JFK T4 Delta hub phase 2, 2013



Learning Goals

Students will test and expand their design and technical skills in all key areas, with particular focus in these three areas.

- Explore the rich and varied conceptual design opportunities arising from architectural, structural, infrastructural and mechanical systems at very large scale and with a high degree of complexity.
- Define and grasp the complete design challenge through research and analysis of the building typology; the exceptionally dynamic functional rhythms, complex programmatic spaces with distinct systems, and a widely diverse user group with varying needs and desires.
- Understand and embrace the duality of the design paradigm, as a principal anchor and integral component of a global transport and communication network, yet with a need to be responsive to local environment, materials & methods, and cultural traditions.



Above: Terminal Four SOM, completed 2001



Top and Above: Jacob Douenias
JFK T4 concourse A proposal S12

Studio Framing

Students will engage as teams in a robust pre-design exercise;

- Analyze the existing building and site conditions
 - Engage with the professional AE design team members working on the actual project
 - Develop programmatic and performative goals and objectives.
- Students will then individually pursue a concept design for the project based on these complex design parameters;
- Learn design and planning methodologies to effectively address complex projects
 - Balance the needs of these parameters as an interdependent network of autonomous systems
 - Emphasize the use of hand sketching, physical models and iteration of design, research and analytical work will at varying scales and degrees of resolution

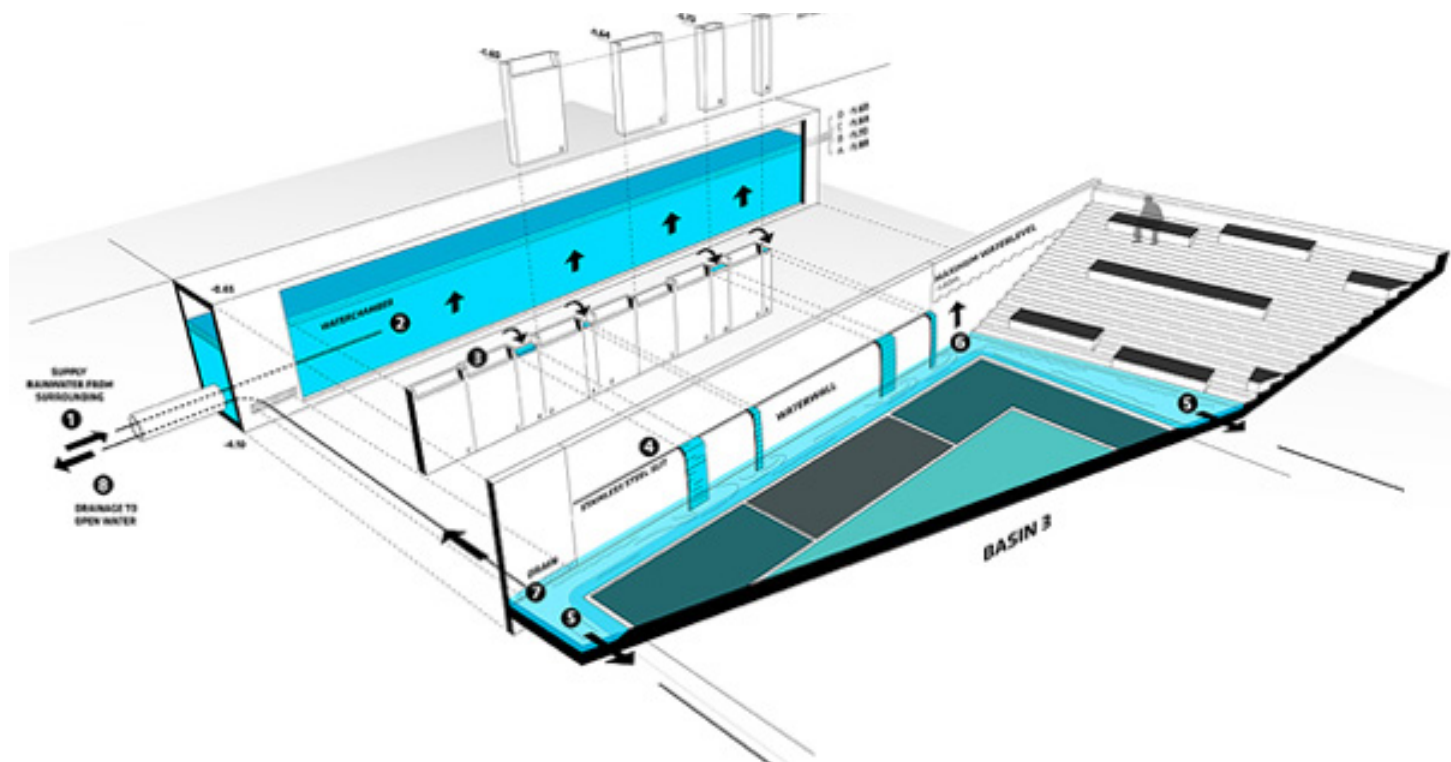
INFRAstructure STUDIO

FORCES UNDERLYING URBAN FORM

Christine MONDOR

“The new universality consists in feeling that the ground is in the process of giving way.”

Bruno Latour, Down to Earth 2018



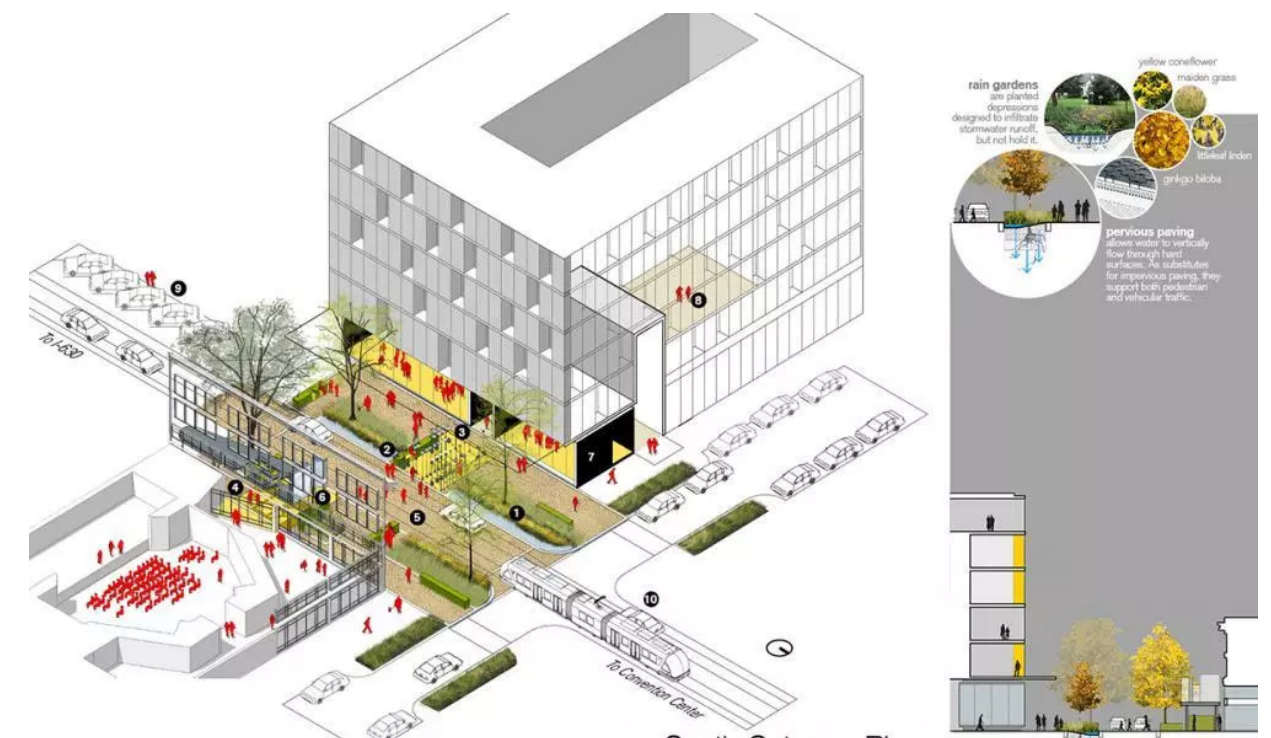
Background

This studio is part of a series of studios examining architecture's functional, spatial, experiential, and cultural relationship with urban infrastructure. Our studio will shift scales, understanding each scale as an opportunity for design. We will design places, but we will sometimes design systems or even engagements. You will expand your understanding of resource flows in placemaking, in system functioning, and how our designs and design processes can activate human experience.

INFRAstructure studio focuses about the forces that underly urban form. The studio will examine the dynamics of resource flow, whether it be water, mobility, food, or energy. We will examine the associated form logics to these resource flows and how those relationships change at different scales.

For the past years, this studio has focused on water and its shaping forces for culture, community, ecology, and urban fabric. Students in the studio develop the ability to read, map and represent system dynamics and formal characteristics related to water. Students develop skills to understand causal or correlative relationships and how systems evolve over time. Students understand the technical functioning of systems and how that can be generative or otherwise influence architectural form. Past studios have challenged the meaning of infrastructure as a heavily engineered or centralized system that underlies urban development. As our centralized industrial systems begin to age into obsolescence, the studios explore the role of decentralized solutions and how we might negotiate a new relationship with existing and emerging technologies.

Our studio will shift scales, understanding each scale as an opportunity for design. We will design places, but we will sometimes design systems or even engagements. You will expand your understanding of resource flows in placemaking, in system functioning, and how our designs and design processes can activate human experience.



Above and left:
Bethamplen, De Urbanisten
The Creative Corridor,
Univ. of Arkansas & Marlon
Blackwell Architects

Learning Objective::

Technical Knowledge

We will develop technical knowledge of infrastructure (water, energy, food, or mobility) and how our it influences urban form and occupancy patterns.

We will be introduced to the reciprocal forces of landscape ecologies and human occupancy and will build our skills at pattern reading in the urban landscape.

Procedural Knowledge

We will be able to identify scales of change, the role of contingency in constructing scenarios, and the forces that influence change.

We will be introduced to the disciplinary expertise and methodologies of allied fields including ecology, hydrology, civil engineering, etc.,.

Spatial & Experiential Knowledge

We will explore the human experience of infrastructure through spatial strategies, modeling and representation.



INFRAstructure studio prepares future architects to find opportunities for design within nested systems of landscape, infrastructure and occupancy.

Left: Greenwich Peninsula, Michel Desvignes

Above: Soho Run in M29, evolveEA

The studio will focus on the relationship between urban infrastructure and an architectural scale of development.

We will create inspiring places that improve the performance of urban systems, contributing to an evolving understanding of the [re]production of value.

Advanced Synthesis Option Studios

F19/S21

S20

- * **Mary-Lou Arscott**
- * **Joshua Bard/Francesca Torello**
- * **Heather Bizon**
- * **Liza Cruze**
- * **Dana Cupkova**
- * **Nathalie Frankowski/Cruz Garcia**
- * **Stefan Gruber**
- * **Hal Hayes**
- * **Jonathan Kline**

MIGRATION, MEDIUM, MIRAGE EXPOSITION ON BODIES IN MOVEMENT

Mary-Lou ARSCOTT

.....the perspective of free fall teaches us to consider a social and political dreamscape of radicalized class war from above, one that throws jaw dropping social inequalities into sharp focus.
Hito Steyerl, The Wretched of the Screen, 2012 p28



Sebastao Salgado
ABOVE AND LEFT
from Genesis Project 2004-2011

Background

The design prompt for this studio is to reconsider the phenomena of migration.

Shelter and basic bodily functions are currently prescribed within a narrow cultural imperative and ignored for any marginalized individual in movement. It is from Foucault* that we understand that the body is a battle ground, where definitions are insisted upon to reinforce power positions, to satisfy convention and to protect from a constructed set of fears. This studio will develop a response to these socio-political constraints and re-imagine a design for populations in movement with creative, strategic and radical thinking.

The title Migration, Mirage, Medium is used to denote the joining of the potential of physical principals (eg of shelter, fuel and food) to be connected with a rich narrative of memory, dream state, fantasy and the surreal. These emotive and volatile factors in the realm of culture, find expression in cinema and in the expanded cinema.

The challenge in this studio's design process will be to explore the language of film and to integrate a manifesto, capturing your understanding of nomadic bodies within a fluid adaptive spatial construct. The final medium for presentation will be in the form of film, projected within a constructed installation.

**The purpose of the present study is in fact to show how deployments of power are directly connected to the body - to bodies, functions, physiological processes, sensations, and pleasures; far from the body having to be effaced, what is needed is to make it visible through an analysis in which the biological and the historical are not consecutive to one another ... but are bound together in an increasingly complex fashion in accordance with the development of the modern technologies of power that take life as their objective. Hence I do not envisage a "history of mentalities" that would take account of bodies only through the manner in which they have been perceived and given meaning and value; but a "history of bodies" and the manner in which what is most material and most vital in them has been invested' (Foucault 1978: 151-2)*



Sebastiao Salgado
Rwandan refugee camp of Benako
Tanzania 1994 (from Exodus
Project 1994-2000)

Framing

The studio will explore experimental film with related theoretical texts and will use these findings to speculate on spatial practice. The course will consider new potentialities for an architecture composed through an understanding of time in space. A contemporary response will be developed with reference to the films of Teinosuke Kinugasa, Chris Marker, Werner Herzog and Hito Steyerl.

Ambitions

1. to engage in abstract thought, analyse genre, narrative, technique and affect in expanded cinema
2. to integrate complex levels of engagement in architecture - psychological, embodied, mnemonic, eidetic, social, economic, political and cultural.
3. to develop an architectural proposition which uses cinematographic space in an architectural way, that is speculative and innovative.

Co-required seminar

A 9 unit elective is being offered by Heather Bizon in S20. This course will investigate the aesthetics of world building and the narrative form. It will complement the acquisition of film making skills used and developed in the Migration, Medium and Mirage studio.



Work flow
This studio invites an innovative use of the medium of moving image whilst encouraging the acquisition of skills in the Adobe CS platforms; Premiere Pro and After Effects. In experimenting with projection in occupiable space initially the design production will be in digitally modeled space in preparation for a final full scale immersive installation.

Assignments

The semester will be sequenced through a tight scripting of assignments which will run exercises in; photo-roman, animation, time abstraction, writing manifesto, physical model construction, animatics, production schedule, rough cut, final production and installation.

There will be a theoretical framing through a limited set of readings (including; Judith Butler, Walter Benjamin, Guiliana Bruno, Guy Debord and Sayak Valencia) with discussions on architecture, film and movement to run parallel with the film production and writing.

Sebastiao Salgado
Buffalo herd (from Genesis
Project 2004-2011)



Expanded Cinema

During the semester, group research will be structured around critique and analysis of the films, installations and ideas in the sculptural work of artists; Sara Oppenheimer, Mona Hatoum, Janet Cardiff, William Kentridge, Anthony McCall and Christian Marclay.

