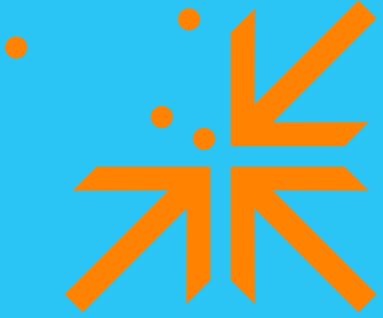
DEPARTMENT OF URBAN STUDIES AND PLANNING

DUSPMIT

THESIS/DISSERTATION ABSTRACTS
DUSP GRADUATES
2025/2026



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This list does not reflect the full graduating class, some graduating students perferred not to have their thesis abstract listed.

Bex Allen
Thesis Advisor: devin michelle bunten

Paying Our Fair Share: How Reforming Prop 13 Can Address California's Housing Crisis

California has spent a record amount of money on affordable housing and homelessness programs in recent years. However, reversing a crisis that has been decades in the making has proven to be a difficult challenge requiring investments that meet the level of need. Financing the solutions required to address homelessness and improve housing affordability should be a shared responsibility between federal, state, and local entities, but the federal government's level of investment consistently falls short of supporting those most in need. As the world's fourth largest economy, California's government has a responsibility and opportunity to fill the gaps left by insufficient federal investments. Establishing and committing dedicated funding streams for affordable housing and homelessness services is needed at both the state and local level. Generating sufficient local revenue is particularly difficult for California localities because they are severely restricted in their ability to raise taxes. Property taxes, the primary mechanism for funding local governments across the country, are controlled in California by Proposition 13. Prop 13 limits assessed values and property tax rates and in turn, constrains the local revenue available for critical services including housing and homelessness assistance. Advocates argue that California's largest corporations and wealthy individuals should contribute their fair share in funding the critical work required to solve the housing crisis. This thesis proposes a statewide mechanism that would enable this to happen, by turning private real estate gains into community investments. Massachusetts, which also has property tax constraints, has created the Community Preservation Act (CPA) to generate property taxes for community needs. Using the CPA as a case study, this thesis identifies a path for property tax revenue to fund community housing solutions. Through interviews with housing developers, policy experts, and advocates, my research finds that the CPA offers a promising approach for California to consider establishing a dedicated, flexible, statewide revenue source to address the ongoing housing crisis.

Fedaa A. Alsoufi
Thesis Advisors: Eric Robsky Huntley and Rosalyne Shieh

Urbicide and Memory Justice: The Case of Rafah

This thesis examines the cycles of destruction and reconstruction of Rafah, a city at the southern edge of the Gaza Strip, through the lens of urbicide and memory justice. Drawing on archival maps spanning from the late Ottoman period to the present moment, oral testimony, and mental maps, it traces what is lost and what persists when a city is systematically and spatially unmade — not only its interwoven fabric but the collective memory, social relationships, and sense of identity that urban space carries and enables. The thesis argues that Rafah's repeated mass destruction constitutes urbicide: the deliberate targeting of urban life as a form of political violence, aimed not only at infrastructure but at the social and memorial fabric of a community. It further argues that recovering and representing that fabric requires a methodology that resists the "grammar of violence" codified in the dominant archive — a grammar that centers destruction, orders time linearly, and renders Palestinian life primarily through the lens of crisis and loss. In response, the thesis develops an approach to what it calls memory justice: a practice of representation that foregrounds the lived relationships between people and place, attends to the names and narratives communities carried across displacement and destruction, and insists on the scale of the body, the household, and the neighborhood as the scale at where urban memory is actually held. The work draws on the theoretical frameworks of Saidiya Hartman on the grammar of violence and the archive; indigenous scholarship on non-linear, relational time; Delia Wendel's work on genocide trauma heritage and memory; and Palestinian indigenous duaration of Sumud — steadfastness — as a spatial and temporal practice. The thesis is intentionally hybrid in form, combining written analysis with a digital tool and a series of paintings. It deliberately avoids the aerial and satellite view as its primary visual register, insisting instead on perspectives rooted in the city's own geography and scale. The work is incomplete in the way that all memory work conducted in the midst of ongoing destruction is necessarily incomplete. It offers itself not as a comprehensive account but as a contribution to the memory space that people of Rafah are building, and must continue to build, in the face of their erasure and annihilation.

