Scales of Environment: Newburgh, NY

Advanced Architecture Studio IV

Spring 2019

COLUMBIA GSAPP

GSAPPADVANCED IV STUDIO FRAMEWORK: SCALES OF ENVIRONMENT

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The Adv. IV studio framework looks at the scales of the environment through a specific geographic context, within which all studios operate. The focus is the 'rural' area of upstate New York, an entry point to an exploration of the relationship between Architecture and 'nature', while unpacking the environmental history of the North-East region of the United States. The studio also takes on the programmatic question of Education, framed through this 'rural' setting.

Mid-Hudson Valley. In order to foster a strong dialogue across all seven studios, the 'Environmental' lens is defined as a shared geographic framework, a specific region from which all of the studios will choose their sites. To define a 'rural' setting to operate on, away from traditional urban-rural transportation corridors, the framework focused on the city of Newburgh, located along the Hudson River. Studios defined their own expanded geographic/ territorial boundaries around the Newburgh area, based on their proposed architectural thesis and scale of intervention from sub-watersheds, to food sheds, to municipal and county political boundaries, all the way to culture and art economies.

Newburgh. Once a vital center for industrial manufacturing, the city of Newburgh has suffered a sharp urban decline, a destructive Urban Renewal project in the 1950s (that left a large scare of vacant lots on its fabric), and severe economic inequality among its population, compounded by rising racial tensions. The city is now surrounded by the larger suburban town of Newburgh, bounded by Stewart International Airport to the West— responsible for contaminating the city's water supply—West Point Military Base to the South, and the culturally driven city of Beacon across the Hudson River to the East.

Architecture and 'Nature'. Adv. IV studio expands from the relationship of Architecture to the 'city' (Core Studios operating context) into the relationship of Architecture to 'nature' and the larger territorial scale. This provides the opportunity to deconstruct and problematize the relationship of 'rural' New York (the countryside) to the city of New York (center), while exploring the spectrum of natural and man-made environments that characterize the space between the two: from nature reserves, to vast plains and extreme topography, to bodies of water—creeks and the dams that alter their flows, to remote towns buffered by agricultural fields, to college towns, all the way to resource extraction sites and the (post-)industrial towns and cities that dot the Hudson riverbanks.



Waterfront Aerial





Newburgh Airport Analysis

Hudson Valley Electric Transmission Map





Newburgh Water Analysis Map



Hudson River



Quassaick Creek



History of Quassaick Creek



First Assembly of God Church



Newburgh Hub Map





Stewart Airport



Hudson Valley Recreational Areas



Dutch Reform Church

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8-23

THE ARTS AND THE ACADEMY ¶ AMINA BLACKSHER ¶ The studio examined the potential for art to function as a catalyst for change. Specifically by investigating the role of the institution, social vitality, civic engagement, and the Academy as a host for harnessing talent and enduring economic prosperity.

Organizational structures of select precedent academies were studied to understand the physical and nonphysical architecture that facilitates and allows the institution to affect change on a scale greater than the building. The final work expands the capacity of the Newburgh Performing Arts Academy and proposes a new institutional (infra) structure, physical and organizational, to contribute to a vibrant Newburgh.

24-37

UNIVERSITY AS URBAN FORM ¶ ADAM FRAMPTON ¶ In the current moment, urban design is increasingly considered as a remedial or bottom-up activity, and the city is seen as something either uncontrolled or almost exclusively shaped by the market.

It is undeniable that urban policies have significant consequences on the form (or absence thereof) of cities - in Newburgh, New York - where the effects persist from the so-called policies of "urban renewal." Since the 1960's, a series of "big plans" have either been responsible for, or attempted to, unsuccessfully, address the voids in Newburgh. In 2019, a series of projects are poised to happen on the Newburgh waterfront. Despite the potential significance of these projects, it is unclear how they will provide a coherent and collective framework for Newburgh. In such a fragmented condition, how do we shape the city?

This studio has, counter intuitively, proposed another "big plan" for the Newburgh waterfront. The studio has considered a hypothetical university and expansion of the nearby SUNY Orange campus. For Newburgh, education could catalyze economic growth, innovation, and social mobility, but also re-structure the waterfront and provide urban

legibility. Projects have been designed at both an urban and architectural scale, investigating the interrelationship and communication between architecture and the city.

38-51

DRIVE, TEACH, SHOP: DESIGN-ING FOR DUAL FUTURES
PHU HOANG ¶ The studio proposed an architecture with near and distant futures, one that is connected to another by a continual state of incompletion. Each "anti-type" transformed from an emerging building-type (parking deck, supermarket or rural school) to the distant future—a Learning Campus of the Streets. The project's near futures will become obsolete in face of changing social and technological change. The ex-urban city of Newburgh and its surrounding region identified three studio sites—a site within Newburgh, its surrounding rural watershed area, and in Stewart Airport.

The studio was not about adaptive reuse – it was about designing for future adaptability –challenging the fixity of architectural programs and prompting a more adaptable relationship to the environment, especially the sites' waterfront. The Learning Campus of the Streets, as a future learning institution, was a framework to investigate the dual futures proposed by the studio.

52-69

KNOWLEDGE TERRITORIES, R/ URBAN ECOLOGIES ¶ NAHYUN HWANG ¶ The city and the countryside have been often placed at the opposing ends, dynamic and densely populated vertical metropolises with maximum productivity on one side, and the timeless yet restful countryside that promises a simple life surrounded by pristine nature on the other. As the social, political, and environmental challenges and potentials of highdensity cities in the "Urban Age" are investigated more vigorously than ever, the discipline's renewed interest in the countryside begins to articulate the realities of the "new rural," the studio centers its investigation on the conceptual "elsewhere," on the space beyond the dramatic binarism of bucolic (or futuristically "hypercartesian") hinterland and the endlessly growing vertical city.

Exploring the complex realities of Newburgh and the Hudson Valley region - seemingly pastoral tour destinations quietly challenged by abandonment, the global logistics industry, as well as continued infrastructural and environmental complications, the work of the studio investigates the concept of "R/Urban," or the notion of the multitudes of open relationships between, or beyond, the imaginaries of absolute rurality and absolute urbanity, and more comprehensive notions of "Ecologies" of new and networked nature, to explore the often inscrutable yet expansive territories, of spectra, of in-betweens, overlaps, and intersections.