Schedule

Studio MWF 1.30-4.20, Seminar R 1.30-4.20

Low-Relief

The Virtual and Material Cultures of Architectural Deceit

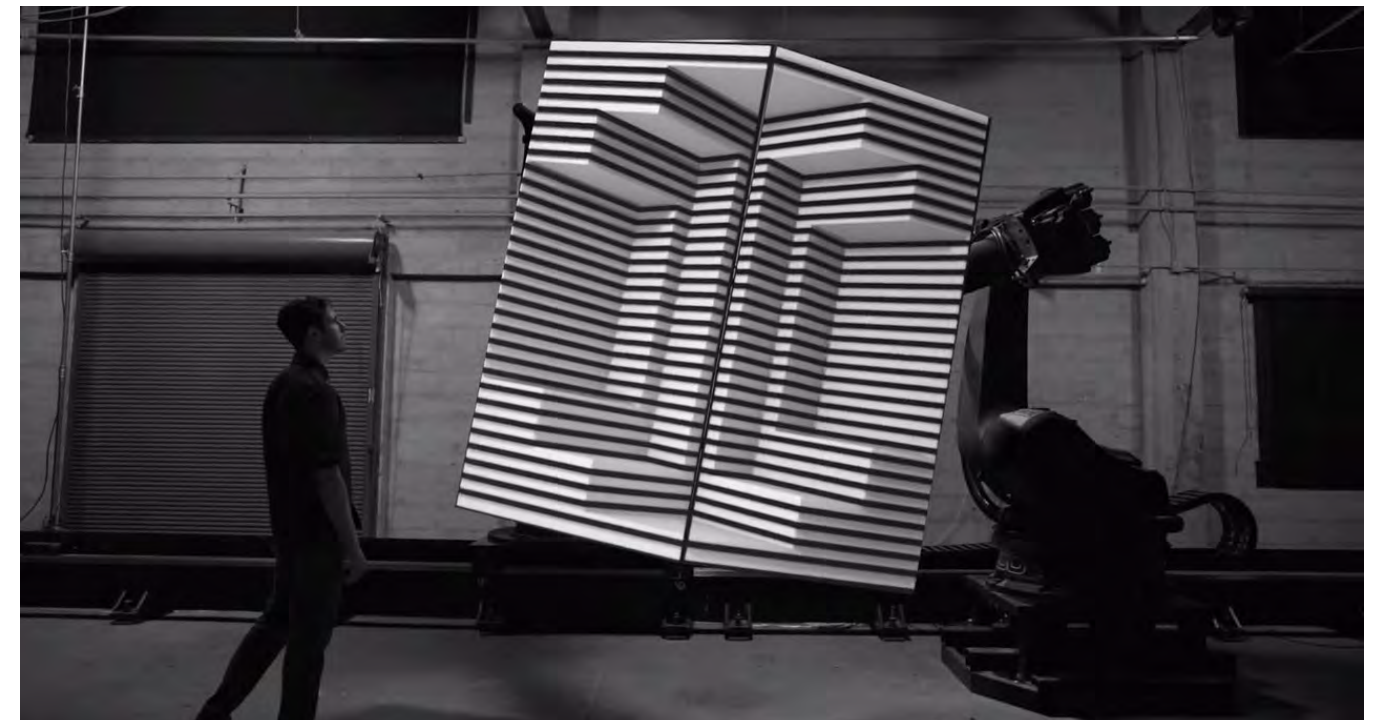
Joshua Bard
Francesca Torello

[...] the virtual, strictly defined, has little relationship to that which is false, illusory, or imaginary. The virtual is by no means the opposite of the real. On the contrary, it is a fecund and powerful mode of being that expands the process of creation, opens up the future, injects a core of meaning beneath the platitude of immediate physical presence. *Pierre Levy, Becoming Virtual*



Overview

Architecture has championed 'Truthfulness' as a laudable virtue in the built environment with many iconic modern architects preaching and (mostly) practicing legibility of material, structure, and intent in building design. Despite this emphasis on material integrity, architects before and since have deployed an array of techniques to trick the senses, including the use of faux materials, forced perspective, and applied media to walls and ceilings. Low-Relief will study the material cultures of deceit in architectural design and construction, framing architectural illusion not just as a visual technique, but as a precise shaping of physical material and the blending of hybrid media forms in three dimensions. The motivating frame of Low Relief coincides with a proliferation of virtual reality in contemporary media, and seeks to position the built environment as a proto-virtual interface. If a latent virtuality exists in architecture's past can historical precedent frame the use of emerging digital technologies — like robotics, projection mapping, and reality capture — to explore new expressions of architectural duplicity? In order to address this question, Low Relief will use historical research, hands-on material play, and full-scale prototyping of architectural elements to explore the multiple realities activated by the built environment.



[page left]

The use of trompe l'oeil on the underside of a dome augments sensory experience. Oculus at the Ducal Palace, Mantua, Andrea Mantegna, 1474.

[above]

Still from Bot & Dolly's video, Box. A project where projection mapping is used to sync robotically moved screens, human actors, and digital content in a live

Course Structure

Low Relief will promote critical design inquiry through three main projects supported by workshops throughout the semester. The projects are intended to reinforce each other with a deep dive into robotic fabrication of soft materials like plaster and a broad survey of historical construction techniques used to produce architectural illusions. The studio will split time and resources between the SoA robotics lab and Margaret Morrison studios, blending the cultures of lab based research and studio based inquiry.

Studio Assignments**P1_ Atlas of Architectural Deceit**

A visual compendium of research exploring the material culture of deceit in architectural design.

(01.13 – 01.31)

Workshop 1: Digital Projection Mapping

P2_ Magic Box

A modeling exercise exploring physical and virtual techniques of architectural illusion. Students will design and fabricate a model-scale artifact.

(02.03 – 02.28)

Workshop 2: Pattern & Mold Making

P3_ Fun House

A fabrication exercise at full-scale exploring architecture as virtual reality interface.

(03.02 – 05.01)

Workshop 3: Robotic Running Mold

**Studio Themes**

Material play: exploring the affordances of plaster, a material that can be cast, cut, and carved in a variety of physical states from liquid to solid.

Robotic Fabrication: creating new robotic workflows to explore plaster.

Reality Computing: using 3D scanning and projection mapping to create hybrid virtual / physical artifacts.

Historical Precedent: learning from techniques like trompe l'oeil, scagliola, and anamorphic projection.

**Supporting courses**

#48-368

Rediscovering Antiquity

Dr. Francesca Torello will be teaching, a seminar supporting the studio during the Spring 2020 Semester. The seminar will examine the broader cultural context of some of the historical precedent analyzed in the studio. It will also offer students the opportunity to focus their individual research assignments on the study of historical faux materials and techniques of illusion in architecture, complementing the studio work. The course is not required, but participation is encouraged.

#48-455

Introduction to Architectural Robotics

This seminar will be offered in the Fall of 2019 and Spring of 2020. It is required as a pre-requisite or co-requisite for all studio participants.

Learning Objectives

- You can test ideas at full scale using material affordances to inform your design process.
- You can program, simulate, and execute basic robot paths.
- You can design and implement custom end of arm tools for fabrication.
- In addition to compelling representation, you can leverage digital tools to construct physical artifacts.
- You can leverage parametric workflows to efficiently manage complex fabrication tasks
- You can use detailed understanding of historical precedent to inspire design creativity.

Cybernetic virtuality was preceded by philosophical virtuality...The current writings about virtual space are just in time to participate in the 2,400-year anniversary of the discovery of the virtual.

Peter Sloterdijk, Spheres

[page left]

Casts of carved oak door with closeup of fine detail in plaster copy, south portal (by Jean le Pot), Cathedral of St. Pierre Site: Beauvais, France
Original: French, c. 1500-1550

[right]

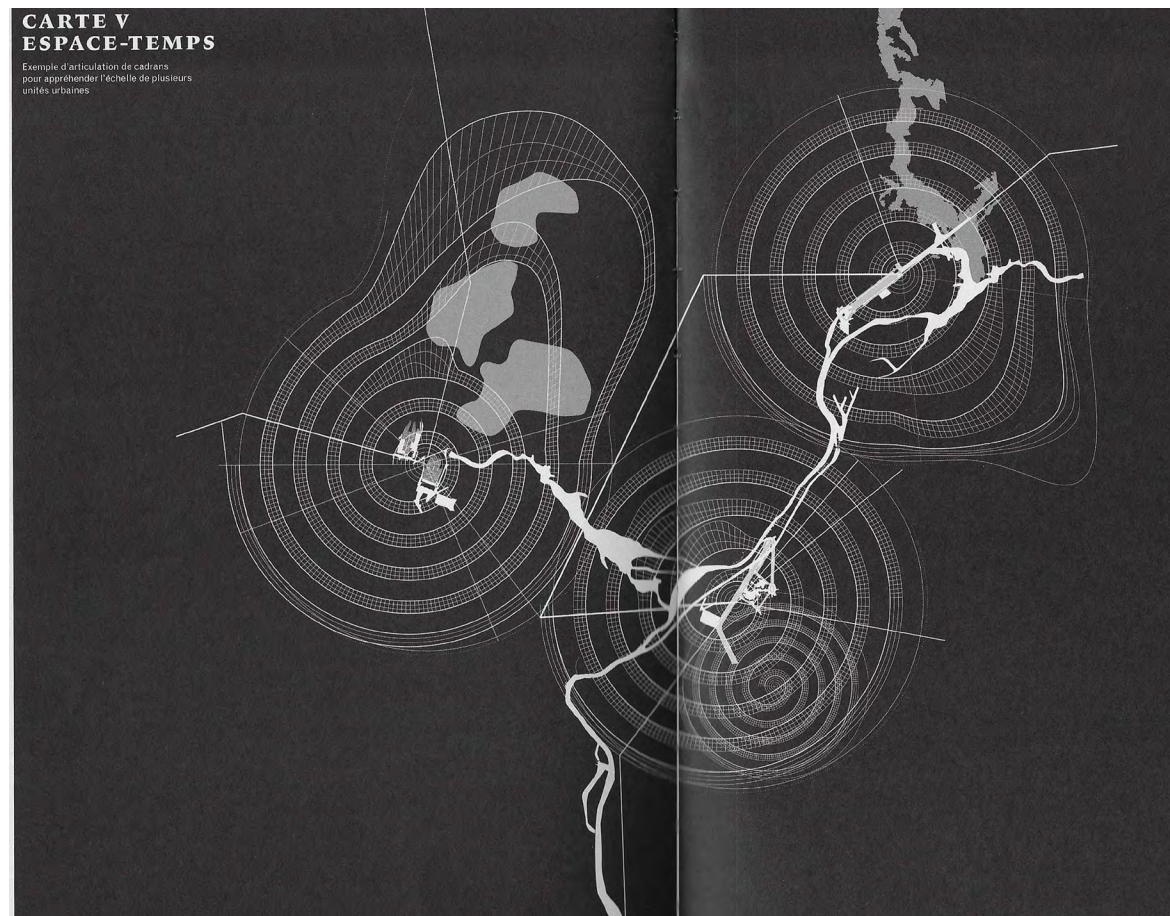
Side by side detail of plaster cast at Carnegie Museum of Art and polygon mesh converted from 3D scan of cast. Cast of capital, Tower of the Winds Site: Athens, Greece
Original: Greek, 100-50 BCE.



THESIS

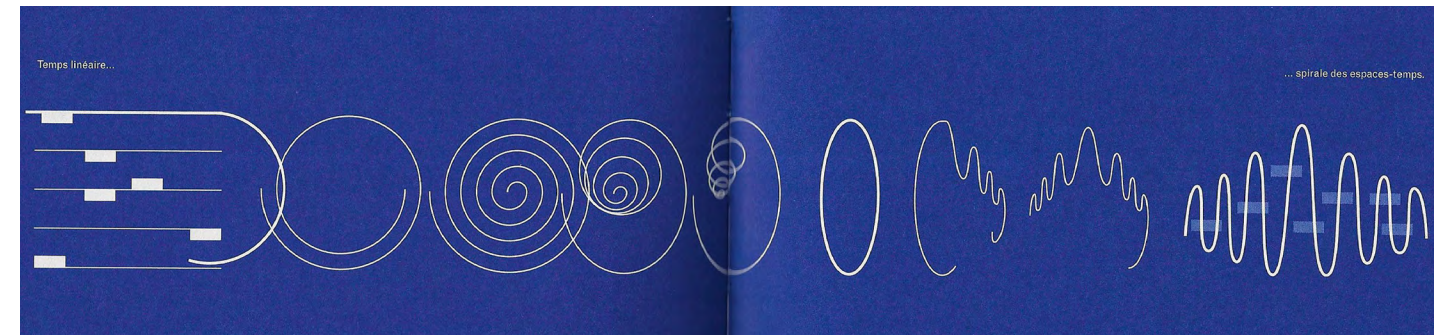
B.Arch M.Arch

Heather BIZON



Organisation

This year the SoA thesis will be taken in a one semester studio in Spring 2020 with Heather Bizon. The thesis research and refinement will be completed in a required preparatory 9 unit elective in the Fall 2019 with Josh Bard.



Above: Transformation from linear time to spirals of Spce-Time , by Frederique Ait-Touati, Alexandra Arenes and Axelle Gregoire Terra Forma 2019, Editions B42

Left: Map V Space-Time, (credit as above).

Positioning

This studio takes the view that in crafting a thesis project, you are entering a wider conversation and exploring problems that have puzzled and inspired others. By proposing your own set of critical questions and methods of inquiry, you recognize your responsibility to engage seriously and rigorously with prior work, and to extend its intellectual scope through your own contribution.

The studio is a venue for constructive discussion and mutual critique. While a project is not expected to be a 'building,' it should rigorously address spatial concerns including how space informs and intersects with other processes (social, ecological, historic, etc.). The scale of consideration can range from bodies to territories.

In this studio students are expected to engage and develop a wide range of interrelated capacities, including critical thinking, analytical writing and reflective design production.

