Angeline C Jacques
Design Portfolio
The following works detail my explorations in design in school, through professional opportunities, and independently. Throughout my projects, I have developed a sustained interest in the relationship between animation and architecture, the registration of movement and manipulability, and experimentation in graphic styles. In my classwork and extra-curricular studies, I am also committed to the importance of urban history and architecture’s role in the city today.

Thank you for your time and attention.
ACADEMIC WORK
This project responds to the comprehensive Core 3 Studio’s prompt of designing a winery in the Vale de Guadalupe, a booming wine region operating in an area with very little water and difficult terrain.

The wine-making process is inherently global, requiring equipment, knowledge, and markets that span far beyond the valley. Still, the practice of making wine and offering it as a destination requires on a local identity, tied to the land and the people who work to create it. STACK WINERY negotiates the relationship between wine process, hospitality, and the landscape through a set of twin facades that increase in porosity through deliberate manipulation. Using passive cooling techniques and an optimized steel structure, the winery aims to reduce its impact on the land while curating the visitors’ relationship to it.
The outer facade consists of manually manipulable tensioned ropes as a way of delineating unconditioned space, while inner volumes are defined by walls of hollow CMU blocks. These blocks can be rotated to allow for light and ventilation or can be filled with insulation for further thermal conditioning. In this way, the inner facade reacts to its corresponding program and positioning to take advantage of passive cooling and daylighting techniques.
The Edenwald YMCA, located in the underserved East Bronx community, creates a space that draws the user into a dynamic insular world while also encouraging them to animate themselves through movement and exercise, community gatherings, and educational programming. The major centers of this activity are the pools, the wellness center, the gym, housed under a single expression and nearly transparent, visible from the other support programs and gathering areas of the Y. One can observe, through the mediating membrane of angled fins, the buzz of a community moving their bodies, improving themselves, and engaging in group interactions. Its exterior membrane acts as a dynamic framing of the activity within as citizens of the Bronx pass by. The entire institution becomes an animation system that allows the user to connect to their own personal growth and their community.
The plan of the institution was configured with consideration of visibility of the most active programming. This visibility was both encouraged and obscured through the use of angled fins, allowing for an architectural manifestation of animation inspired by early animation devices.
In the interior of the YMCA, the largest programs (gym, pool, fitness center) become three large, conditioned anchors of the space with visibility from nearly every other program. The group exercise rooms, cafe, and other supporting programs retain partial visual relationships with their surroundings. Only the locker rooms serve as solid, obscured cores.

Diagramming the activities and spatial requirements of the assigned program
Beginning with the prompt of a “theatre in the round and a theatre in the ground,” this project aimed to investigate a manipulable boundary between these two poles that would allow for the shifting, expansion, and combination of multiple programs. The curtain is used as a formal tool for integrating the many aspects of this site and project: the city, the park, the performance, and the public. It allows for the accumulation of large groups of people for shows, events, and parties, while also creating a series of one-on-one relationships between the different users and activities in the theatres.

The project is placed at a bend in the Emerald Necklace, a long and narrow park that knits together many Boston neighborhoods. Located where a bridge used to stand, the building similarly connects an urban arts and culture hub with the quieter green park on the other side.
The curtain was chosen initially as a conceptual “soft” membrane that would allow for manipulable spaces. It was then adopted formally, allowing the full command of the connotations associated with that of the theatre curtain, and thus blending the boundaries of the institution’s programs.
Tasked with designing a long-span roof, we were inspired by the expressive forms of Felix Candela and wanted to experiment with a tension membrane structure that could evoke the same sense of space and light created in his interiors. The variability of using a tension structure allowed us to parametrically edit the dimensions of our system to test for form and ventilation.