Education, shared across the year, becomes the programmatic framework of the investigation, and the studio focuses on the new spatial formats of knowledge and/in the territory in the context of increasingly extraterritorialized knowledge institutions and their typological proliferations. Tying the concerns of knowledge and territory together, the studio aims to reconsider the false divide between culture and nature, the man-made and the natural, human and non-human, and the social and the technical, and envision the possibilities of a new spatial framework of knowledge within our extremely intertwined bio-technisocio-political and environmental milieu.

70-89

IN THE NAME OF GOD, RURAL RELIGIOUS INSTITUTIONS AS SOCIAL INFRASTRUCTURE ¶ ZIAD JAMALEDDINE ¶ The Mid-Hudson Valley's environmental and urban history provides a microcosm of the rise, decline and resurgence of religiosity in the Northeast region of the United States. The city of Newburgh presents us with an architectural cross section of that history including: A Protestant evangelical mega church, a historical African Methodist Episcopal Zion Church, a Pentecostal church (previously a synagogue), a Catholic modernist church, and a mosque (previously a warehouse).

The studio investigated the architecture and the social programmatic welfare capacity of rural religious institutions which are increasingly filling the void left by the state. The aim was twofold: 1) To map the physical architectural and territorial emergence of those buildings, and 2) To physically intervene on those building and their territories, having critically unpacked their historical evolution, probed their relationship to their environment (natural, rural, post-industrial, infrastructural), and to the communities they include or exclude from their spaces of worship.

90-113

QUASSAICK CREEK NATURE CEN-TER ¶ ROBERT MARINO ¶ The Quassaick Creek Watershed is beset with numerous ecological problems. Runoff due to the proliferation of impervious site surfaces create drainage and erosion problems. Residual PCB pollution had endangered local water supplies. Sea level rise is a coming problem along the Hudson River coastline. Local sewage effluents pollute reservoirs dedicated for domestic water usage.

It is clear that all these problems must be dealt with in the near future. The typical response to environmental issues such as these is to relegate solutions to the technical experts. This studio will attempt to find a way for architects, in their normal design activities, to make progress towards solving these problems.

Weirs control and direct water flow on the Quassaick Creek. One such weir, the Holden Dam, will be breached by the state of New York to control downstream erosion. The breach will allow for the reconfiguration of the immediate site and present a unique architectural opportunity. A nature center is proposed in conjunction with the new weir design.

It is hoped that the environmental necessity of the engineering structure will inform the intended purpose of a nature center. Ideally the two requirements, weir and nature center, will energize each other, and provide a meaningful point at which to contemplate our natural surroundings.

114-129

LANDSCAPE IN A LAB: INSTI-TUTE FOR INNOVATIVE FOOD ¶ LINDY ROY ¶ With climate change making it increasingly difficult to reliably grow crops and food travel-miles straining already inefficient, polluting, unhealthy and unsustainable food systems, a new crop of food startups attracted over \$3 billion in venture capital in 2018. These agricultural innovators use artificial intelligence to generate climate recipes, hack the food chain to produce meat without animals and patent growth algorithms where 200,000 plus data points per single plant are manipulated to accelerate growth cycles, intensify flavor and tweak nutritional profiles. The goal is to grow produce in controlled environments in or close to urban centers year-round.

Food is a keystone practice in our culture with a disproportionately large effect on our relationship to the natural world. These radical technical innovations in food production force a redefinition of distinctions between natural and man-made and a reimagining of ourselves as a species. As the laboratory potentially supplants the field, and terms local and regional fast become obsolete, does the concept of place still exist? What gives a location specificity? Exploration of these new technologies provides this studio with a lens through which to view Newburgh and the Hudson Valley and to speculate on the future of food production through the development of an Institute for Innovative Food.



Newburgh's East End Historic District contains the highest collection of distressed and vacant buildings. Building stock anxiously awaits demolition. What if these buildings had an after-life? Proposing a material processing and reuse facility the building acts as a performance itself - providing space for dismantling, archiving, and reusing material. The Block, or series of buildings shells, becomes the dynamic structure that imports rubble and creates a testing ground for new material. The project aims to confront the material after-life of post destruction rubble. This collection of buildings at the site of Safe Harbor of the Hudson, becomes a hub for new growth in Newburgh. The project ultimately influences the ways visitors engage with rubble through constant demolitions, reconstructions and exchange of material.

BLACKSHER



Grace Alli









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ADV ARCH STUDIO IV

The project aims to build a platform in the Newburgh waterfront area for a local kids camp, where teenagers get equal or even advanced exposure to art education. The space focuses on activities of "rehearsal" to build spatial typologies for different rehearsal uses in terms of arts based on restriction. Specifically, three kinds of "barriers" (visual, acoustic, walking) are developed for fine arts, music and dramas. The design of a triple height entrance with the auditorium attached is a way to acquire sloping and open camp spaces, as well as enhance river views to be part of the project for a welcome gesture of urban context, especially for shows in the auditorium that open to public.











Ben Gillis





The Newburgh Contemporary Performing Arts Center critically evaluates the needs of the City's performance community and its role in the age of a 6 second snapshot. The modern performance is often reduced to a selection of curated views that are then digitally disturbed to convey one's participation in the event. Manifesting this sense of aperture in the built environment was the main focus of this project by segmenting and framing the stages of performance to re-orient viewers and performers, audience and spectacle, goods and production. An amphitheater with six pre-focused stages, a market space baked by communal workshop space, live-work residencies encouraging artists to put their process on display, and a main proscenium stage with an inhabitable envelope to allow a secondary viewing of the productions back of house.











So Jin Kim





SECTION B-B'







The perception of the Newburgh Contemporary Arts Center, with the crime rate dropping drastically over the years, still has a reputation for being an unsafe place to visit. This project intends to challenge this perception through bringing a performing art district to downtown Newburgh. New grids with opened-up corners are inserted into vacant industrial buildings and an ever-changing layer of fabric in-between the interior exhibiting space and exterior open plaza are attached to the facades for the art to be exhibited with maximum flexibility and permeability to the public.