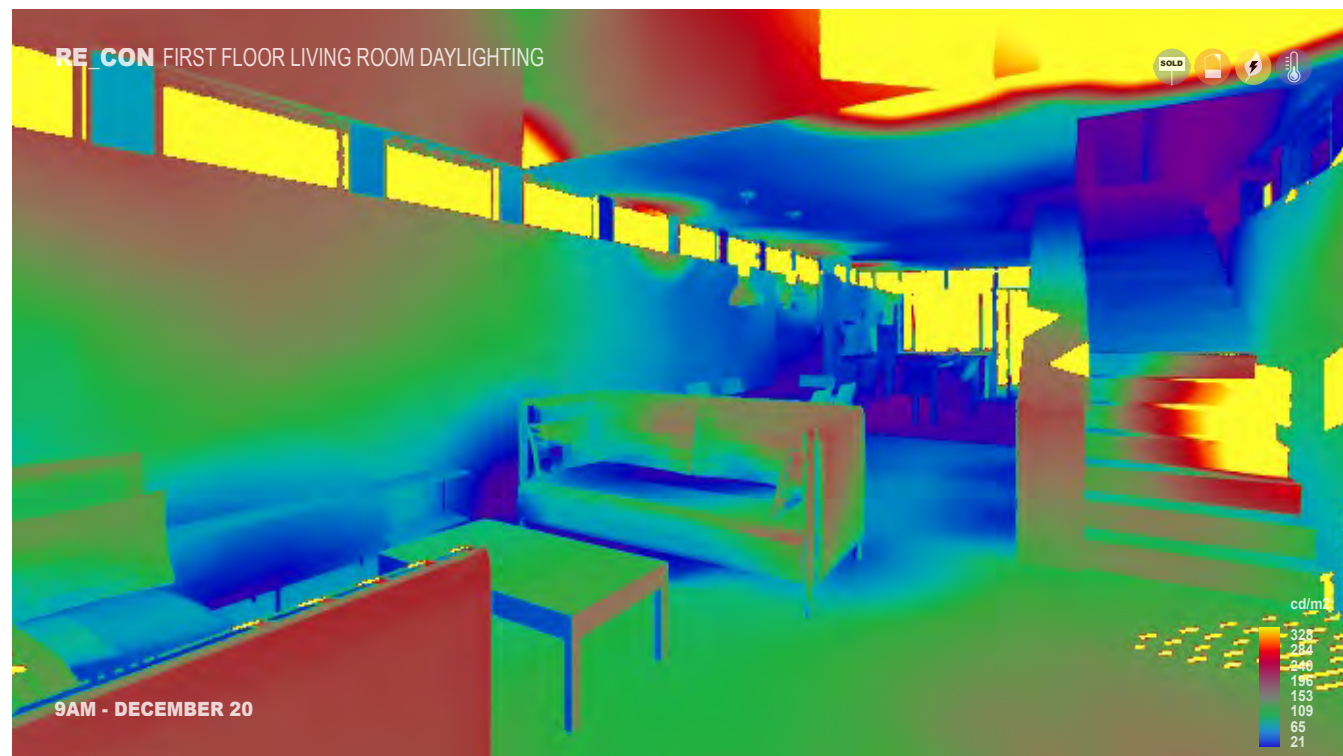
“Any honest plunge into the globalizing world moves through a blizzard of similarly dark evidence recombining on its own into increasing hyperbolic mixtures of candied fairy tales and primitive brutality.” *Keller Easterling e-flux journal 2015*

SOLAR DECATHLON

URBAN ZERO ENERGY HOUSE, 2020 DESIGN CHALLENGE

Liza CRUZE

“Sustainability can’t be like some sort of a moral sacrifice or political dilemma or a philanthropical cause. It has to be a design challenge.” *-Bjarke Ingels*



Background

The Solar Decathlon, a national competition developed by the Department of Energy, is now in its second decade. Over that span of time it has given more than 18,000 collegiate participants the opportunity to design and build energy-efficient houses powered by renewable energy, and it has clearly established its reputation as a successful educational program.

The School of Architecture participated in the inaugural Solar Decathlon in 2002, and again in 2005, advised by Steve Lee and Liza Cruze. Steve and an interdisciplinary team from Architecture, Art, and Design entered once more in 2007. Recently the competition was reorganized to include two tracks: an annual Design Challenge and a biennial Build Challenge. Last year, John Folan led the UDDBS group to the Design Challenge finals with their impressive Re-Con project. This studio aims to uphold the strong commitment to high-performance housing set by CMU's previous entries as it tackles the design of an urban Zero Energy house in the 2020 Design Challenge.



Site

At this point, several possible sites are still under consideration.

Studio Project

Depending on site selection, the studio will focus on either the Urban Single-Family (300-2500 S.F.) or Attached Housing (row homes or flats, 2-12 units, 500-2500 S.F./ unit) category.

Studio Organization

The Solar Decathlon encourages interdisciplinary collaboration and this studio has a co-requisite seminar (cross-listed as 48-359 A and CEE 12-350). This parallel course, taught by Sarah Christian and Liza Cruze, will bring architecture and engineering students together to research, design, and integrate the multiple building systems to achieve the highest level of performance.

Studio MWF 1:30-4:20, seminar TH 3:00-4:20.



Left; 2019 UDDBS Recon House, CMU Solar Decathlon Design Challenge entry.
First floor daylighting study.

Above; 2002+5 CMU Solar Decathlon entries. Under construction on the Mall, DC.



LITHOPIC* HOUSE**

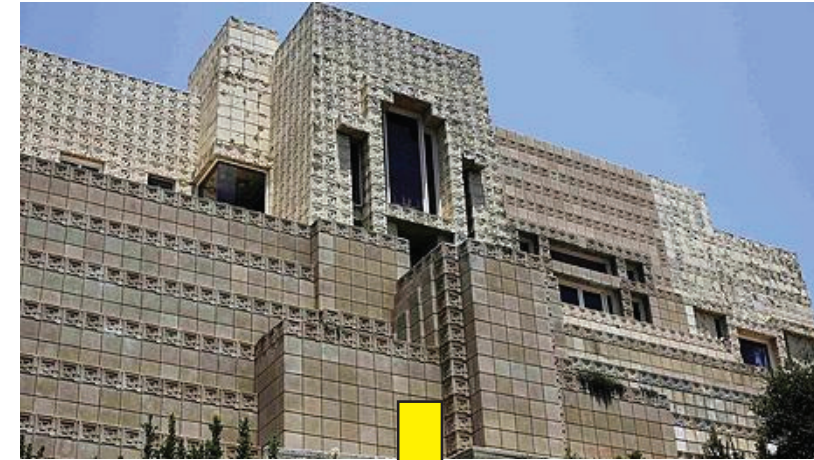
*LITHOP = Living Stone

**HOUSE = 'Here and Now' Competition

ECOLOGIES of CEMENTITIOUS MATTER

DANA CUPKOVA

“The major problems in the world are the result of the difference between how nature works and the way people think.” *Gregory Bateson*



“The 1924 Ennis House, designed by Frank Lloyd Wright: The reinforced concrete blocks were all hand-cast on the premises using the site’s own sand. Wright had a lifelong interest in periodic personal reinvention and in developing regional architecture while using local materials. His passion was closely tied to his ceaseless desire for technological innovation and, sometimes paradoxically, his interest in creating affordable housing for the middle class.”



“A small turf house in Fellabær, Iceland: Icelandic turf houses are the product of a difficult climate, offering superior insulation compared to buildings solely made of wood or stone, and the relative difficulty in obtaining other construction materials in sufficient quantities. Turf, or earth acts as thermal mass, making it easier to maintain a steady indoor air temperature and therefore reduces energy costs for heating or cooling.”

**HERE and NOW: A House for 21st Century (Competition)

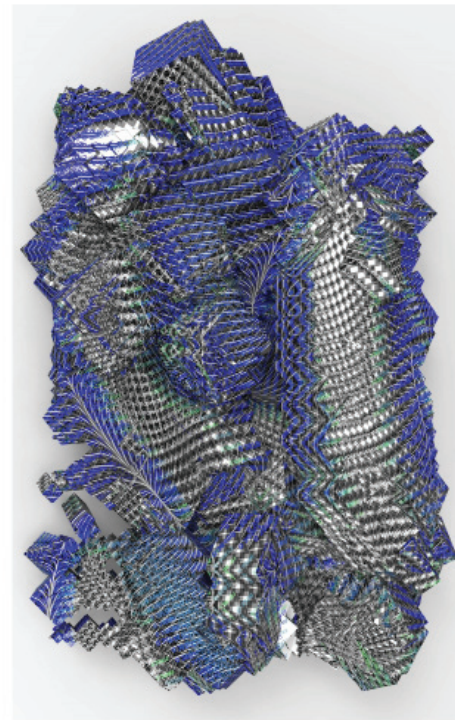
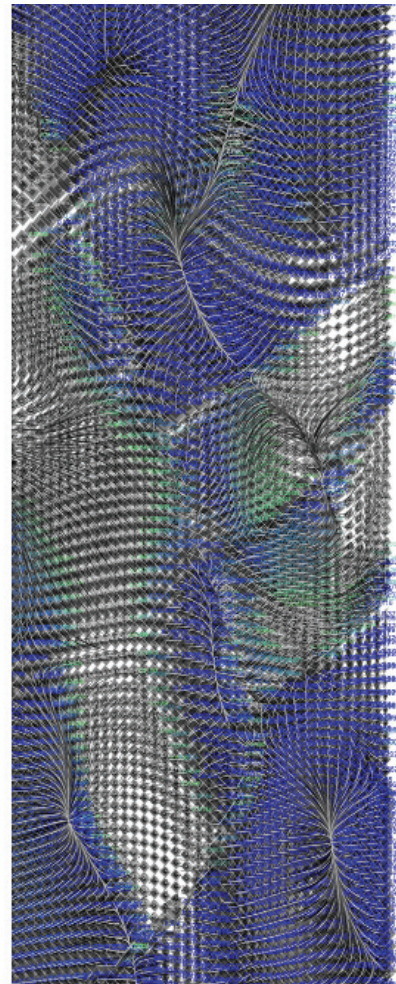
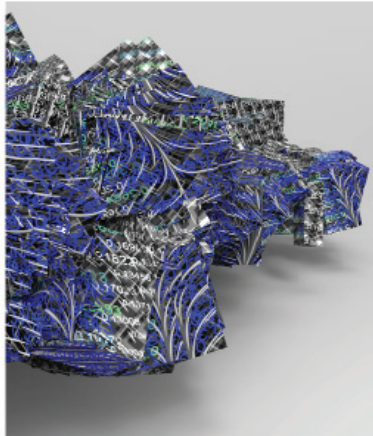
Building upon concepts of **material and urban ecologies, circular waste-streams and synthetic natures** this studio is loosely based on the competition framework announced by The American Institute of Architects (AIA), Custom Residential Architects Network (CRAN) knowledge community: *HERE+NOW: A House for the 21st Century International Student Design Competition*. Students will be strongly encouraged to enter their studio project for the competition. Administered by the Association of Collegiate Schools of Architecture (ACSA) and sponsored by AIA CRAN, this program is intended to provide architecture students, working individually or in teams, with a platform to explore residential architecture and residential architectural practice.

“According to the US Census, over 920,000 units of single family housing were completed in 2014. Many of these houses were built speculatively, as a generic prototype independent of context. Historically, Residential Architecture has represented a direct **expression of culture and context**, with local, vernacular elements informing the stylistic preference of the time. While the exterior of a house presents a more individualized image of its owner(s), the underlying design elements speak to broader cultural ideas of domesticity and family. **Technological innovation**, both in materials and systems, continues to advance the level of energy efficiency and resiliency in homes designed and built today. This competition challenges students to envision a house for *HERE+NOW*: informed by context, culture, and vernacular, but fully embracing 21st century technology and ideas of domesticity.”

LITHOPIC HOUSE

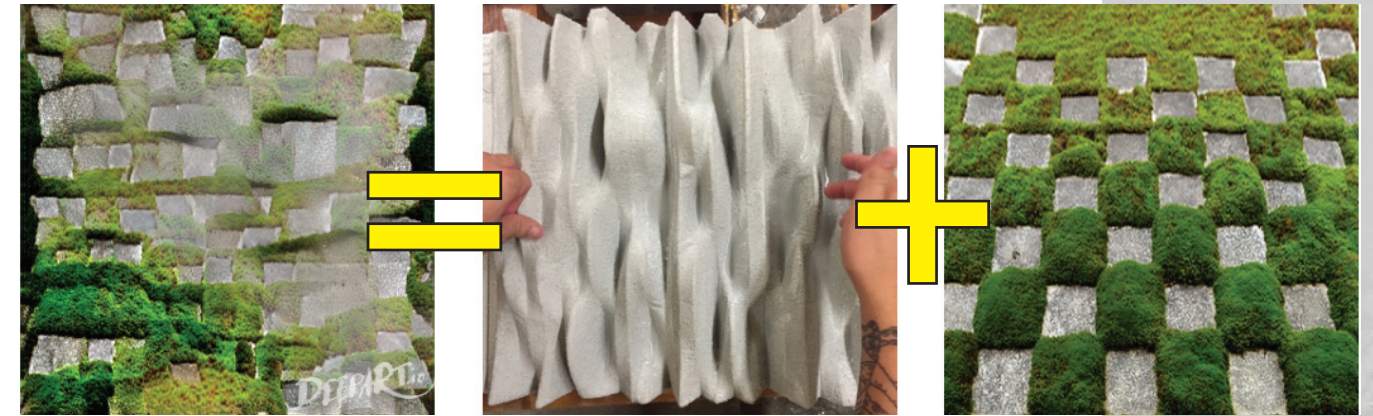
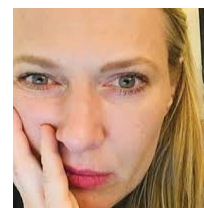
The Lithopic House is a design experiment immersed in negotiating physical prototyping with digital environments, while considering material ecologies of concrete central to design. We will seek to engage the notion of ecological attunement beyond the environmentalist paradigm, questioning the implication of the binary logic between objects and environmental ethics. The ambition is to examine architecture that inquire into energy as a primary inspiration for formation of matter. Promoting a shift away from purely data-driven rationales, the desire is to engage students in design of sensorial subjectivities as part of our collective aesthetic and ecological experience.

Geology of Architectural Form, Workshop taught at the University of Calgary: Here the use of drawing and simulation straddles across empirical and metric-based design input; questioning an acute ambivalence between the determinacy of the data and the ineffability of the sublime. This workflow tests a hybrid representation and transformative set of procedures that employ computational drawing and simulation to evolve away from a performative model, and towards collapsing the information and abstraction onto an object itself.



Lithop is a living stone that combines geological and biological qualities in a single entity. "The name is derived from the Ancient Greek words (lithos), meaning "stone," and (ops), meaning "face," referring to the stone-like appearance of the plants. They avoid being eaten by blending in with surrounding rocks and are often known as pebble plants or living stones."