Our long-span roof utilizes five modules of doubly-curved PTFE membrane connected to masts by a series of steel cables. Three circular apertures in each module allow for light and ventilation. The membrane is connected to a steel frame that, in elevation, appears as a thin, floating element due to the equilibrium of the tension forces.
Plan

Linear Load: 0.7 kips/ft
Total load: 7 kips

3.5 kips
50' (mast to mast)

5'

2.05 kips at mast
Horizontal force at mast: 1.09 kips
2.79 kips at mast
Horizontal force at frame: 2.2 kips

SECTION A

SECTION B

Rendering Beneath Roof

Sample of Dead Load Calculations
The People’s Pool was a competition-style project in which each group created a proposal for a multi-program poolhouse in the Bronx in the style of a certain architect. Tasked with utilizing the principles behind Louis Kahn’s Trenton Bath Houses, we created a new monument for the people. A grid of inhabitable columns allows its users to climb, slide, and leap between the multiple levels of the poolhouse.

Combining Kahn’s precedent with new graphic techniques, the competition entry aimed to adapt, scale, and challenge modernism and its representation.
Physical Model - Chipboard, Plexiglass

Variations on Circulation Towers
Expanding Room uses a month of research on the abilities of scissor levers and how they can mimic human body mechanics. The resulting design is a set of two lever arms that turn the force of a small push backwards into a dramatic forward expansion, creating two protective arms that hover above the body.

Emphasis was placed on woodworking and fabrication for this project. The final prototype utilized dowels as a fastening technique to combine 80 CNC-milled members into the two scissor lever systems.
Stage One  Stage Two  Stage Three  Stage Four

1:12
This project began with an interest in simulating mechanical operations through Grasshopper and Kangaroo coding. This was accompanied by a fabrication requirement, through which I explored waterjet machining in order to fabricate “do-nothing machines,” inspired by the work of Arthur Ganson.

Afterwards, I continued to explore the digital simulations by Grasshopper. The simulations model scissor lever connections through determining intersections in the radii of each member, thus using the series of circles to determine the locations and lengths of the straight members.
This short exercise answered the prompt of creating an object that “fidgets” using a combination of casting experiments and physics simulations.

The physical artifacts were fabricated by pouring plaster into hanging canvas gathered at a single hanging point, paying particular attention to the size and proportion of the canvas mold. The final artifacts spun and wobbled around their low centers of mass.

The simulation, created using Grasshopper and Kangaroo, aimed to recreate the effects of a thick liquid within a stiff hanging fabric module.
Sectional Study of Kangaroo Simulation

Fabrication Rig

Geodes - Bottom

Geodes - Top
This experiment was completed as part of an analysis of the relationship between architecture and animation through the study of Thorsen and Eliasson’s 2007 Serpentine pavilion. This study examines the shifting axes of a spinning top as a way to register circular motion.

Film of real-time spinning analysis can be viewed through QR code.
This series of fabrication experiments expands upon the previous project while also engaging with the moire effect caused by the repetitive rotation of strings.
In this program, four agents create a series of colored crosses that are continuous until they are stopped by a non-black pixel. The program deletes a color when the screen becomes 80% non-black and that agent must start again. Over the time, the leftover fragments created by deleted colors break the program’s own continuity rule. This program was created using Processing, a Java language.
During my 12-week internship at Reverse Architecture, I used my rendering skills as a way to test, iterate, and further develop layouts and materials. Projects that I worked on included the renovation of a loft apartment, an addition on a single-family home, and a model kitchen for a 70-unit apartment building remodel. Renderings were completed in V-Ray. Additionally, I completed a set of construction drawings for the 70-unit model kitchen as well as developed the construction drawing set for the loft apartment.
DIAGRAMMATIC AND MODELING WORK
Rafi Segal Architecture & Urbanism
Summer 2017

As part of a month-long internship, I compiled site context analysis as well as modeling for the design development phase for two separate project proposals. In West Roxbury, we created a proposal for a multi-residential building including commercial space and offering a connection to the commuter T stop. In Krakow, Poland, we redesigned a public stair for an urban design competition. The graphics I created informed and were included in the proposal presentations for both projects.

Mapping and diagrammatic images, as well as some of the 3D modeling, was completed by me. Rendering and final images completed by Benjamin Albrecht.
THE EMERALD NECKLACE OF THE SAN GABRIEL VALLEY
Amigos de los Rios – Green Infrastructure Fellow
Summer 2016

This iconographic map was developed during the course of a six-week fellowship with Amigos de los Rios, a design and advocacy non-profit that works to improve parks and park access in the disadvantaged San Gabriel Valley. It provides the first comprehensive list of outdoor recreational opportunities both throughout the urban Emerald Necklace and the San Gabriel Mountains National Monument. The map, along with informational materials I also developed on trails, wildlife, and history of these areas, will be distributed at informational kiosks throughout the region.