Wenya Liu



ADV ARCH STUDIO IV







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Shoot the Gap, or How to Break the Fourth Wall

To Shoot the Gap or Break the Fourth Wall is to explore the margins and vacant space within Newburgh as a way to use the city as both the stage and the classroom. This project is seen as an opportunity to facilitate the spatial needs of the Newburgh Performing Arts Academy and their lack of performance space, as well as a prototype for ways to incorporate performance into the domestic block and as a way to leverage performance as a regional bridge.











Eduardo Meneses















BLACKSHER



Shang Tian









Chuyang Zhou



BLACKSHER

Traditional top down education creates a structural hierarchy. Learning from samba school, it provided a flexible paradigm for learning and is mainly in the city's main avenues. It has an indoor and outdoor experience, is a public event carnival and is also in the city center. My project imagines that Grand Street (Newburgh's main avenue), will dissolve into the surrounding buildings. By occupying the back valley of those buildings and creating two loops, the project dissolves the street into the performance art school. Through affect participation, this project stimulates the corporeal experience and the collective, fostering the very divergence of their opinions and desires, to participate equally and directly.







Artisanal Manufacture Academy

Newburgh has great opportunities for developing small-scale artisanal manufacture businesses. The idea of maximizing the campus focuses on supporting the artisanal manufacturing industry in Newburgh, which includes a vocational training school for local citizens and a college that collaborates with the existing SUNY Orange degrees. The concept is to expand upon the different programs relating to the specified to their functional form within their unique identity and the extroverted campus that will be a showcase to the public. The masterplan's short axis creates connectivity from city to the waterfront through highways and railway and connects the SUNY Orange campus with the new campus. There the buildings are laid out in a low density to provide open green space and their sections adapt to the big level difference of the site, resulting in a circular walkway that unites them to the central park space. This provides flexible space for activities and encourages interaction between cross-disciplinary students.







Wendy Yuting Guan







Krista Wiryomartono Isaac Kim







Newburgh Learning Track

A new SUNY campus extension seeks to connect communities regionally, municipally, and locally by integrating existing intermodal transit stations (rail, ferry, and bus) on site. By activating the West Shore Railway as a new commuter route, the campus will take advantage of these new connections and accommodate the increased influx of community and public commuters. Formally, we are inspired to return lost densities from Urban Renewal by tracing settlement lots of historical Sanborn maps on the waterfront. Through historical perimeter mapping, we propose the reintroduction of the historical Colden Square and the lost junction off Water Street to reinstate urban life and prioritize the pedestrian experience. Through providing new residences and coworking spaces in response to the growing tech community along the Hudson Valley, the new campus environment will facilitate inclusivity, entrepreneurship, and social cohesion.





Ningxin Huang Zhibin L





City Assembly Line

The keyword of the design is connectivity. Thinking about how to utilize the unused resources, we are trying to reconnect the vacancy, Broadway and waterfront area back to the future development of Newburgh, creating a campus to provide expertise on building construction. The connection happens in both the urban and architectural scale. From the urban perspective, we identify two campuses with a high density of vacancy in the city based on vacancy research and the waterfront campus for new development. To create a programs connection, classrooms and workshops will be inserted into the campuses with vacancy and the new waterfront campus will provide construction expertise as well as manufacturing construction products to rebuild the vacancy & infrastructure. From the architectural scale, we design a streets system connecting the inner city and the waterfront as the main structure of the new campus. Most of the new buildings are embedded in the natural topography to maintain the view to the Hudson River from the city.

Tangible Time - School of Construction

Many homes in Newburgh are in a state of decay. The lack of resources in the city has left many of its residents in the lower class with little opportunity of jobs. The demolition of these decaying buildings is costing the city eighty thousand dollars on average per home. The School of Construction serves a dual purpose by providing education surrounding building construction as well as a building recycling center meant to bring in demolished buildings and output new homes for the city. This would create jobs in the construction sector as well as provide education to the residents to empower them to rebuild their city. The demolished materials would be brought into the campus via a dualpurpose cable car that would serve as a sort of crane by night and by day would provide citizens of Newburgh an iconic and romantic form of transportation that would span from the airport all the way to Beacon. The campus also creates a promenade folly to which all residents of Newburgh can enjoy.





Hector Garcia









Newburgh Medical Campus

This urban development masterplan project sees a potential future for Newburgh, New York to become a thriving medical center in the Hudson Valley area. Taking inspiration from Alvar Aalto's Sanitorium and expanding it into an array of formal gestures that activate a difficult riverfront site, this future Newburgh Medical Campus aims to bring together urban and ecological systems in a useful way. In-stay patients located in wards that ardently hover over the riverfront wetland landscape and tree-tops are invited to embrace the scenic beauty of the Hudson River and its natural awe, pushing the limits of our understanding of how architecture ire can subvert existing medical connotations and to establish healing well-fare spaces.

H2O Hydronographic Institute

H2O is a Hydronographic Institute and Maritime University at Newburgh. In response to the chemical leakage to Washington Lake of PFOS-containing fire fighting foam used at Stewart Air National Guard Base for training and emergency purposes in 2014 and Newburgh's water crisis in 2016, the design is configured to re-imagine a new landscaped waterfront and to function as a water filtration plant with the filtration process made public for education purposes. Taking inspiration from water bubbles on the river shore and the Utopian tradition of a circular village, the institute comes in life with spherical clusters. The water edge is designed deliberately with a seven-foot degree change to interact with the tidal changes with part of the land immersed in the river during high tide. Each circle works as an independent department and contains academic buildings, dining halls, administration offices and residential halls. The individual circles then become a political apparatus and spatial strategy for the university to negotiate expansion.