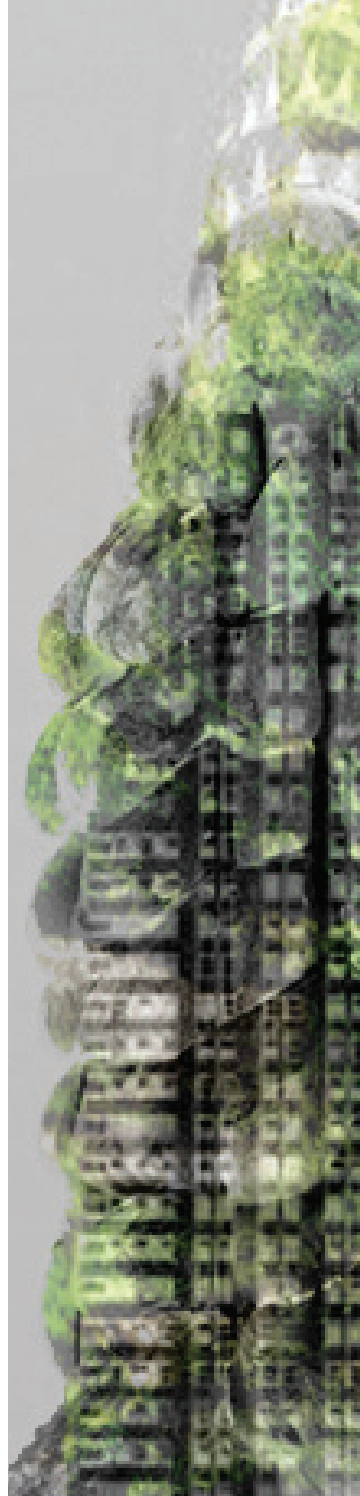
Studio will engage in computational shaping and casting strategies of concrete forms that are conducive to engaging direct growth of biological matter. The studio's workflow is based in research into embodied energy of concrete that offers cues as to design framework relative to volume to shape distribution of this material, as well as alternative materials mixtures. Early state prototyping will lead into developing a specific design strategy for a house.



Computational processes profoundly impact our understanding of the world, and precipitate new forms of human awareness, empathy and interactions with the built environment. This studio will actively engage emergent technologies, material prototyping, and testing. We will start to engage a non-figurative description of fictional objects and landscapes as a method for the formation of new forms. Rather than relying on traditional simulation feedback we will explore image to form modeling techniques through GAN (Generative adversarial networks) machine learning experiments (see the image above).

Such computational workflow forefronts a bio-technological framework of architecture and asks to negotiate differences between organic and inorganic, formal and performative, cultural and ecological, zones and boundaries, solids and gradients, proximities and tendencies, objects and fields. Using abstraction as a codifier of data sets we re-inscribed the invisible forces into formed constructs, with hope to shift the focus of design away from singular contextual 'truth' of data, towards the constraints of perception and spatial aesthetics. This workflow tests a hybrid representation and transformative set of procedures that employ computational drawing and simulation to evolve away from a performative model, and towards collapsing the information and abstraction onto an object itself.

The boundaries between information, image, and narrative are less distinct and are embedded directly within a physical artifact. This way of working re-situates the role of technology in the design process. Collapsing the space between analysis and design, while simultaneously using simulation techniques to describe shapes through non-figurative rather than representational means, opens up new ways of seeing and designing forms. To a degree, there is a representational literalness to the process of visualizing thermodynamic and naturalistic processes that are directly actuated by shape and matter.



HARDCORIST LECTORES

AND THEIR WORLDMAKING LABORATORIES

Nathalie FRANKOWSKI + Cruz GARCIA
WAI Architecture Think Tank



The only purpose of education is to make new worlds collectively. This requires the practice of curiosity as a daily habit and the exercise of dignified and purposeful rebelliousness. Other worlds are possible. -Post Novis Manifesto

Left: Join POST-NOVIS
Worldmaking, Propaganda Poster,
2019

Right: Join Post-Novis in the
Cornfields, Propaganda Poster,
2019

MANIFESTO

In a drive for human emancipation, the last hundred years witnessed the creation of various avant-garde schools, workshops, and laboratories that strived to blur the boundary between art, architecture and life. Starting with the People's Art School in Vitebsk in 1918, and followed by the Bauhaus (1919), Unovis (1919), Vhikutemas (1920), GINKhUK (1923) and Black Mountain College (1933), a century of turmoil paved the way to a series of transcendental institutions set to liberate architecture from the constraints of previous epochs.

A hundred years after the foundation of Unovis, Bauhaus and Vhikutemas, 'HARDCORIST LECTORES AND THEIR WORLDMAKING LABORATORIES' reconsiders the relationship between pure form, radical pedagogy, and the creation of spaces for the exploration and development of critical forms of architecture. HARDCORIST LECTORES AND THEIR WORLDMAKING LABORATORIES' explores the possibility of Universal Workshops and Architectures of Emancipation.

If a theory is critical inasmuch as it seeks for forms of human emancipation, critical architecture employs its mediums, strategies, methods, concepts, narratives, spaces and forms to liberate humans from the pressing challenges of our times. In the midst of environmental decay to the point of no return, with the asphyxiating grip of neoliberal capitalism, and the crushing socio-economic effects of the Anthropocene, the gospel of the Cubo-Futurist Opera Victory Over the Sun seems not so distant after all.

'HARDCORIST LECTORES AND THEIR WORLDMAKING LABORATORIES' reconsiders the relationship between radical form and radical program, as buildings become inseparable from the activities, programs and manifestoes they host.

Divided in two main parts, the studio will go from pure research, while designing multimedia installations (drawings, storyboards, film, collages, and models) not only the buildings and the relationship to their surrounding landscapes, but the stories of these WORLDMAKING LABORATORIES FOR HARDCORIST LECTORES.



Weimar 1919

In 1919 Walter Gropius published the manifesto and program of the Staatliche Bauhaus. A new, radical school of design and art founded during the beginning of the Weimar Republic. With one of the most transcendental curriculums, the school also confronted the constraints of old world orders.

Vitebsk 1919

In 1919, the year the Bauhaus was founded, a laboratory to blur with architecture the line between art and life was formed inside the People's Art School in the small town of Vitebsk. While already in 1918 Marc Chagall had founded the school in what is now known as Belarus, it was the following year that Vera Ermolaeva (who will become the school's Director in 1920) invited Kazimir Malevich to join from Moscow. Founded by Malevich and with Lazar Khidekel, El Lissitzky, Ilia Chasnik, Nina Kogan, and Ermolaeva among its ranks, UNOVIS (an abbreviation of Utverditeli novogo iskusstva - Champions of the New Art) became one of the first experiments of collective cultural production, developing a collective idea of architecture searching for ways to transform the world.

Puerto Rico 1919

A century ago (1919) in the US colony of Puerto Rico, a group of tobacco workers, organized in anarchist syndicates, creating a radical alternative practice of education. That practice grew international networks like tentacles over the map of the Americas, from San Juan to New York, from Ybor City and Durham to La Habana and Santo Domingo, giving birth to what some historians call the most enlightened proletariat force in the continent. The practice was simple. While tobacco workers engaged in the boring labor of rolling cigars, they would hire one of their own who knew how to read, to read for them during the entire work-day. As the practice of loud-reading grew, the lectores (loud-readers) will become traveling performers with an international audience, creating networks of solidarity all around the Caribbean as well as a massive, shared and open access oral library to workers who were denied any other form of formal education. The books that the lectores read for the workers were mostly books of philosophy or literature that shared an anti-capitalist imagination. The tobacco workers, then, turned the mind-numbing quality of their repetitive manual work of rolling cigars into an advantage, using the same space and tools of their capitalist exploitation to create an anti-capitalist underground culture.



*Post-Colonial Landscape No.2:
Floating Fortress (Georgii
Krutikov Palace), 2018*

**Site**

*Post-Colonial Landscape No.1:
Camp of Ideological Monuments,
2018*

Worldmaking Laboratories

A hundred years after the foundation of the Bauhaus, and the formation of UNOVIS, a new collective questions the state of academia and wonders if the lectores can exist in Architecture. After all, hasn't architecture been turned into a form of alienating work for most? Aren't potential visionaries kept away from controlling their means of production? Aren't the endless hours of uninspiring architectural labor a form of rolling cigars for the plantation owners?

HARDCORIST LECTORES presents the mechanisms, actions and projects that carry out the design of WORLDMAKING LABORATORIES and their program in its effort to disconnect itself from the commodification of architecture (practice and education). Relying on a system of alternative institutions across the world (within the tropical forests in the Caribbean, old industrial buildings in Asia, and the cornfields, and factories in the American post-industrial landscapes HARDCORIST LECTORES reveals the properties of its camouflaging buildings, the critical nature of its, non-objective, feminist, eco-visionary and post-colonial curriculum and the combative characteristics of its architectural projects carried out by teachers and students in their fluctuating roles. In the WORLDMAKING LABORATORIES all the students are the teacher!

Narrative Architecture and Hardcorism

This studio uses a mixture of Narrative Architecture and Hardcorism as its theoretical framework. Narrative Architecture is a form of architecture that through a mixture of narrative texts and a vast repertoire of images (collages, photomontages, drawings, storyboards, comic strips, animations), creates allegorical stories to explore the potential of architecture, urbanism and their effect in the environment. Hardcorism aims to reveal the potential of architecture as pure geometric form. The studio focuses on advanced tools of research, development and representation, recognizing that there is no architecture without the stories that originate and occupy it. An architecture without narrative is an architecture without self-awareness and criticism. Narrative Architecture invites to raise critical questions challenging our way of understanding the potential and limitations of architecture. In order to address Narrative Architecture, the studio proposes to rethink the history and potential of modernisms and the avant-garde from an alternative point of view. The subjects of study oscillate from the pure forms developed by Malevich, Leonidov, El Lissitzky, Vera Ermolaeva, Lyubov Popoa, Lazar Khidekel, Buckminster Fuller, Iza Genzken, to the philosophical positions of Donna Haraway, Achille Mbembe, Ana Lydia Vega, Luisa Capetillo, Sayak Valeincia and Boris Groys.

COOPERATIVE HOUSING NEIGHBORHOODS AS COMMONS

Stefan Gruber



“Growth is a systemic necessity of the current economic system but overstretches the ecological capacities of the planet. A sustainable economy cannot be based on growth. Its material impact should be shrinking, and shrinking fast.”

- Hans Widmer

*Opposite: Cooperative Housing
Sargfabrik, Vienna, Austria
by BKK3
Photo: LennartHorst*

*Right: Dragon Court Village,
Japan by Eureka architects
Photo: Ookura Hideki*



Background

How will we accommodate life for the 10 billion people anticipated to populate the world by 2060? Mounting evidence shows that our current lifestyle transcends planetary boundaries and urges us to radically rethink how we live. For reasons of ecological and social justice, we have to reduce our primary energy use to no more than 2000 Watts (i.e. 2 kWh per hour or 48 kWh per day). Taking into account not only personal or household energy use, but the energy consumption of society as a whole, the 2000-Watts society vision requires us to consider the overall metabolism of cities, including the flow of people, goods, food, waste and embodied energy. Beyond technological solutions, this will lead us to reconsider social norms and the way we live in common. As capitalism is shedding its material origins and we transition from a culture of ownership to one of access structured around the sharing of resources, new typologies for collective forms of living and working emerge. Against this backdrop, the concept of neighborhoods as commons is moving to the center of debates about sustainable and resilient futures. In the spring we will explore cooperative housing as a key ingredient for the 2000-watts-society. [“A proposal”](#) developed by Swiss writer Hans Widmer (aka. P.M. and author of [bolo’bolo](#)) will serve as studio brief to be applied to a Pittsburgh neighborhood. Studios at other universities around the world have been invited to work on the same studio brief, with the aim of forming an exchange platform and the possibility of comparing how the application of “a neighborhood as commons” based on the 2000 Watts society might look like in radically different cultural and climatic contexts.

Studio Project

The studio will approach the design of a multi-unit mixed-use housing project in Pittsburgh from two ends: On the one hand, students will design a minimal dwelling unit and its aggregation to a larger whole, investigate the differentiation between private, common and public spaces. The aim is to envision

housing typologies that go beyond the normativity of the nuclear family. Today, one third of households in the U.S. live alone, contributing to a fast spreading loneliness epidemic. The studio will challenge “the trap of the American dream” (Mike Davis) and explore alternative forms of co-housing and their potential in serving community wellbeing.

On the other hand, students will study and analyze the neighborhood, its morphology and the social, economic and ecological forces at play in shaping the build environment, in order to arrive at an urban design scenario that provides the foundation for a more ecological and sustainable lifestyle. Throughout the design process, models of cooperative ownership and practices of commoning will inspire the discussion about how to tackle inequity and the challenges of housing affordability.

The studio will begin with an initial phase of research, including international precedents, followed by a speculative design project. Students will work with one of two organizational principles: the compact block versus a dispersed infill scheme, gauging the pros and cons of adaptive reuse versus ground-up construction.



Above: Housing cooperative Kalkbreite, Zurich, Switzerland, by Müller Sigrist Architekten.
Photo: Martin Sollenwek



Above: Around the Corner Grain | Eureka + MARU, Urawa Ward, Japan

This studio is the first in a sequence of studios aiming at the implementation of a co-housing unit in collaboration with Steve Lee, Lisa Cruze and the design-build studio. In the spring 2020 we will frame the problem of affordable housing at a neighborhood scale and evaluate different typological approaches. The student’s projects will lay the foundation for future studios in which we will go through a community engagement process and develop a co-housing project to be designed and built. Thus, while this studio will remain speculative, it will be anchored in reality.

