ACADEMIC WORK
A Park for Living and Working  4
Aguas Buenas Agricultural School  8
Door for a Tall Room  11
Kyoto Museum of Art & Nature  12
STACK Winery  14
The Animated YMCA  18

EXPERIMENTS
Levers  22
Variations on Spinning  24
In an area marred by the development of shiny blue towers, tightly cordoned street life between highways and elevated rails, and sanitized privately-owned public plazas, my project aims to create, quite literally, common ground between homelife, the contemporary worklife, and publicly accessible space. The tower offers, to its residents, the opportunity to generate forms of work offline and off-the-cloud. In an age of locavore culture, a return-to-the-earth mentality, and passionate millennial plant mamas, the units in my tower offer the opportunity to grow, sculpt, and cultivate new forms of work.

Advisors: Dan Wood and Sam Ghantous | MIT Architecture & WorkAC
This school, located in the central mountains of Puerto Rico, addresses post-disaster resiliency and proposes a self-sustainable food production network that integrates Puerto Rico's vocational education system into community revitalization efforts. Expanding the campus of a decommissioned school in the town center, the school operates as a workshop for learning about agricultural cultivation and, in post-disaster scenarios, becomes a headquarters for shelter, distribution of supplies, and rebuilding.

Advisors: Miho Mazereeuw and David Moses | MIT Architecture & Urban Risk Lab
The semester began with an analysis of natural disaster risks in Puerto Rico. This mapping and research on earthquakes and landslides was completed in partnership with Adiel Benitez.
As part of a semester-long exploration of the meaning of the threshold, this door propagates and exaggerates the act of opening and entering.

Advisor: Yolande Daniels | MIT Architecture
The KYOTO MUSEUM OF NATURE & ART, bordered by Kyoto’s new art university, creates moments of encounter between visitors and elements of art, culture, and nature. Comprised of a series of small rooms connected by exterior courtyards, each encounter allows for a new understanding of nature’s characters or an intimate moment with art created by university students. The central bridge serves both as a gathering space for events and performances as well as a unique engine for peering into one of Kyoto’s canals. The campus, accessible to all, invites the user to understand the act of viewing - the encounter - in conscious and deliberate new ways.

Advisor: Yolande Daniels | MIT Architecture

Encounters
Forced perspective models crafted out of paper
Stack Winery, sited in the Baja Peninsula in Mexico, negotiates between a rugged landscape and a difficult climate. The project utilized twin facades of CMU blocks and tensioned rope to introduce a range of climatically conditioned scenarios. The winery “stacks” areas of wine production within areas of hospitality (a restaurant, tasting room, and hostel) and offers direct visual and physical access to the landscape on every level.

The project was completed for the comprehensive Core 3 Studio, which requires consideration of material resources, structural components, and designing for methods of production.

Advisor: Rami el Samahy | MIT Architecture
Lighting studies and facade tests

Lighting studies and facade tests
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.

Advisor - Ana Miljacki | MIT Architecture
EXPERIMENTS
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.

Advisors - Liam O’Brien, Oana Stanescu, Brandon Clifford | MIT Architecture
Partners: Emily Whitbeck, Shep Halsey
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.

Advisor - Brandon Clifford | MIT Architecture & Independent Exploration
Radii Intersections Interconnections
Register of Expansion
Overlaid Systems

Register of Expansion
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.

Advisor: Brandon Clifford | MIT Architecture
Fabrication Rig

Sectional Study of Kangaroo Simulation

Geodes - Bottom

Geodes - Top