Yulin Peng



Neo Grid

Our Neo Grid means to create an open campus for a new art school on the Newburgh waterfront, the edge of the city. The 45-degree rotation is not only an adaptation to the radically sloped site, but also used as a confrontation to the existing city grid. This super-block campus aims to provide a collective learning environment through pedestrian-friendly design. Some of the academic buildings strictly follow the regular grid while some public-use buildings break such convention and consist of rather organic forms. The newly designed topography navigates people to various building entrances and encourages people to interact in multiple interior space. It also allows people to experience different perspectives of the waterfront.







Christine Shi, Luna Zuo







Institute for Applied Urban Design

FRAMPTON

The Institute for Applied Urban Design will take a dispersive form throughout Newburgh by transforming vacant lots into meaningful spaces for shared use. Its campus will act as an open testing ground for design interventions across a variety of scales to provide new forms of public space for students, faculty and locals. Through its active deployment of design elements and site renewal, the school will act as a facilitator of local initiatives to revitalize urban space and will partner with existing institutions to create a new urban identity for Newburgh. The campus will fluctuate between fixed and temporary components to provide a responsive testing ground for projects as they are produced. The program will consist of fabrication zones where designs can be adapted and produced for the city. Studio spaces, a material and printing library, classrooms, and lecture halls will also be included to support new ideas surrounding urban design.



Emily Tobin












Hudson Promenade

The campus aims to return Newburgh's city gateway back to the Hudson River to strengthen the linkage to the greater Hudson Valley. Building upon the regional flourishing agricultural industry, existing tourism network and current transportation system, the project attempts to establish an intermodal food hub for both the local community and external visitors. Architecturally, buildings take on a strong autonomous urban form to illustrate the concept of city within the city. At the same time building perimeters are designed as threshold spaces along both inner-city edge and water edge to extend the urban fabric to the riverfront. The campus functions as a significant city river gate to foster future community economic growth and to activate Newburgh as a new visitors hub in the Hudson Valley network.















HOANG





Karen Choi, Brenda Lim





Our project addresses Newburgh as a food desert by proposing an integrated network intervention that takes place in two futures. Our near future connects the local businesses of Newburgh by intervening in shared property lots to create interlocking communal spaces while our distant future connects the regional agricultural network by incrementally creating a food processing and learning center.









Our design acknowledges the increasingly conflicted and interconnected relationships between human, machine, and nature. This facility is a water treatment center that will open for the public after its initial parking function. Using the elements of enclosure, mobility, and landscape, we capitalize on the transition from thickness to thinness at different scales. This transition over time reflects the building's adaptability as its function shifts from parking towards the treatment of surface runoff at the Newburgh airport runway.









Haoming Li, Xin Qin





Morgan Parrish, Nika Teper









The rural school is characterized by its relationship to both built environments and sprawling landscapes. In Arboretum, a forestry school connects the outskirts of Newburgh to its natural landscapes. A shallow dome integrates the school with the land, and perforations in the roof allow light and weather to penetrate the space, creating a series of hybrid indoor-outdoor conditions.





Adam Susaneck



The Newburgh Thinkbelt proposes a transit system and disbursed education network for Newburgh. The system is based on autonomous shuttles which can hold 6 - 8 people and would render private automobile ownership obsolete. At the system's heart is Stewart Station, which functions as a parking lot for the airport and transfer point into the network, as well as a full-size flexible test track for honing autonomous vehicle capabilities.





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The learning campus located next to Stewart airport consists of short boot camp programs that connect students all around the around the world by taking advantage of the airport's widespread network. The 'pinch' spatial concept creates a contrast between narrow and wide in both plan and section, therefore providing opportunities for multidisciplinary interactions. The continuous public connector breaks the traditional linear corridor by navigating people to learn and explore throughout their journey.









Maini Ke









My project focuses on challenging the traditional physical boundaries that limit programs and activities, by exploring a new type of spatial arrangement that creates a field of rooms within rooms which is adopted for the future art school. Different learning experiences are then created by using a system of folding and curving at the corners to connect spaces diagonally and horizontally. This not only encourages encounters, communications, and relationships, but also mirrors the ideas, values, attitudes and cultures of those who use the space.





"Ufanstructure" consolidates an aerial tram network with a water treatment system to clean the now chemically contaminated waters of Newburgh. This minimizes the urban footprint while maximizing civic benefit. Later, through a period of phytoremediation, the main facility at Stewart Airport becomes an interactive space for learning.



Ian Lee

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This proposition is one whose two futures are dependent on the site's history and present-day observations: a parking deck turned elementary school "of and from" the streets. Subtracting elements of the parking deck to make way for salvaged military barracks creates new spaces of creative learning and sets up a framework for architectural subtraction and modification within the larger structure.



Timothee Mercier









The Makerschool is a new chapter in the story of Newburgh as an industrial city: a public magnet elementary school that leverages the site-specific relationship between water and making to engage STEAM learning as play. A radial village of volumes abstracted from nearby industrial typologies, the discrete structures are connected together over time to incorporate additional functions as a hydrology field station, community center, and vocational training facility.





Frank Mandell, Maxime St. Pierre Ostrander



















The "Right to the Right-of-Way" is a new electric infrastructure policy that augments the existing easement strategy by opening up the corridor to partnerships between Central Hudson and local environmental actors. It focuses on ROW J/311, a 26-mile transmission corridor and the effects its regulation has on nonhuman species. "Powering up Pollination" utilizes the electrical and maintenance conditions of the ROW to rehabilitate populations of native pollinators. The "Electric Avian Alliance" replaces aging electrical pylons and creates an interspecies observation outpost. The "Electro-Horticulture Lab" buries the lines underground, allowing deer to cross the ROW, and explores conditions of electro-fertilized soil.













Michael McDowell, Kate McNamara







Challenging the tabula-rasa approach to brownfield remediation, the Center for Land Misuse uses a toxic brownfield site as an archive of hazardous waste, a research center for new remediation techniques, and a place for remediation policy making. The Center creates a new kind of park, not just scenic landscape, but an anthropo-scenic landscape, to study remediation while exhibiting all parts of the process.











Andrew Keung, Qingying Wang

















The Open Ground School presents an ecological, social and aesthetic critique of the autoscape as an anthropogenic construct in the context of r/urban ecologies.