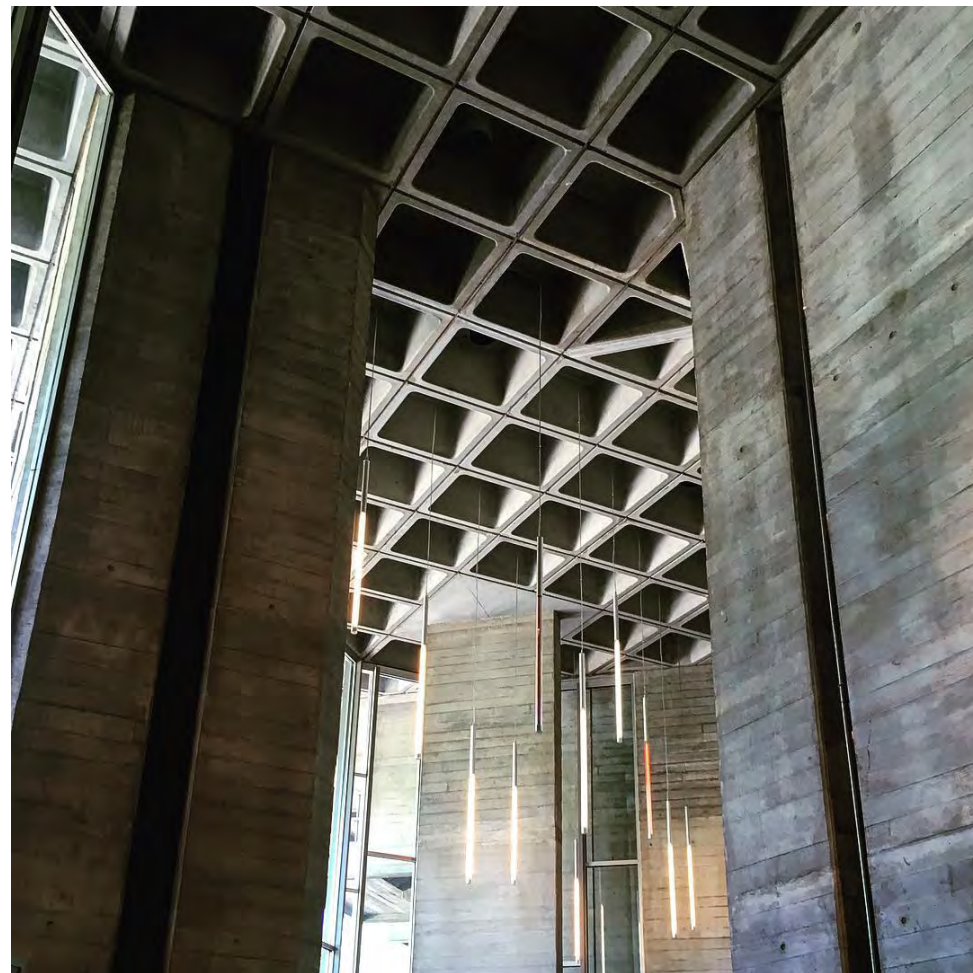
Learning Objectives

- You can situate your design work within broader social, ecological and economic challenges and find design agency beyond dominant forms of practice. Your goal isn’t merely to adopt contemporary best practices, but to prepare and change architecture practice for the future.
- You recognize the impact of architecture within the overall metabolism of cities and inform design decisions based on resource efficiency.
- You understand the fundamental organizational principles of housing and can translate these into the development of new typologies.
- You adapt your design to the specificities of an urban context and consider your design impact on community wellbeing and resilience.

HUMANIZING BRUTALISM

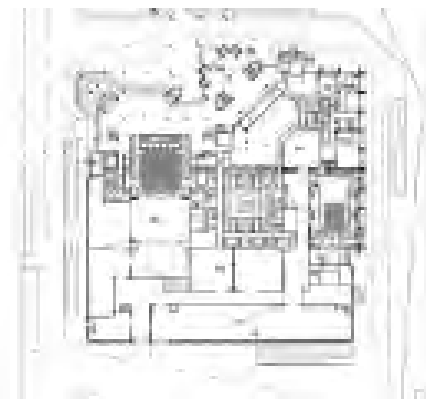
LONDON'S SOUTHBANK CENTRE IN THE 21st CENTURY

Hal HAYES



“We are all in the gutter, but some of us are looking at the stars.”

Oscar Wilde



top & left; National Theatre
Theatre
l to r: Hayes, Block, Limauro,
Crawford



Above and Left: National Theatre, London, architect
Dejns Lasdun, completed 1976

Background

Two of London's defining characteristics are its physical legacy of post-war brutalist architecture and its cultural tradition of English drama. This studio will explore the seminal integration of these two art forms at London's landmark Southbank Centre and study how they may be adapted, reinterpreted, and further developed to serve the needs and capitalize on the technological opportunities of the C21st.

Project

A semester-long individual project, the design of a flexible 500-seat performance chamber, has the goal of symbiotically integrating the existing venues, transforming the Centre's identity. Students will address master planning the Centre's expansion, building design and morphology of form & surface holistically.

Studio Organization

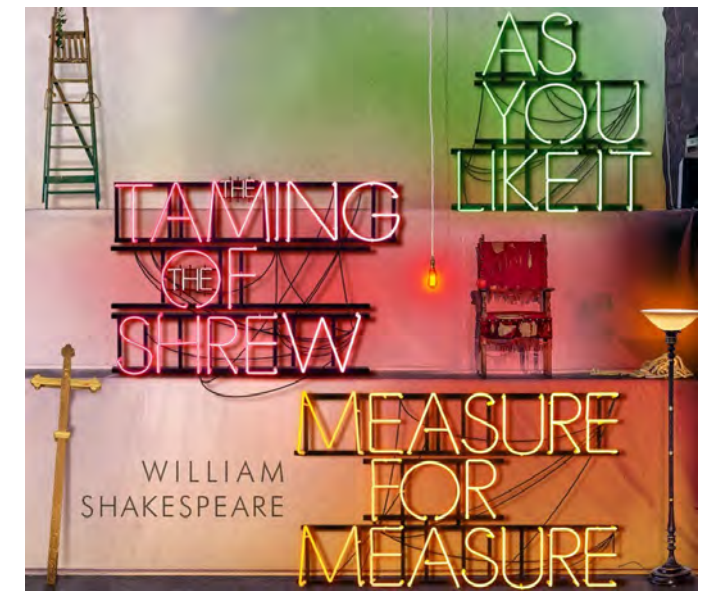
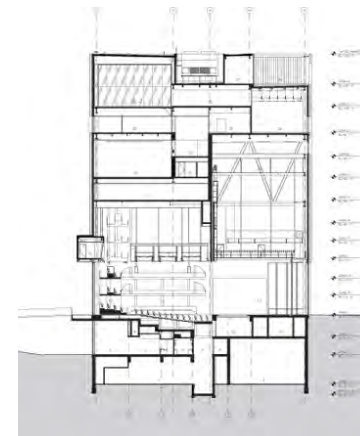
Interdisciplinary collaboration with CFA Drama & Heinz Arts Management students in the co-requisite Theater Architecture class will be the basis for team research, programming and planning for the new chamber. Faculty Dick Block & Cindy Limauro of Drama, and Brett Crawford of Arts Management, will contribute to this course and studio reviews throughout the semester.

Studio Focus

The view of the studio is that critical practice is defined as 'how to make a real building'.
The design focus of the studio is also; conceptual, sustainable, urban, and comprehensive.



Above; Wylly Theatre, Dallas, TX,
architect OMA, photo Iwan Baan.
Left: Theatre under construction
Below: N-S section



Top: Laban Dance School, Herzog de
Meuron architects, 2002
Above: 2020 RSC program at Barbican.

Spring Break

There will be a Spring Break site visit to London and continuing on to Paris (incl. travel stipend for theater architecture students with unmet financial need)

London week

- Southbank Centre (various)
- Shakespeare's Globe Theater
- The Barbican (Chamberlin, Powell, Bon)
- Young Vic Theater (Haworth Tompkins)
- London Eye (various)
- The Shard (Renzo Piano Workshops)
- Tate Modern (Herzog & de Meuron)
- British Museum Great Court (Foster and Pttnrs)
- Laban Dance Centre (Herzog & de Meuron)
- Evelyn Grace Academy (Zaha Hadid)
- architecture office visits

Stratford-upon-Avon day

- Royal Shakespeare Festival Theater
- The Swan Theater

Paris final weekend option

- Opera Bastille (Ott)
- Palais Garnier Opera (Garnier)
- Théâtre du Châtelet (Davioud)
- Parc de la Villette/Cité de la Musique (Tschumi, Gehry, Nouvel et al.)
- Fondation Louis Vuitton (Gehry)
- Centre Pompidou (Piano & Rogers)
- Villa Savoye (le Corbusier)

**Advanced
Synthesis
Option
Studios**

F19/S21

F20

- * **Akhil Badjatia**
- * **Liza Cruze**
- * **Gerard Damiani**
- * **Jeremy Ficca**
- * **Stefan Gruber**
- * **Hal Hayes**
- * **Christine Mondor**
- * **Nida Rehman**

LANDFORM STUDIO

GERARD DAMIANI

“As long as you’re going to make a sculpture, why not make one that competes with a 747, or the Empire State Building, or the Golden Gate Bridge.” -

Michael Heizer



Above: Michael Heizer's *_45°, 90°, 180° of City*

Opposite: Michael Heizer's *Levitated Mass*

Background

This studio will look at landform art in particular the works of Michael Heizer (b. 1944), a contemporary artist who specializes in large-scale site specific sculptures such as *Double Negative* (1969-70). Many have categorized Heizer as a landform artist such as Walter de Maria and Robert Smithson, However, Heizer disagrees stating no one really knows or understands what he is doing. This studio will attempt to understand how he is different than the others within this category.

Heizer suggests that his work relates to what he calls “traditional of regionalism”. His work dares viewers to experience art on a super human scale. His larger works reject the artist’s studio and the gallery by making monumental works within the desert landscape. Instead, his work relies on the beauty of natural materials, rock, dirt and the land itself.

It is just not my inclination to make small work.

-Michael Heizer

Site

The co-existence between land art, building and landscape will be explored at various scales during the semester. Architecturally, this studio will study the works and writings of Heizer and his contemporaries to discuss the distinctions between sculpture (art/ architecture) and the normal object such as rocks, terrain and landscape.

Weekly readings

Land and Environmental Art by Jeffrey Kastner

Michael Heizer: The Once and Future Monuments by William L. Fox

Michael Heizer by Emily Wei Rales

Sculpture in Reverse by Michael Heizer

Double Negative by Michael Heizer

Landform Building Stan Allen editor

On Weathering, The life of Buildings in Time by Leatherbarrow and Mostafav

Troubling Troublemakers by Chris Taylor

Case Studies

The studio will also study the works of artists & architects who make architectural works that relate to a larger understanding of landscape.

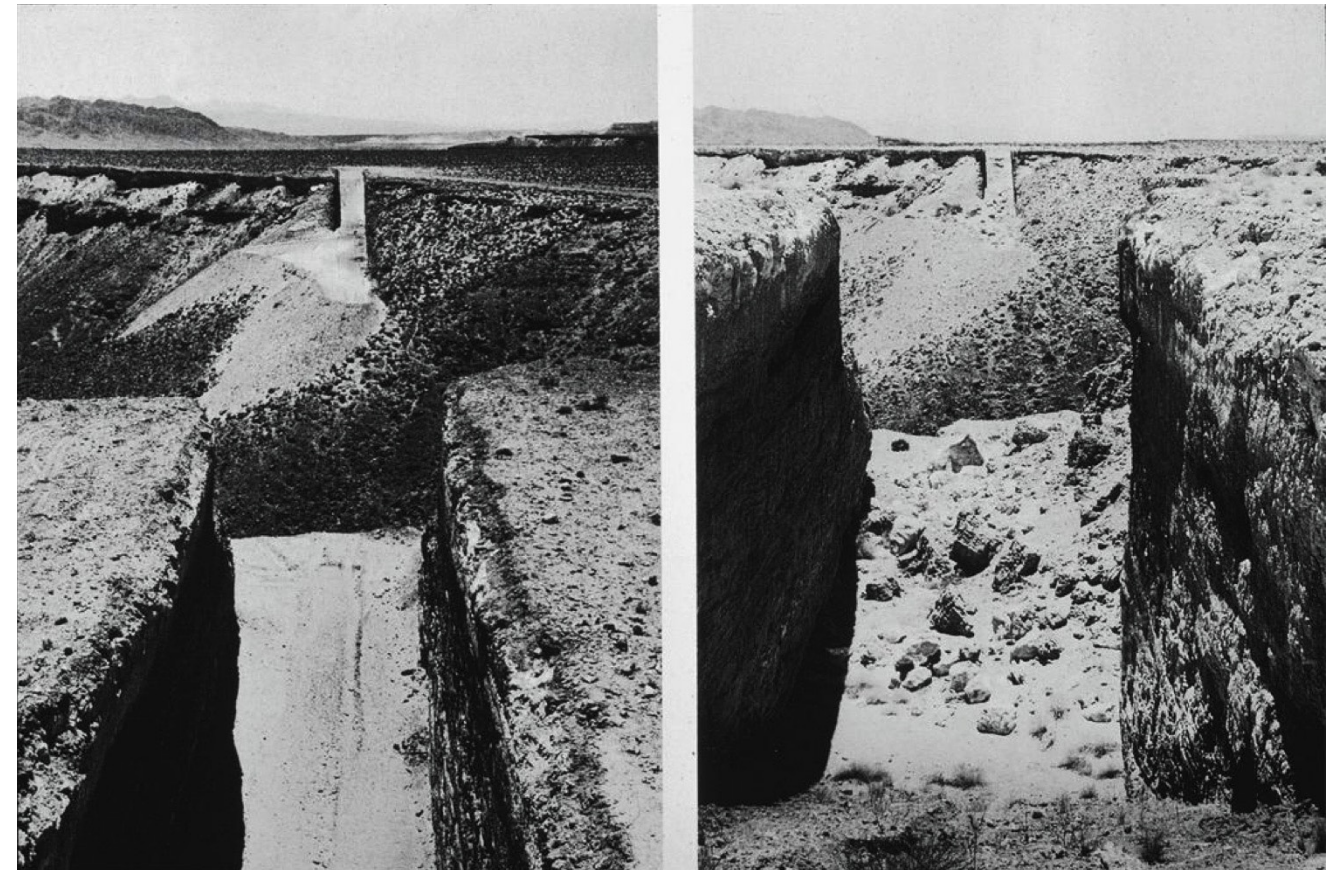
James Turrell
Ensamble Studio
Peter Zumthor
Smiljan Radic
Enric Miralles
Thomas Phifer



Final Project

A studio project for a travel lodge in the vast desert landscape will be the final studio project.

As part of the studio, the studio will visit the Double Negative northwest of Overton, Nevada in the summer of 2020 before the start of the fall semester. The Double Negative (1969-70) is a 1,100-by-42-by-30-foot work located at Virgin River Mesa, Nevada. Heizer and his crew gouged and carved 240,000 tons of rock out of facing cliffs to form two mammoth vertical trenches.