This research was also used as an advocacy tool to lobby for increased funding and protection of the San Gabriel Mountains area and raise awareness of its newly designated status of national monument.
Index of Written Research Projects

A timeline of some of the urbanism and architecture-related research projects developed during my studies. All materials can be requested for viewing at ajacques@mit.edu.

“The Three Hancocks”
Professor: Douglas Massey
Fall 2013
Princeton SoA

An examination of the shift of 20th-century Boston urban planning policies through the construction of the three Hancock towers.

“Where are your waters?”
Recontextualizing the Post-Industrial River in São Paulo
Advisor: Mario Gandelsonas
Spring 2016
Princeton SoA/University of São Paulo

A comprehensive history of the role of São Paulo’s rivers in master urban planning efforts, a discussion of the tension between western and non-western views towards water in Brazil, and a generation of ideas for integrating the river’s back into the city.

O Vale do Anhangabaú
Professors: Bruno Carvalho and Mario Gandelsonas
Spring 2015
Princeton SoA/University of São Paulo

An interactive visualization of the history of Anhangabaú Valley in São Paulo, its role as a historic symbol and generator of public space, and possible restoration efforts for the river buried underneath.

The Spatialization of African Markets
Professor: Simon Gikandi
Summer 2014
Princeton SoA/University of Ghana

An in-field research project about the growth of informal street markets, their relationship with the government, and opportunity for integration.

The Urban River as Public Space
Professor: Esther da Costa Meyer
Spring 2014
Princeton SoA

Using the LA River as a case study, the current role of the river in urban space development is discussed.

Monumental Amusement
Professor: Alison Isenberg
Spring 2014
Princeton SoA

A discussion of the public spatial politics of the 1893 World’s Fair in Chicago using the world’s first ferris wheel as an object within class dynamics.

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Relevant Experience

6/17 - 8/17
Reverse Architecture
Design Intern
- Heavily utilized digital renderings for design development and visualization for clients
- Sourced material and furnishings for commercial offices and a 70-unit apartment building
- Prepared full construction drawing set for a residential unit remodel

1/17
Rafi Segal Architecture & Urbanism
Design Intern
- Researched and prepared site and zoning analyses for a mixed-use project proposal
- Prepared 3D site model and preliminary site drawings for an urban design competition

7/16 - 8/16
Amigos de los Rios
Green Infrastructure Fellow
- Designed an iconographic recreation map of the San Gabriel Valley, to be distributed at Park Service information kiosks
- Organized weekly volunteer events focused on park restoration in disadvantaged communities

6/15 - 8/15
Fluvial Metropolis Research Group
Communications and Publication Intern
- Assisted in coordinating a joint publication between Princeton and University of São Paulo while completing independent research

7/14 - 9/14
Silverman Developers
Communications and Design Intern
- Composed design plans for a commercial kitchen in a multi-use residential project
- Sourced, quoted, and ordered cabinetry, material, and lighting for developing project
- Reviewed blueprints onsite to confirm accuracy

Publications

2016
"Where are your Waters?"
Award-winning research project on the practice and history of designing urban rivers

2015
No[]Way
A critical look at Oslo’s growth, designed at the 2015 Ventriloquist Summerschool

Recognitions

2017-2020
MIT
Merit Fellowship
For demonstrated merit during first year of study

2016
Princeton SoA
Alpha Rho Chi Medal
For leadership, service, and professional potential

2016
Princeton SoA
Senior Thesis in Design Award
Top Architecture Thesis

Skills

Programs
Rhino 3D, AutoCAD, Adobe Creative Suite, V-Ray, Grasshopper, Kangaroo, Galapagos, Processing, DIVA, Microsoft Office

Other Skills
Film Editing, Public Speaking, Event Planning, Spanish and Portuguese (conversational)