Considering asphalt surfaces as sites for 'considerate extraction', the project utilizes lightweight publicly accessible architectural interventions that prioritize social experiences and local benefits rather than efficiency and profit in critique of existing mining operations. Through a sequential development from initial extraction to research and development, the Open Ground School serves as the prototypical site for renegotiating the surface condition of asphalt, generating both innovative materials and knowledge for Newburgh and beyond.









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Hyung Rok Do, Sanggyu Shin





Ecology is artificially constructed. And the members of this ecology became part of it without their consent. Constructed Nature is a project about the people and plants who lived against their wills. They were the minorities of the society who could not have spaces for their own. The project brings up questions about defining the meanings of invasive species and aims to design a platform for the new ecology of the people and plants who were always regarded as invasive species.









Newburgh was one of the cities most affected by the 2008 economic recession. The city could be examined as the epicenter of the housing crisis as many homes in Newburgh after 2008 went vacant and would remain that way today. But not entirely vacant, a new a rural and self-efficient ecological condition appeared in the formerly occupied homes. Plants and animals then took over the properties and a new nature was created inside this urban context. Expanding upon the existing SUNY Orange campus, the intent of the project is to create a network of dispersed campuses for agricultural production in the city. Our project restores the vacant homes left after the economic crisis and gives them a new life as a constructed nature in the city. Each new construction is given an agricultural element unique to itself, this creates a dispersed farm/lab network. Local residents are encouraged to interact with the various agricultural labs through a series of classes and workshops provided by the faculty of SUNY Orange.









Allison Fricke, Ericka Song



Jersel



HWANG

ADV ARCH STUDIO IV

Our project poses the question "who is nature for?" by designing in a way that takes up the various lenses of neurodevelopmentally diverse and differentlyabled people. A new nature trail is proposed that links two underused lakes that have been damaged through pollution and neglect. The proposal capitalizes on and aids current efforts to rejuvenate the lakes. Interventions along the trail are designed based on psychological theories of environmental and sensory processing. The trail makes accessible outdoor recreation experiences typical to rural settings in an urban context, benefitting adjacent low-income and elderly communities as well.



assil











Munise Aksoy, Joud Al Shadaifat


Newburgh is experiencing a water crisis with its natural watershed being polluted and is dependent on a modern infrastructure. With Al Ikhlas Mosque being strategically located next to the Quassaick Creek, we are proposing to establish an urban water charity through utilizing and manipulating the topography of our neighboring partners. The manipulation involves the transformation and dispersion of the mosque's various programs to design with consideration of the seasonal and religious cycle of Al ikhlas Mosque and our partners without obstructing their daily activities. We will synchronize construction and growth of the site by phasing over a ten-year period. Within the boundaries of the site, partners will contribute to the overall prosperity of our urban network at different capacities through redistribution of land use in order to allow for sharing of water, agriculture, and space. The diversity of the larger community will keep the site active year-round as the mosque and its partners make use of the multipurpose spaces at their own seasonal cycles. Our goal is to extend the opportunity to be outdoor during multiple seasons by using environmental entourage as architectural elements to block wind and trap heat.











Inspired by the First Assembly of God Church which functions as a neighborhood activator, the project looks to set up community centered sites to combat the widespread vacancy in Newburgh. The intervention begins with a series of structural foundations that are embedded within the site. This sets up possibilities for a variety of future constructions, while also providing opportunities for activation in the meantime. Gabion mesh walls are used in these early stages of construction and activated using found materials. Construction becomes a ritual for the neighborhood to build their own community over time. Through this incremental process we create a network of continuous growth for the formerly thriving William Street corridor.















Our design of the Sacred Heart Church in Newburgh pushes together with the research of the context in the whole regional area. During the study of the regional network of the Orange County, the highway system and food network turned out to be the significant factors which drive our design.

As the Sacred Heart Church could no longer meet the demand of the citizens in the regional area, we abandoned the functionality of the old church and designed several small churches and chapels based on the vehicular network and varieties of geographies, which could serve the regional area better. We mainly focused on the Crist Bros Orchards Church in this phase. The design logic of the church is formed from the development of the apple quality. By applying the drainage system and reservoir as the main layout of the project, the church would change its function seasonally.

While the vehicular network is activated, the transportation of food and farm production becomes the precursor of renovating the old church and local people could use the recycled off-season material to build their own local market, which means the role of the old church turns from a monument into a symbiotic city space.









The Evangelical Baptist Grace Community Church, located in Washingtonville, Orange County, is focused on expanding its physical and virtual presence with hopes to gain followers and "kick the darkness out of the northeast." The church's existing structures and massive suburban parking lots pay little heed to the environments they occupy. The architectural intervention for this religious institution includes remediating a local brownfield site and cleaning the soil as it is excavated. The new church occupies and expands through the land as it is cleansed, only growing so far as darkness can be removed from its soil.





Rebecca Greenberg















The AME Zion Church of Newburgh, the oldest African American church in the Hudson Valley, has faced a variety of issues in recent decades, including neighborhood gentrification, an aging congregation, and deterioration of the church structure. Using the opportunity presented by the many vacant and empty lots in Newburgh and through employing local and recycled materials, our architectural intervention expands the church program—while also adding a preschool and workshopsonto these under utilized lots on the church's block in a phased scheme intended to broaden the church's influence in the community at large and to help attract a younger population of congregants.









Jamie McCormick, Tim Zhou



Having closely studied the scarred past of Newburgh through a series of sectional drawings, we noticed the damage caused by the urban renewal reforms of the '60's. Taking on the nationally recognized Dutch Reformed Church (DRC) as our point of intervention, the history of the city and the national landmark overlap at critical points to reflect the effects of time through different scales. In an effort to avoid the repetition of this particular history or to intercept its' trajectory, we propose to recreate the foundations of a new type of civic building where city officials, academics and the local populous come together to form the next set of policies for the future of Newburgh. The physical recreation of the basement to house city officials and academics is paired with communitybased programs which aim to expand the facilities of the Free Library of Newburgh and the existing community garden in front of the DRC to invite the public to oversee, participate and get educated in the newly created civic center.