“Michael Heizer: ‘You might say I’m in the construction business’”

Recommended links

<http://doublenegative.tarasen.net>

<https://www.newyorker.com/magazine/2016/08/29/michael-heizers-city>

<https://www.moca.org/visit/double-negative>

<http://www.artnews.com/2015/06/26/theres-no-understanding-of-my-work-michael-heizer-on-his-monumental-art-in-1977/>



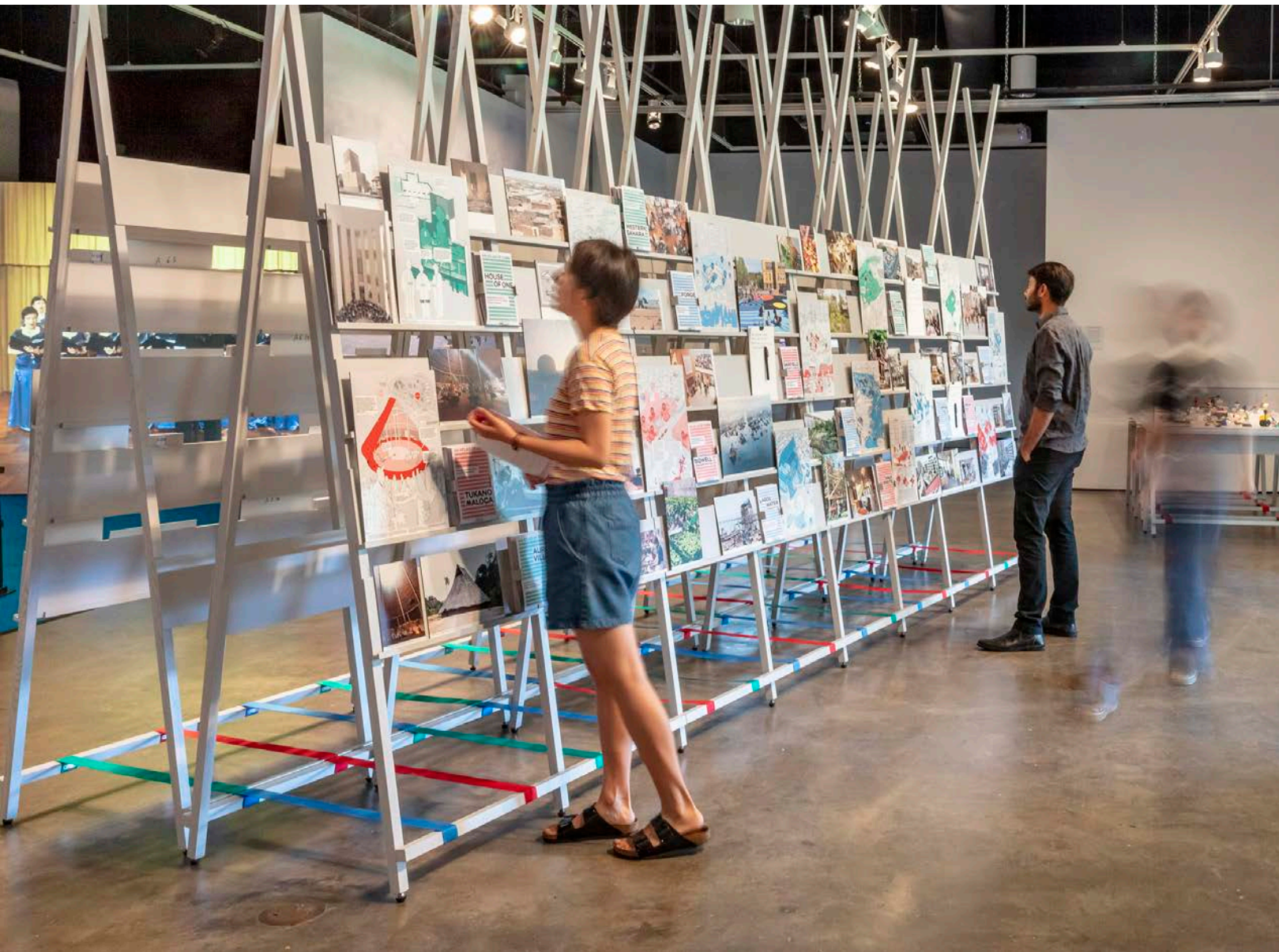
*Opposite left: Michael Heizer
Opposite right: Michael Heizer's
Double Negative*

*Above: Michael Heizer's Double
Negative*

COMMONING THE CITY

year-long research-based design project

Stefan Gruber
Jonathan Kline



Background

This two semester research-based-design studio is focused on the bottom-up transformation of cities and explores how designers and planners can tap into the self-organizing behavior of cities in order to empower citizens to claim their right to the city. The first semester, taught by Stefan Gruber, will focus on collective case study research and the development of an individual design thesis proposal. The second semester, taught by Jonathan Kline, will support students in developing their individual projects culminating in an exhibition at the Miller ICA. This year-long studio is required for all second year Master of Urban Design students and open to 5th year BArch students and MArch students. For ASOS students the studio is an opportunity to pursue a year long thesis within a structured research context exploring urban commoning.

Research

The commons are emerging as a key concept beyond the binaries of public and private space for tackling the challenges of the contemporary city: How to build urban resilience in the face of dwindling resources? How to tackle growing inequity in the face of polarizing politics? How to articulate common interests despite increasing social individualization? And how to find agency as architects given the scope of these challenges? Here commons are understood as a set of practices dealing with the production and self-management of collective resources and spaces beyond contemporary forms of domination, such as class, gender or race. The studio's research will continue a collaboration with [ARCH+](#) and [ifa](#), contributing to the traveling exhibition *An Atlas of Commoning*, that will be travelling in Latin America in 2020/21.

Opposite: *An Atlas of Commoning*
at the Miller ICA, Pittsburgh
Photo: © Tom Little

Right: *Clearance* - 2018 Spring
Thesis Exhibition at the
Miller ICA. Project: Yidan
Gong - Commoning Gejiangyin
Community amidst Wuhan
Metropolitan.



Program**Fall: Research-based Design**

During the fall semester the studio will collectively produce an “Atlas of Commoning,” assembling case studies that critically explore practices of urban commoning in the Pittsburgh region, and embed them in a broader context of societal transitions. Students will research both assigned and self-identified cases and produce summaries and comparisons in a shared graphic format. In parallel students will develop an individual thesis proposal for how practices of commoning might transform an urban community and site of their choosing. In the fall students will also be asked to enroll in the co-requisite 9 unit seminar: 48-740 Urban Design Methods and Theory taught by Jonathan Kline. In preparation to the year-long project we recommend taking the 3-6 unit seminar 48-712 Issues of Global Urbanization taught by Stefan Gruber.

Spring: Design-based research

Building on our collective research, the spring studio will focus on developing individual thesis and design proposals exploring the theme of urban commoning. For the project students will be expected to take a personal position and formulate a thesis, expressed and explored through design. The site, program and general parameters of the project will be determined during the fall, allowing students to gather data and base materials over the winter break. Thesis projects will culminate with an exhibition and review in the Miller ICA and the creation of a final thesis book.



Above: Clearance - 2018 Spring Thesis Exhibition at the Miller ICA. Project: Paul Moscoso Riofrio - Strategy for informal waterfront developments in Gayaquil, Ecuador. Photo: Stefan



Above: Metathesis - 2019 Spring Thesis Exhibition at the Miller ICA. Project: Jianxiao Ge - Socioplis: Reimagining Public Housing in Taipei. Photo: Jianxiao Ge

Learning Outcomes

In this studio you will develop skills for documenting, analyzing and critically evaluating precedents that act as catalyst for the bottom-up transformation of cities. You will learn to contextualize these spatial practices, and ultimately your own design practice, within a broader social, political and economic discourse. As you begin to better understand the forces at play in shaping the built environment and in turn how buildings shape us, you will learn to both question and sharpen the agency of architecture and reflect on alternative more collaborative modes of design and radical imagination. You will further experience how what is often conceived as binary opposition between theory and practice, thinking and acting, can in fact be intricately linked and lead to invigorating synergies. The hypothesis here is that every reading of an urban milieu is also projective, every reflection on what is, entails a projection of what could be, in short a latent design project for an alternate possible future. Utopia is typically thought of as something that lies in the future. Meanwhile in our research on practices of commoning, we will see that everyday utopias are in fact all around us. Accordingly, in this studio we will explore research based design as glance back to enact a future vision.

THE TRANSFORMATION OF WASTE

NET POSITIVE SPECULATIONS OF THE C21st

Hal HAYES

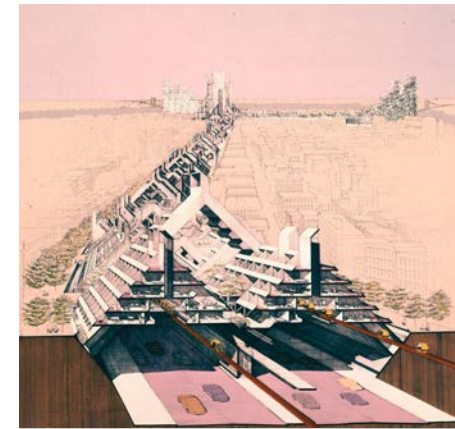
“We must open up our eyes
And seize and rend the veil
Of smoke which man calls Order.
Pollution is a necessary result
Of the inability of man
To reform and transform Waste...
The Transformation Of Waste
Is perhaps the oldest
Preoccupation of Man,
Being the chosen alloy
He must be reconnected...
At all cost inherent.

Within us is the dream
Of the alchemist to create
From the clay of Man,
And to re-create
From (the) excretion of Man
Pure, and then soft,
And then solid gold.
All must not be Art,
Some art we must
Disintegrate,
Positive (Entropy)
Must exist.“

- Patti Smith, 25th Floor

Sustainable Megastructure: NYC Gansevoort Peninsula/Pier 52-53 Redevelopment

This studio is about architecture concept and design methodology. A semester-long theoretical project for a complex high density development on the Hudson River in Manhattan will be the vehicle for our study. Growing populations and economies increasingly stress our environment. The waste products of industrial civilization cause both pollution that affects our health and climate change, resulting in rising sea levels and increasingly severe weather. These factors collide in the New York City waterfront where storm surges cause damaging flooding around marine transfer stations which export the city's 20,000 tons of daily waste to remote disposal facilities. Yet these areas are among the most desirable development sites in one of the planet's most vibrant megacities. Students will develop design theses exploring how these environmental imperatives can be addressed by harnessing the economic opportunities of development.



Challenge

This studio will challenge the student to address the full range of complex, interrelated design issues of a new major marine transfer station combined with large, dense mixed-use program. Students will explore structure, infrastructure systems and building morphology on a grand scale, with major new program integrating with already existing buildings, systems and environments.

Foundation

Students will explore concept & design methodology through a lens of 20th century & contemporary conceptual theory and development strategies. Student teams will build a foundation of research into design speculations, studying successful and unsuccessful historic precedents from the futuristic visions of Antonio Sant'Elia through the unbuilt megastructures of Paul Rudolph and the contemporary theories and projects of Rem Koolhaas, James Corner|Field Operations, Bjarke Ingels Group and others.



Discussion

Studio discussion and design will primarily address;

- Massive Density & Complexity; design and context issues of megastructures, supertalls, groundscrapers, symbiotes/parasites etc.,
- Theory & Concept; historic, contemporary and futurist theories and rationales for the development of megastructures.
- Sustainable Systems Integration; transportation, water conservation/recycling, power generation, waste upcycling, and other systems.

Students will test and expand their conceptual and technical design skills in all key areas, with particular focus on exploring issues arising from architectural, structural, infrastructural and mechanical systems at very large scale and extreme complexity.



Site

The site is centered on the Gansevoort Peninsula/Hudson River Piers 52 & 53, a former NYC Sanitation Department Marine Transfer Station. It is currently planned to become mostly open space as part of the Hudson River Park corridor with some necessary fire and sanitation department infrastructure.

Students will expand this program and the site as needed for their individual project definitions, exploring major new or expanded infrastructure facilities the northern terminus of the High Line, several blocks of the Hudson River Park, and connection to the Hudson Yards subway station.

Program

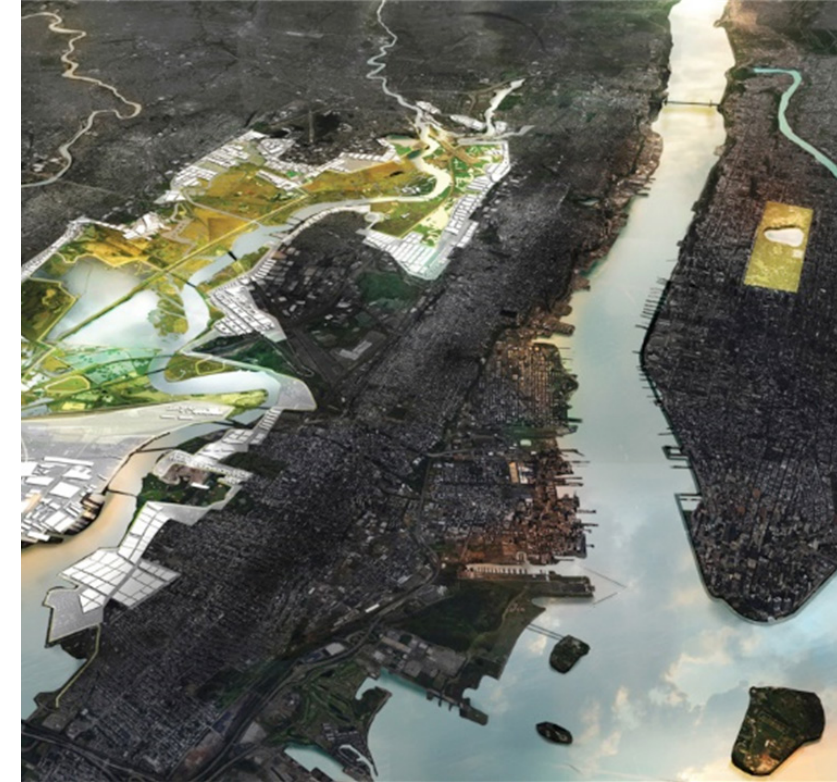
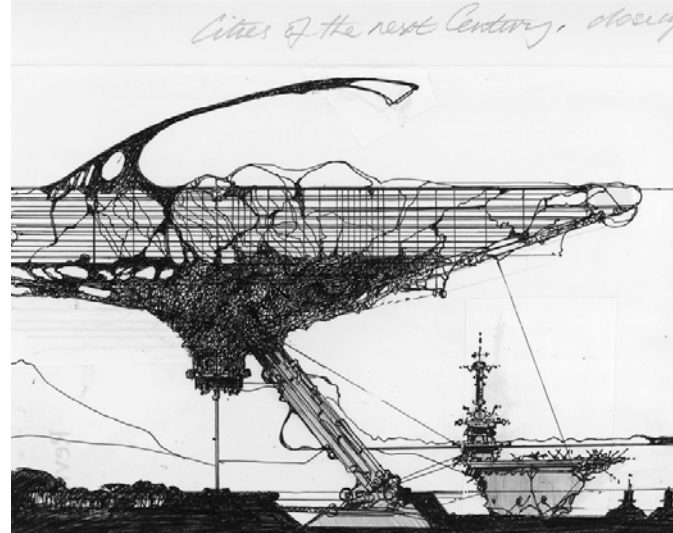
The base program will be 175ksf of open space and recreation, with an equal or greater amount of commercial, institutional and/or infrastructure functions. Additional program is to be determined by the students in groups during the first three weeks of the semester. These program frameworks will be the basis of individual or group semester design/research projects. Students will expand and develop the program to create a unique project which may, or may not, be related to other student projects.

Lectures

Studio lectures will address relevant architecture and urbanism theory from 1920s Futurism and Post-War Modernist Urban Design to Rebuild By Design and current planning & development trends, as well as iconic designs of New York and local precedents including the Time Warner Center, Riverside South Master Plan, the seminal 1969 Plan for New York City, Central Park, and the Gridiron Plan.