Challenging the classical temple atop-a-mound typology, we removed the soil below the church - and consecutively regrounded it, in an effort to expose the new foundations which the new type of civic building will rest on.

Berkhan Eminsoy, Qianfan Guo





This project aims to help Grace Community Church's branch at Newburgh to integrate with the community. Based on Olmsted's Picturesque park, the goal is to mobilize a few nearby partners and insert corresponding programs into the park. In consequence, the park, which has lost its popularity in the past will be activated and the church will play a role in its management. As a result, the traditional landscape will be turned into a productive agricultural landscape, arranged through perspective drawings, resulting in the park positively responding to and interacting with the surrounding neighborhood.



Qingkai Luo



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With the program of a nature center on the Quassaick river in Newburgh, NY, the project sets itself at the seam between earth and water. A sequence of square spaces, either fully submerged in earth, or in water, take the visitor through different experiences of nature. As a project set between the compression of earth and the tension of water, the concept of retainment comes to the foreground. Through model based studies, a single structural system that combined both steel lattice and reinforced concrete transfers the load from one to the other. The consequential special arrangement is thus controlled by both the structural system and the experience produced by it.



Sara Almutlaq









This project on the Quassaick Creek investigates how materiality can create an interdependent relationship between a board-formed concrete weir, or water canal, and wooden form work of a shelter. The inverse alignment of these materials allows the language of the weir to inform that of the shelter and vice versa. Smaller units are individual shelter intended for campers, hikers, and visitors to the creek, while larger structure function as gathering spaces, offices, and lecture space for community engagement and education. These spaces are accessed through an island in the center, created by the branching weir, where visitors experience a geometric, curated version of nature in the central plaza.





Blithe Archbald



Gauri Bahuguna











There is very little natural about the Quassaick Creek by Newburgh. The harsh winter exposes the victory of plastic tarps, beer cans, and used needles over the ecology. I viewed the semester's project of redirecting the creek away from a neighboring sewage pipe as an opportunity to restructure the landscape to best serve native fish populations. Glass eels, small migratory fish, used to populate the Quassaick creek in large numbers before the construction of several dams made it impossible for them to swim upstream. My weir design cleared out the old dam and transformed the riverbed into a massive, gradually elevating, eel ladder that would allow these rare fish to migrate upstream. The core of the design was in developing a precast module that would begin at the riverbed at the delicate eel scale and finish at the top as a platform for humans to walk along the river on. The sequential increase of scale within the module serves both as the structural support for the human platform as well as a filtration system within the river that separates different species of fish by their size- thus minimizing access of predatory fish to small fish like the glass eels during this upstream stretch of the river. Finally, the nature walk for humans at the top of the platform also opens into several small artificial eel ponds, where the public can learn about the eels and observe the scientists safely cultivate and research the rare species.





Bokang Du



This project began with a vessel exercise which attempted to utilize a series of six concrete water container to demonstrate the progression of water. The prototype for the water tunnel was designed to transport water between six containers. These water tunnels are then inserted either inside of the walls of two adjacent containers or underneath the container. Thus, when water is going through the whole system the direction of the flow is hidden. What can be perceived is the change of water level in each container. This approach is applied to the weir project. A series of six containers are placed in a linear shape to redirect the original creek, and four of them are water containers while the other two are transformed into courtyard. The original insertion of tunnel generated 2 categories: water tunnels go underneath the courtyard; rooms and corridors for people to observe the whole construction and its nature. Thus, the project as an infrastructure is accompanied with a nature center as an architecture. The infrastructure becomes a place where people can appreciate the nature.







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The Newburgh Nature Center uses brick of varying sizes, thicknesses, and openings, to create a space that provides interesting lighting effects and textural qualities, while also referencing the history of the site. The radial organization of the project incorporates structural and non-structural brick walls that contain the lecture hall, welcome center and cafe, office space, and other facilities. The hope is that this nature center can provide a communal space for hikers, workers, students, and other members of the Newburgh community where they can experience one example of the preservation efforts along the Quassaick Creek.





Julia Gielen









The goal of the Quassaick Creek Nature Center is to intertwine personal experience of the site with the flow of the river. To achieve this, visitors to the nature center are able to move through the landscape at three different datums, allowing them to explore the creek from above, below and beside the water. As visitors move seamlessly from one elevation to the next, the creek flows through the nature center. The architecture mediates the boundary between the guests and the water, delineating between areas of wet and dry, observation and procession, bringing the guest and the creek closer together in the process building material.















The act of enclosing an object within a walled perimeter is a strategy to augment the value of the given object. This is what the Hortus Conclususthe 13th century European medieval garden typology-achieves. In designing a nature center for the Quassaick Creek, this formal strategy was adopted in conjunction with that of a Piano Key Weir system that resolved the sectional challenge of a 15 feet dislevelling. The combination of walled garden and weir infrastructure was arranged in an enfilade circulation logic such as to protract the public's visit to the nature center. Indeed, the duration of the bank-to-bank journey is significantly increased by the multiple islands the visitor is forced to pass. In addition to this lengthened journey that aims to maximize the visitor's exposure to nature, the project's organized Italian garden offers an alternative experience of nature that contrasts with the otherwise untouched and disordered native environment of the creek.











The Quassaick Creek Nature Center aims to reestablish a relationship between residents of Newburgh and their underutilized amenity, the Quassaick Creek. Centuries of industrial pollution have rendered both the creek and its adjacent flora virtually inaccessible. This new nature center provides a destination along the Quassaick for residents of Newburgh to critically engage with the history of the site and experience the natural landscape, both actively and passively, through community gardens, an educational facility, a cafe, and a laboratory, connected through a system of bridging pathways which allow visitors to walk among the trees.





Matthew Ninivaggi



Helena Pestana





The project explores the idea of the ground as a way to organize the architectural proposal. A building that reacts to the existing landscape and topography of the site at the same time that is shaping a new ground form. The nature center extends out of the landscape, integrating with the terrain in a way that landscape and program are interwoven.











Alexandros Prince-Wright



During the site visit and research, aside from understanding how industrial and automotive focused the area is, what stood out to me was the split between Newburgh and New Windsor- how the creek, trees, and topography change act as a physical border between the two. The existing connections nearby are mostly used for vehicular use and are not well connected to the creek-an attractive green space below. Furthermore, there is a lot of dead space under these bridges where drug activity and crime occur.

I am trying to create a pedestrian connection between the two boroughs, while creating a natural connection with the creek and utilizing that extra space a bridge creates. The project is a study of form, specifically exploring how water moves in a creek. The material is mass timber, with a rib-like structure - this sits easily with the surrounding context, while making the structure porous for ease of accessibility. The weir is below the timber structure and is clearly visible to the public, thus making the water itself an attraction point. For the boroughs, the two curved points on the structure have the potential to generate public gathering spaces or plazas that overtime would attract commercial programs.





















The Tumbling Quassaick Nature Center separates the site into two contrasting spaces in order to create two different experiences of the creek. One is quiet, passive and open to the sky, it focuses on the glossy surface quality of still/slowly moving water. The other is loud, funneling the noise of rapidly moving water into its semi-circular space with a roof structure oriented towards the stream. It is active and can be used as a big gathering space for groups and performances. The separation is achieved by placing an S-shaped inhabitable wall on site. The ground floor consists of floodable concrete modules for day-time shelter and bathrooms. Resting on these modules are wooden sleep pods for hikers.







One of the biggest problems within the creek is the pollution in the water, and killing the marine ecosystem in two factors. First, being the levees and the existing weir choking out the healthy wetlands, and second wetlands, and second being sewer interceptor pipes that dump along the creek. Here the interpretation of the 'nature center' came in. A vessel had to be constructed with the fact of its eventual destruction, to account for the change in course. To this end, the vessel was built out of wood, using the appropriate styles of vertical and horizontal connections with wood being a primary building material.









Ugur Ilgar Tan







William Clark Anderson

New York's premier institute for the industrial production of Heme. This project is located along Newburgh's Gateway Waterfront with close proximity to the CSX freight rail distribution network. Intended as an economic catalyst for Newburgh, the project rezones the Gateway Waterfront district utilizing this ten-acre parcel as a maple orchard. This orchard serves two purposes. One, it serves as the primary source of sugar necessary for Heme synthesis by way of fermentation. Two, this orchard provides a public green space amenity on the waterfront of Newburgh.

The institute is located just north west of the maple orchard situated into the natural topography of its site. The roof serves as an extension of Newburgh's fabric providing overlooking views of the orchard, Hudson River, and interior views of the production space with Heme reactors. Both as a public experience and private research institute for alternative foods, this institute looks towards the future while maintaining important aspects of the past.






The future of a sustainable meat industry starts in the laboratory. The new meat market is where research, production and consumption happen in one place and the kitchen is the bridge that links them together. The meat industry's contribution to deforestation, greenhouse gases and antibiotic resistant bacteria makes finding alternatives a necessity. New industries from Impossible Meats to Memphis Meats have created new opportunities that could change the landscape of the meat industry. This new meat market in Newburgh focuses on creating a new typology where the laboratory, the production and the consumption of cultured meat happen in one place. For lab-grown meat, identity becomes one of the largest hurdles for public approval. The kitchen therefore becomes a crucial player in navigating this new system of meat growing and distribution.











By considering the new territory of farming not within a horizontal field but within the vertical landscape, emergent technologies of modular AI-driven agriculture along with strategies of vertical modular architecture could attain necessary efficiencies to bring food production to urban centers.

A series of modular plates house 30 self-dependent grow pods which circulate the building in accordance to the growth cycle of the produce within. Upon completion, pods are autonomously delivered to the base of the tower to be harvested, reseeded and returned. Dynamic UV panels provide electricity while an arterial system of veins deliver water and nutrients. Drawing energy from the sun and nutrients from the earth represents a new form of photosynthesis in which the produce itself is the product of a set of biological and mechanical processes.

Jack Blythe













What do aeroponics, foraging and subsistence farming have in common? These practices, which are at the opposite end of the spectrum of food sources compared to industrialized food manufacturing, utilize local and regional resources for small scale production. They do not require large spans of land or economies of scale to operate, nor do they serve displaced populations in desperate need of food. Existing resources in nature (natural reserves) and the built environment (abandoned warehouses) are repurposed for gathering and growing and consuming without changing the sense of place and the balance of ecological resources. In the case of foraging, overforaging would result in the death of the resource and the practice terminated. Farming, however, removes existing ecosystems to insert foreign elements. Over-farming continues the practice by transplanting more foreign nutrients and fauna on alien grounds.

This campus serves to emphasize these more sustainable systems of food production and integrate them into the city or wherever required to mediate our needs for fresh produce without the use of transportation or industrialized farming. Built from the most accessible balloon frame techniques using 8" x 8" studs, aluminum framing and cork insulation, the campus is but a village of sheds and huts that play with density and sparsity to allow adjacent forests and pasture to permeate into the interstitial spaces between blocks that serve as dining and social spaces. The chef, the food scientist, horticulturalist and the restauranteur live together in this campus to discover new ways of consuming uncongenial found foods in order to redirect our demand from existing conventions to more "wild" sources, which might, according to the Michelin-starred restaurant NOMA in Copenhagen, be tastier than the supermarket's palette of processed foods.





Gabriel Chan





Matteo Cordera

The Farmhub seeks to provide a shared meat and produce processing facility for nearby farms in the Hudson Valley. Small and Midsize farms often struggle to stay profitable when competing in larger urban markets, due to smaller quantities of produce, cost of processing equipment and higher costs of production. However, pooling processing and packaging with others enables the Farmhub to act as a wholesaler for the farms that are part of its network and sell their produce on a larger scale.

The hub and consolidation of processing also create an opportunity for exchange and learning. By creating a "social" loading dock and rest stop, farmers can benefit from discussing and sharing their expertise with one another and ultimately implement new strategies to their crops and animals. Through a research center the data collected by the farmers is further analyzed and monitored, in order to further understand the terroir and biome of the Hudson Valley within a changing climate.