NYC Field Trip

New York Harbor, the Economic Engine of a Continent. The studio will make a two-day site visit and field trip on Sunday and Monday in September. We will study and tour the Hudson Yards, World Trade Center, Time Warner Center, Grand Central, Midtown Manhattan, Hudson and East River Piers, Central Park, an SOM office visit, and go to a Broadway show.

**Media**

This studio will emphasize the use of hand sketching, physical models and iteration of design, research and analysis at varying scales and degrees of resolution. Students must also expand their mastery of digital and parametric tools for both analysis and conceptual/morphological design development.

**Methodology Weeks 1-5**

Students will begin work in teams in an intense and challenging pre-design exercise to understand the site, learn about similar projects from the past, current development and future possibilities, determine minimum and maximum development requirements, conceive several alternative design frameworks and common basic requirements for individual work to follow.

- Analyze the existing site and identify key design opportunities & issues.
- Develop alternative programmatic and performative goals.
- Learn design and planning methodologies to effectively address complex projects.
- Balance the needs of project parameters as an interdependent network of autonomous systems.
- Professionally document their individual and group work and for publication.

Methodology Weeks 6-10

Students will conceive and define unique project/research proposals, building on the group work and alternative concept frameworks from the first third of the semester. Collaboration between pairs or groups of students to create a hypothetical development context for the entire site are encouraged. Individual projects will be further defined from proposal, development and confirmation, and may be based on the entire site and program or distinct separate components.

- Form collaborative groups of students with compatible design and development goals and priorities.
- Individually define a concept design for the project in concert with your collaborators' development of their project definitions based on the complex site, context and programmatic design parameters.
- Develop & evaluate your concept definition with individual and group based project goals and criteria.

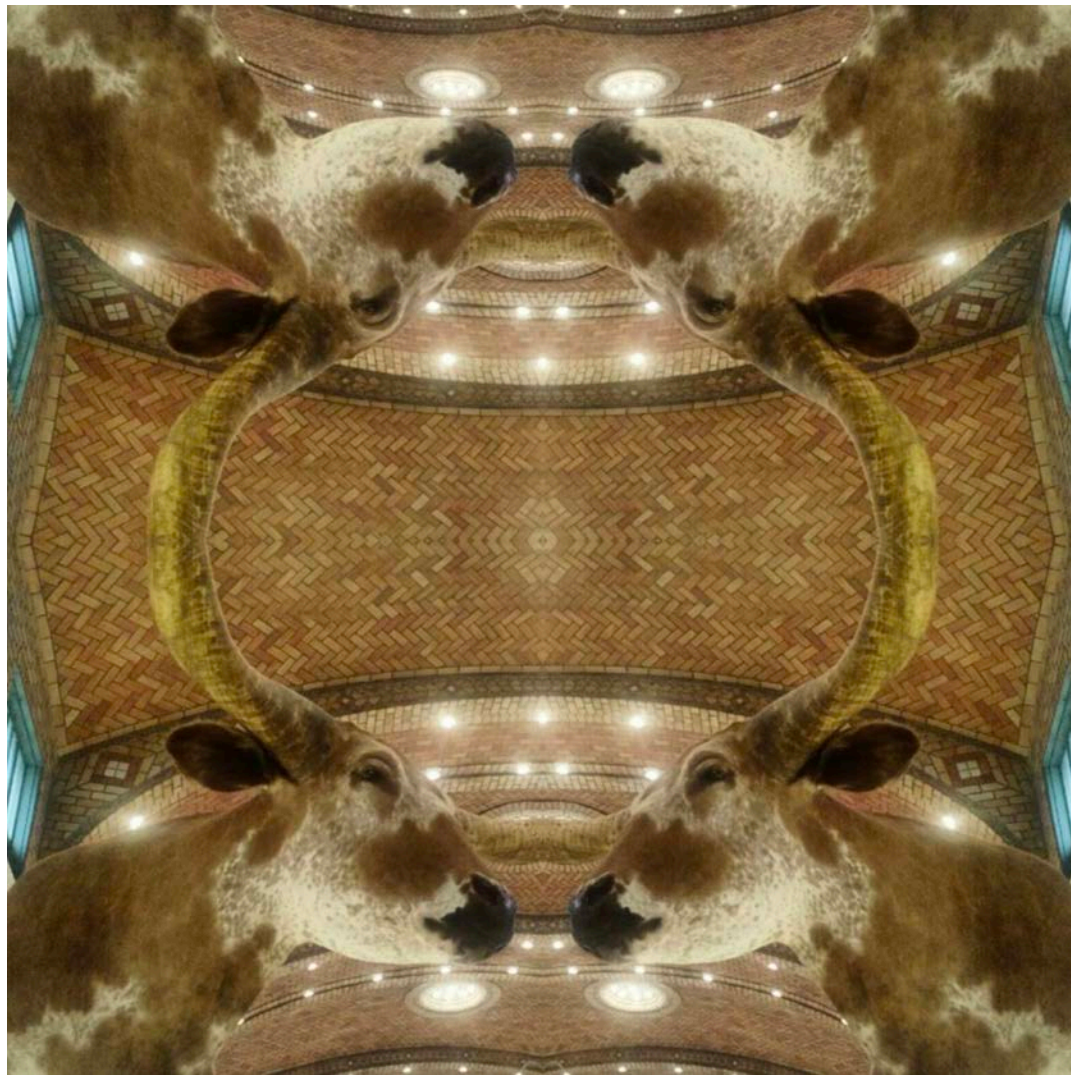
Methodology Weeks 11-15

Students will fully develop their project concept designs.

- Explore alternatives and iterations at all levels of concept and design development.
- Prioritize design development by conceptual hierarchy, with the overall design developed conceptually, key elements developed schematically and iconic/seminal spaces designed in detail.
- Professionally document their individual and group work for publication.

MORE-THAN- HUMAN CITIES

Nida Rehman



Above: West Side Market
image credit Daniel Cardoso Llach

The recent turns (or returns) to more-than-human, post-human, materialist, and vitalist frameworks in the environmental humanities, social sciences, and science studies have linked a range of concerns about space, ecology, politics, and agency. This advanced studio introduces these frameworks, and specifically addresses the questions they raise for architecture and urban design. Drawing from perspectives in anthropology, science studies, urban ecology, geography, and planning — including the work of Anna Tsing, Donna Haraway, Nicole Shukin, Jane Bennett, Jennifer Wolch, and others — the studio foregrounds the cultural and material politics of representing urban natures; the expected and unexpected roles of non-human others including pests, pets, and plants in shaping urban space and politics; the socio-ecological hybridity of processes of urbanization; and the vital materialism of architectures, infrastructures, atmospheres, and climates. Through exercises and projects based in the post-industrial and fast-changing urban environmental of Pittsburgh, students will develop new methodologies and speculations for design in light of the entanglements of human and nonhuman life in urban areas, reflecting on the ethics of action and design practice with respect to relational conceptions of agency and effect.

‘Our ghosts are the traces of more-than-human histories through which ecologies are made and unmade.’

from introduction to Arts of Living on a Damaged Planet editors Tsing, Swanson, Gan and Bubandt,

**Advanced
Synthesis
Option
Studios**

F19/S21

S21

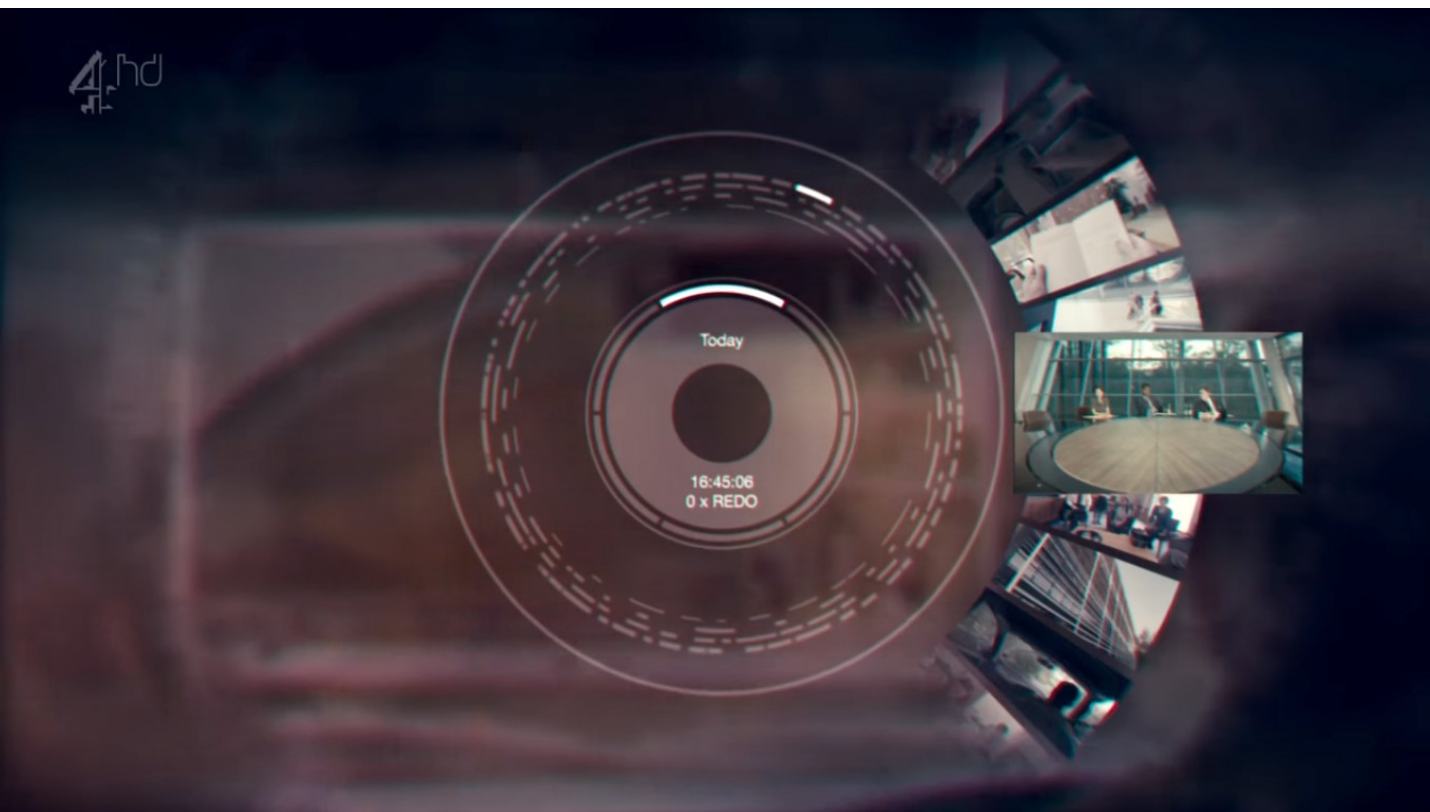
- * **Mary-Lou Arscott**
- * **Josh Bard/Francesca Torello**
- * **Dana Cupkova**
- * **Liza Cruze**
- * **Stefan Gruber**
- * **Hal Hayes**
- * **Eddy Man Kim**
- * **Ann Kalla prof. (tbd)**
- * **Jonathan Kline**

BORDER BUSINESS

CONSIDERING THE BOUNDARY OF THE BODY

Mary-Lou ARSCOTT

“Surrealism is based on the belief in the omnipotence of dreams, in the undirected play of thought.” *André Breton*



Background

This studio will speculate on the construction and shifting definitions of identity. The space in which this process will be considered is both environmental, mediated, material, biological and machinic. The studio will test the affect of transformation and the resulting layered palimpsest will be modeled in figuration, performance and staging.

Process

The positioning that the studio will explore is as Rosi Braidotti quotes in *Posthuman*, 2013; ‘The post-anthropocentric shift away from the hierarchical relations that had privileged ‘Man’ requires a form of estrangement and a radical repositioning on the part of the subject. The best method to accomplish this is through the strategy of de-familiarization or critical distance from the dominant vision of the subject. Dis-identification involves the loss of familiar habits of thought and representation in order to pave the way for creative alternatives. Deleuze would call it an active ‘deterritorialization’. Race and post-colonial theories have also made important contributions to the methodology and the political strategy of de-familiarization ‘ (Gilroy, 2005).

Through the device of prosthetic, animatronic and narrative form the studio will construct and invent alternative embodiments in uncharted experiments in the posthuman .

In parallel with the exploration of the boundaries of the body, the studio will read and respond to a series of selected texts by; Judith Butler, Sarah Ahmed, Reza Negarastani, William Gibson, and William Kentridge. Through the lenses of philosophy, feminism, art and science fiction, a critical position will be applied to the developing propositional designs and constructions.

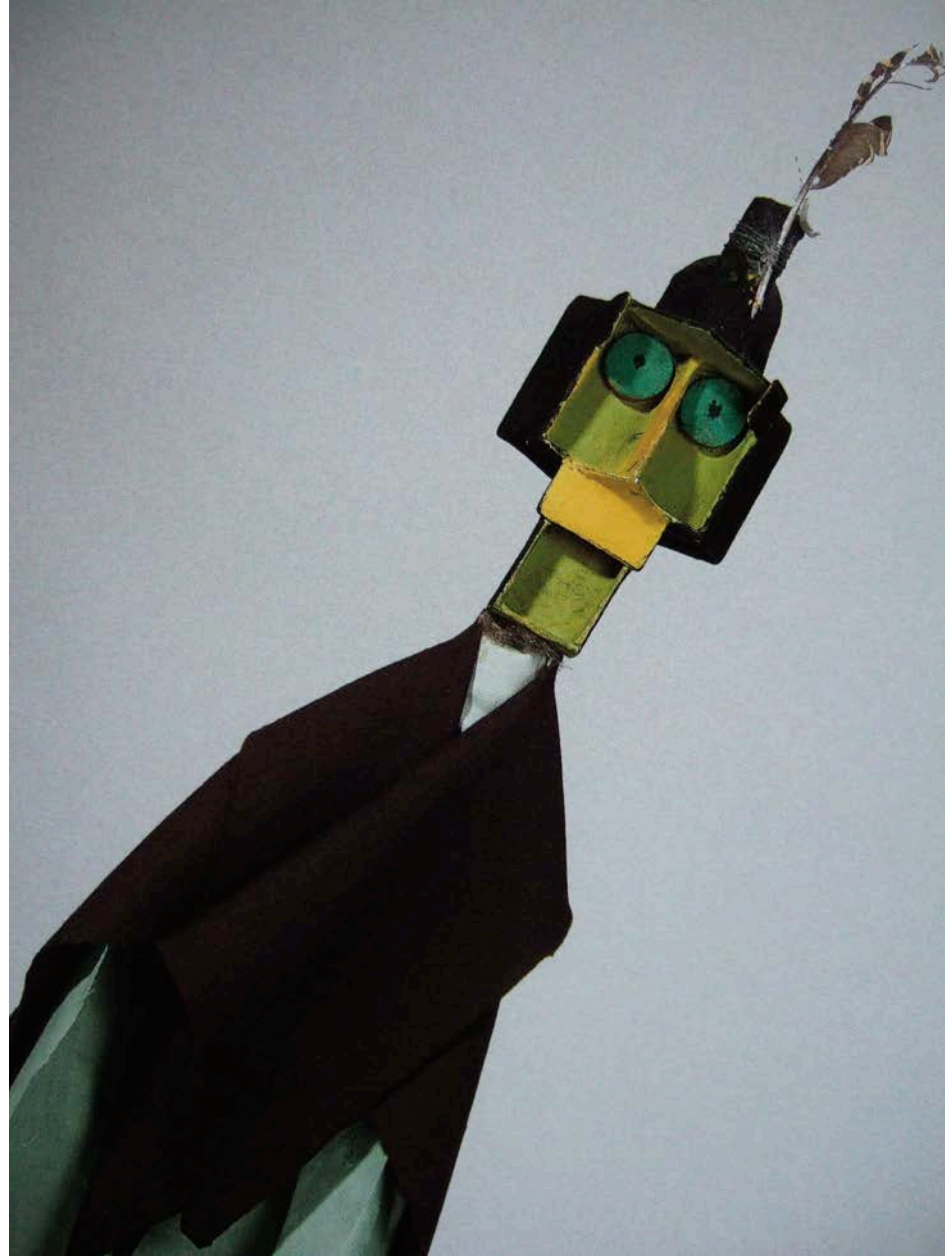
A model is like a miniature cosmos, in which a biologically curious Alice in Wonderland can have tea with the Red Queen..