In addition to processing, the farm hub serves as a food distribution center for Newburgh and NYC. By incorporating a grocery store, the hub is able to address the food desert problem currently present in the city of Newburgh and provide fresh produce directly to its residents. At the same time, barge shipments also provide New York City with a multitude of seasonal, locally grown meat and produce. The hub also includes a restaurant with a test kitchen where resident chefs can experiment with locally grown food and the community can learn about cooking.

This allows the hub's varying systems to be consolidated into one single node before being dispersed again. Hence, this mechanism allows for two manifestations of the architectural node, one that is macro and works on a regional level connecting farm to city and a micro phenotype that works on resolving issues on the city level.









Luiza Guimaraes Furia



This proposal balances ecology and economics through food, by using disgust as tool towards creating a specific gastronomic desire: a desire which has economic and ecological repercussions. A single menu item here dictates economy and ecology. Desire for a specific food item (in this case a crane egg) is created through hyper sensorial spaces that disrupt the human body's normative rhythms and ways of seeing and experiencing space. Human senses are re-attuned to the differing rhythms of the surrounding landscape and animals, prepping the mind, body, and palette for something it is not accustomed to eating. This manufactured desire in turn creates a demand to farm cranes which have ecological demands, specifically wetland habitats. The wetland created in response performs vital ecological functions in the local watershed. The wetland restoration with its embedded sensorially experimental spaces asserts the economic, material and gastronomic interdependency between humans and non-humans. Here we are cooking for the environment and seeing new possibilities within it. Disorienting and reorienting bodies and minds towards new possibilities is crucial. In creating new readings of objects and surfaces new social practices are also created that can potentially help us in our current ecological crisis.









Zeid Hanna Ghawi

ADV ARCH STUDIO IV

Newburgh's Mycoresiliency Foundation's primary mission is the ecological health and longevity of Newburgh. Given that Newburgh is a food desert, the foundation supports the availability of food by assuming the role of Newburgh's ecological growth agent and a patron for healthy soil and water through the use of different mycological techniques. The foundation operates through these considerations at three main scales: the product; the contaminated site; and the city. The products will be natural preservatives for food and materials cultivated in the laboratories and upper function of the building by the process of chitosan extraction from the cell wall of mushrooms. The contaminated site (Con-Iron and Metal Site) and water source (Hudson River) adjacent to the research component will be probed by mycelial conduits running from a mycelial network implemented in the lower/ underground function of the building. The city of Newburgh will have the mycoresiliency initiative spread across the city by first testing out mycelial probing techniques on site and then deploying these techniques across different contaminated sites in Newburgh.













Jacob Gulinson



The proposed new growing structure and reconsideration of the envelope facilitate activity throughout the height of the buildings section. What was once an envelope that acted as a barrier is now a membrane that controls the qualities of the exterior environment on the interior spaces to provide opportunities for growing, experimenting, educating, and all facilities of the institution. The growing structure now elevates a platform from which to grow food for use by the labs, which are themselves suspended from the structure to allow for more growth on the ground plane. The sustainable future of experimental food is held within a cross disciplinary institution housed within the adaptation of the warehouse typology of the Foundry.

The project has been interested in the conjunctions in the cycle of food production, distribution, shopping, and eating. Because of this the project has invested in looking at where and how the different phases in the food cycle could overlap and architecture could facilitate this amalgamation. The project is proposing a cloud kitchen that operates with a culinary incubator, a grocery store, and a food court. A cloud kitchen as a concept is an emerging business model, in which a Cloud Kitchen, a fully equipped commercial kitchen, performs as a production unit that makes and provides food for the remote restaurants in other locations. The application of Cloud Kitchen becomes very powerful in urban settings. By having the centralized kitchen in non-premium locations, it could ensure low operation cost, low risk, and high- profit margins. The Cloud Kitchen will be situated in the 13 vacant properties in the North East corner of the block, which is adjacent to Downing Park and Luke's Cornwall Hospital. The overall proposal is designed to work as a singular system and become an exploration of overlapping or flattening the food production, distribution, shopping, and eating.











Cris Liu



Contemporary architects should have the desire to embrace the need of a new Architecture typology and the courage to propose answers. With the increasing demand of protein, insects become a popular alternative protein resource and thus insect farming becomes an uprising industry.

The Project is an edible insect farm that farms 7-10 types of insects that are already abundantly farmed around the world. However, instead of creating a closed warehouse, the project transforms the banal farming process into an educational experience to present to the public the real appearance of insects, the social aspect, the density and the vitality to raise the awareness for the decreasing quantity of insects in nature.

By using different layers of space, the project attempts to play with the scale and the relationship between human and insects. People will pass through the different units and experience different scenarios created by the swarm of different insects and then go to the outside of these units to see the farming process. With more and more insects being industrialized, it is important for people to remember these smart creatures are alive just like us.



010878







Danli Wang

As global population growth and climate change present more challenges on agriculture and food production-conservation of plant genetic diversity is essential for food security. A seed bank is a facility used to stored seeds of various crops and wild plants, in an effort to maintain biodiversity. Sitting on top of Downing Park, a beloved public park for residents of Newburgh, the Hudson Valley Seedbank would serve as a regional seed bank of the Hudson Valley, that connects more than 100 community seed libraries and seed saving initiatives in the region and tap into the global seed bank network. Well integrated into the landscape, the Educational Center on the west renders invisible to the visitors approaching from the footpath from the west side, until they encounter a monumental wall that indicates the presence of a research building behind and a seed bank that lies underneath.









Alex Wong

This project is a reaction against industrialized and commodified ways to think about landscaping, farming, and food-making. This project seeks to redefine the relationship between humans and the rest of the environment. Humans cease to extract from the environment: an apple is not only sweet, a tulip is not only beautiful, a dog is not only a pet, a bee is not only honey.

The project draws from the theory of affordance by JJ Gibson from the mid-twentieth century. The noun affordance pertains to the environment providing the opportunity for action. Through urbanization, the environment is changing into more cities like Newburgh. What does the city afford animals and plants? This project designs its way through greywater, food and plastic waste and reintegrates them into the dominant landscape.