Donna Harraway Symbiogenesis, Symptoiesis, and Art Science Activisms

Left: image from episode 3 Black Mirror, channel 4 TV series 1 2011, The retinal memory insert allows for perfect recall and sweet remorse.

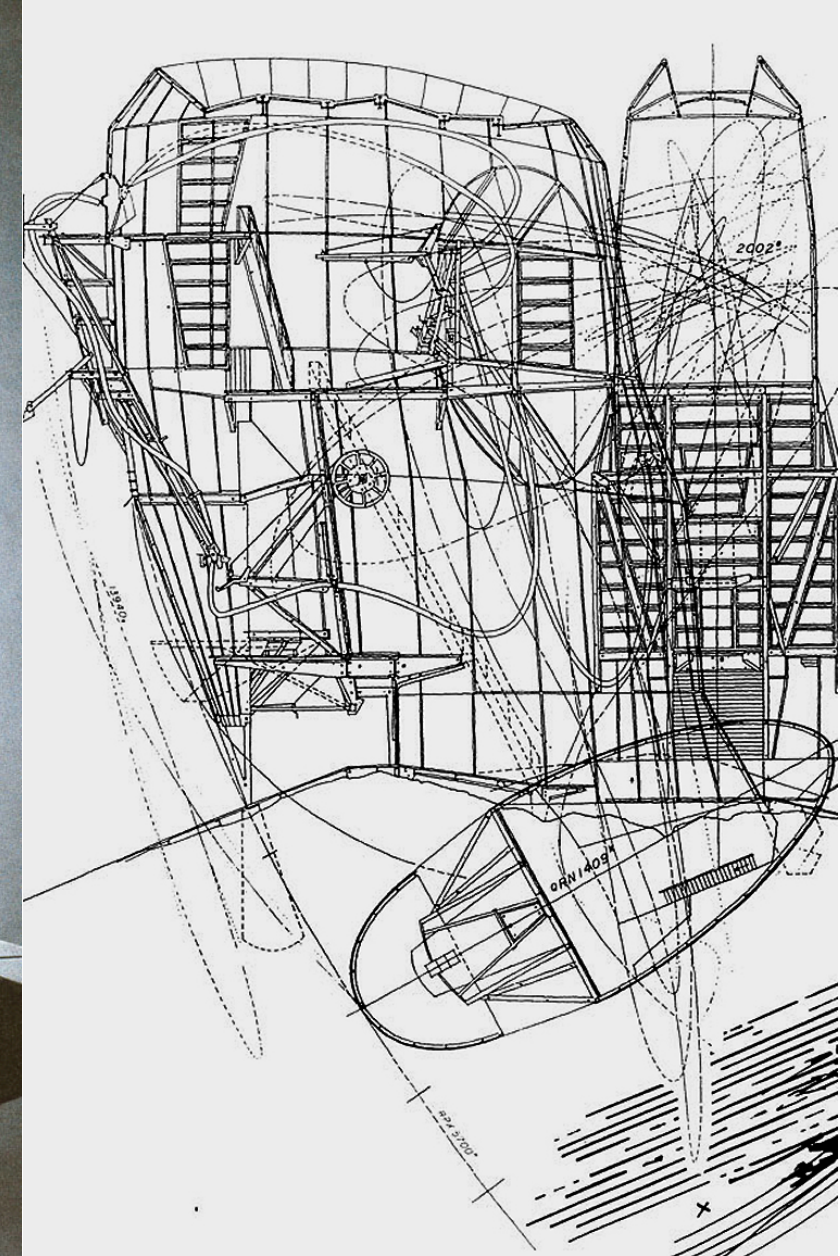
Right: image from Black Mirror, episode 5/4 'metalhead' 2017 series creator Charlie Brooker and directed by David Slade





Left: Paul Klee puppet character, Dr Death, part of a set of 25 constructed for his son Felix between 1916-1925. Now held in the archive of the Staatliche Museum Berlin

Right: Lebbeus Wood, image and drawings of the Soloohouse 1988-9.



The potential elaborations of extended control from mind to environment are suggestive of a mutuality between body, behavior and building. These muddled margins will be the realm of narrative that the studio will posit. As an outcome at the end of semester the studio will present a physical staging and a production will be performed.



“Speaking about borders always ends up being contentious since, on the one hand, these imaginary lines represent – paradoxically in a globalized world – hyperreal lines due to the high level of surveillance centred on the. On the other hand these same lines are transformed into territories of post modern discursive idealization.” Sayak Valencia, Gore Capitalism 2018, p183



A material history of additive architecture for techno-futurists

Joshua BARD

Francesca TORELLO

You say to brick, “What do you want, brick?”
Brick says to you, “I like an arch.”
If you say to brick, “Arches are expensive, and I can
use a concrete lintel over an opening. What do you
think of that brick?”
Brick says, “I like an arch.” *Louis Kahn*

The question today is: What would a grain of sand
like to be? *Michael Hansmeyer, Benjamin Dillenburger*



Overview

With the smooth, continuous formalism of parametricism beginning to fade in the rear view mirror, an emerging ecosystem of technologies and design sensibilities are pushing architectural design to hyperrealistic, information rich extremes. This infusion of excessive resolution is fueled by the combination of reality computing (the capture of precise spatial data; the parsing of that data to explore physical phenomena; and the digital transformation of data to impact the material world) and the maturation of additive manufacturing technologies (3D-printing) for architectural construction.

The studio will explore what this shift means for the future of architecture? With each new digital turn in architecture there is a tenancy to frame technological change as paradigm-shifting-progress. Yet the effects of technological innovation on human culture are often palimpsestic — many interrelated layers of affordances aggregating over time. In order to energize our imagination for this near-future, the studio will mine the material histories of additive manufacturing in architecture through precedent inspired physical prototyping and material testing. Students will take on the work of techno-futurists through a deep-dive into architecture’s material past.



[left]
Termite Mound, large additive
[middle]
Termite Mound, large additive
structures in nature with complex
internal thermo regulation in hot
climates.
[right]
Digital Grotesque Michael
Hansmeyer & Benjamin
Dillenburger

ASO Studio + History Seminar

This studio is paired with a pre-requisite history seminar conducted by Francesca Torello in the fall of 2020. The seminar will explore the history of architecture through the lens of materiality and key turning points in architectural design related to technical innovation. Students will conduct individual research projects related to the use of additive materials for construction (e.g. concrete, terra-cotta, ceramics). This seminar will provide a broad framework to support the material and design exploration of the spring 2021 studio.

FROZEN MUSIC

New Theater for the Festival Iberoamericano de Teatro de Bogotá, Columbia

Hal HAYES

Music is liquid architecture; Architecture is frozen music. *Johann Wolfgang von Goethe*



This studio will challenge the student to define and understand the inherent geometric patterns and modularity in the program, mass, volume, structure, occupancy and systems of a complex building. Students will conceive alternative design responses which will be tested and refined at varying degrees of concept resolution. Studio discussion and design will primarily address Form (as related to Tectonics); composition and structure “designed to find a successful mean between the opposite extremes of unrelieved repetition and unrelieved alteration.”* Texture (as related to Morphology); “rhythm & harmony in the combination and integration of interdependent design elements and conceptual threads.”** *The Oxford Companion to Music, P. Scholes*



Above: *La Sala de Conciertos de la Biblioteca Luis Ángel Arango*, architect Esguerra Sáenz y Samper

Left: Aerial view of Bogotá, photographer, Camilo Monzón Navas

ASOS students will collaborate with Drama and Masters of Arts Management (MAM) students to study and design this facility. We will travel to the site to meet with SibFest directors working on the real project and work directly with famed French theater scenic designer Jean-Guy Lecat, who has invited us to develop the project concept with him. Inter-disciplinary teams of Architecture, Drama & MAM students will program and plan the facility, which will become the basis of design for the remainder of the semester, during which Architecture students will conceive individual designs for the permanent facility, extending the collaboration with Drama and MAM students.

Project Statement: Anamarta Pizarro, Artistic Director of the Festival Iberoamericano de Teatro

“I believe that there are several areas where the festival could benefit from the university’s many capabilities by helping us understand the impact of the festival in the city, on the Bogotanos and on the theatre industry of the city, establishing and strengthening the place of the festival in Bogotá and the world today, strengthening the alliances with key partners of the festival such as the national and city governments, donors and sponsors, theatre venues, academic institutions, etc., and designing the festival of the future in a world increasingly digital and hungry for high quality experiences.”



"The Fall" by Lorena
Cano Acosta and
Nicolás Mendoza
Ramos

ASO Studio Schedule

Week -2-0, Jan. 2-16 Columbia Field Trip Bogota, Medellin, Cartagena
 Week 1; Site Analysis, Establish Project Goals & Objectives
 Weeks 2-3; Pre-Design - Structure & Systems
 Weeks 4-8; Concept Design Alternatives
 Week 8, Midterm Review & Concept Confirmation
 Weeks 9-16; Design Development
 Week 15; Penultimate Review
 Week 17; Final Exhibition, CMU Pittsburgh

Media

This studio will emphasize the use of hand sketching, physical models and iteration of design, research and analysis at varying scales and degrees of resolution. Students must also expand their mastery of digital and parametric tools for both analysis and conceptual/morphological design development.

Additional Faculty

Dick Block (CFA Drama, Assistant Head and Head of Design track)
 Kathryn Heidemann (Heinz College, Associate Head and Director of Arts Management Masters Program)
 Cynthia Limauro (CFA Architecture & Drama Professor of Lighting Design)

Co-Requisite: Theater Architecture I & II
 62-408 & -418 or 62-708 & -718, 6 units each
 T & R, 1:30-2:50pm
 Professors: Block & Hayes

Independent Project: Advanced Theater Architecture
 62-708 & -718, 6-12 units (variable)
 T & R, 1:30-2:50pm
 Pre-Requisite: 62:418
 Advisors: Hayes and Block, Heidemann or Limauro as appropriate.

Selective: Architectural Lighting
 48:587, 9 units
 T & R, 3:00-4:20pm
 Professor: Limauro



Site Visit Itinerary January 2-19

Optional Early Arrival (Mexico City, Cartagena & Medellin)

Jan 1: Optional Early Arrival, Travel to Mexico City

Jan. 2-5: Mexico City, Iberoamericano Mega-City

Jan. 6: Travel to Cartagena

Jan. 6-9: Cartagena, City of Music

Jan. 10: Travel to Medellin

Jan 10-11: Medellin, City of Art

Jan 12: Travel to Bogotá

Basic Trip (Bogotá Only)

Jan. 11: Travel to Bogotá

Jan 12-18: Bogotá, City of Theater

Jan 19: Return to Pittsburgh

Travel Budget

Basic Trip \$1,100 (Bogotá only)

Air Fare - \$500

Accommodations - \$240 (\$30/day)

Meals - \$240 (\$30/day)

Incidentals - \$120 (\$15/day)

Optional Early Arrival - \$2,375 (Mexico City/Cartagena/Medellin)

Air Fare - \$925

Ground Travel in Columbia - \$200 (Cartagena /Medellin/Bogotá)

Accommodations - \$540 (\$30/day)

Meals - \$540 (\$30/day)

Incidentals - \$270 (\$15/day)

Funding Sources

S. Leonard Auerbach Theater Architecture Fund: Faculty Travel

Altenhoff Scholarship: Student Travel (for eligible SoA students)

CMU Crowdfunding: Student Travel (all students)



infrArchitecture

AI-GENERATED ARCHIECTURAL DESIGN PROTOTYPES AND SOLUTIONS

Eddy Man KIM

“...writing in and of itself had to reshape human consciousness.”
- James Gleick

Overview

As the quote by James Gleick suggests, this studio presupposes the indelible and continuous impact different modes of processing and communicating information (e.g. writing) have on a person’s consciousness and world view. This notion is placed at the core of this studio, where we assume the same of an architect’s trainings, tools, and methods in their potential to influence not only the architect’s world view, but also his/her design work. With this mindset, this studio will explore the potential for artificial intelligence to augment and influence the architectural design process and the architect’s mind. Students will explore this potential by applying methods and tools developed by an ongoing research work by SoA’s Computational Design program. This studio will be delivered collaboratively by PhD-CD students, Pedro Veloso, Jinmo Rhee, and Eddy Man Kim. The studio is divided into 3 phases that culminate into a design proposal for a “infrArchiecture” intervention that integrates a local urban infrastructure site with a new architectural program.

Phase 1 - Theoretical Studies

A solid foundation in architectural design and its computational methods is a prerequisite in this studio. Phase 1 will be a bootcamp of workshops and mini assignments to bring students up to speed on the methods and base material that will be used in the following phases.

Phase 2 - Prototyping

Using the data and methods prepared in the previous phase, students will choose a type of urban infrastructure and analyze its organizational rules. Based on the findings, a program for the intervention will be determined and new rules will be set to accommodate the intervention. An idealized architectural design logic, independent of site, will be determined.

Phase 3 - Application

The prototyping system from the previous phase will be further developed at a higher fidelity and with more refinements to the rules of the architectural design logic. A site will be chosen for the system to generate a solution for and finally applied as a full set of design deliverables.