Clay Anderson
Thesis Advisors: Melissa Schrock, Brent Ryan

Creating Value by Transferring Value: Unlocking Mutual Gains Through a Joint Development Case Study in Austin, Texas

Austin, Texas is growing rapidly, but structural deficiencies in State transportation funding limit investment in new transit services. While public transit increases real estate value by improving accessibility and enabling higher densities, transit authorities struggle to capture the value their services create. This thesis presents a Joint Development case study of Capital Area Metropolitan Transit Authority (CapMetro)'s largest landholding to demonstrate how redevelopment can create a new revenue source for Austin's public transit provider. Through a hypothetical redevelopment program, cashflows for CapMetro, the City of Austin, and other taxing entities are modeled based on various infrastructure financing and affordable housing scenarios. Holding the private developer's returns constant through all scenarios, the analysis reveals how City-issued debt and the redistribution of affordable housing between City and CapMetro-owned parcels maximizes CapMetro's ground rent revenue, leading to larger gains in Total Public Value. These results suggest that transferring value from the City of Austin to CapMetro leads to mutual benefits for all parties, helping CapMetro deliver better transit services which in turn help achieve City policy goals.

Hannah Aronson
Thesis Advisor: Janelle Knox-Hayes

Adaptive Shores: Community Visioning for Coastal Planning and Environmental Futures on Ocracoke Island, NC

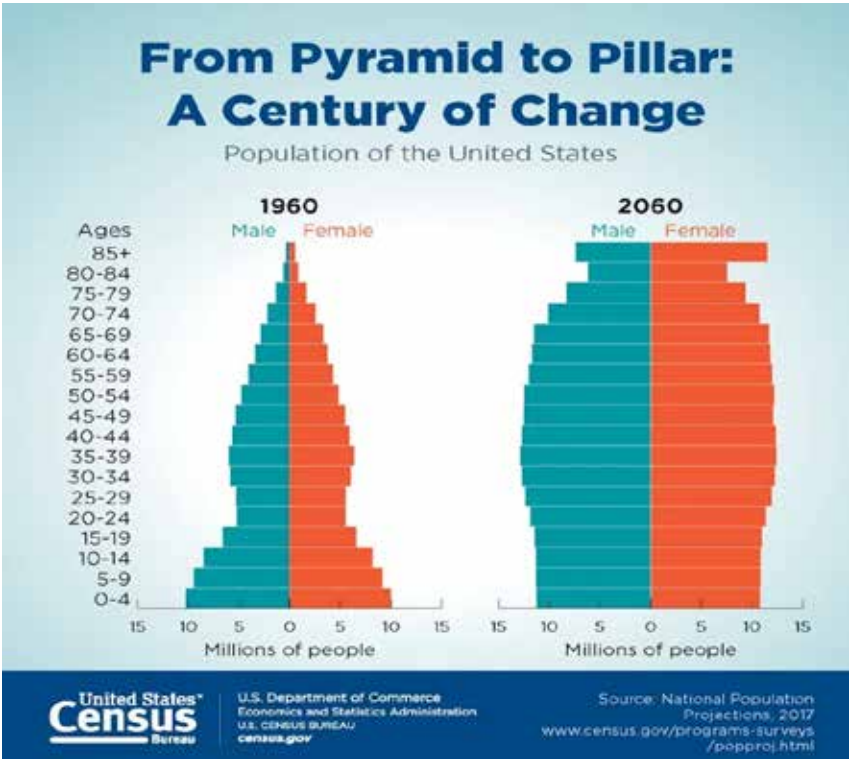
Adaptive Shores examines how Ocracoke Island, a small coastal community in North Carolina's Outer Banks, is planning for its long-term future under accelerating climate pressures. With fewer than 1,000 year-round residents, Ocracoke is one of the most populated villages in Hyde County, a group of unincorporated communities governed at the county level. Accessed only by ferry, the island faces distinct challenges shaped by its geographic isolation, climate vulnerability, and limited resources. In partnership with Ocracoke Alive, a nonprofit organization run by David Tweedie, this research centers an eight-week participatory workshop series engaging residents in collective visioning and decision-making.

Using community-based participatory methods, the project explores how local social networks, cultural values, multigenerational ties, and evolving community dynamics shape climate adaptation priorities and planning processes. The work follows a two-step approach: first, community-driven visioning and collaborative discussion of the island's future; and second, translating these visions into a place-based planning framework grounded in core values. Across the eight weeks, ferry tolling and island access emerged as a critical case study. Through collaborative discussion and exercises, participants moved from articulating shared values of reliability, affordable access, and infrastructure sustainability toward shaping an evolving planning process grounded in a shared commitment to preserving Ocracoke's identity, character, culture, and significance. Findings highlight both the limits of ad hoc, reactive planning and the strengths of Ocracoke's social fabric: its deep sense of place, commitment to community, and long-standing practices of resilience and adaptation. The resulting framework offers a values-driven approach to small-scale, community-led planning that prioritizes local autonomy, cultural identity, and coastal resilience.

Sophia Ashebir
Thesis Advisor: Joseph Coughlin

Planning for an Aging Population: Assessing Metropolitan Planning Organizations' Approaches, Gaps, and Innovations

With the number of older adults in the United States at an all-time high, shifting age demographics can no longer be overlooked. A majority of older adults prefer to age in place, remaining in their homes and communities as they grow older. Transportation plays a critical role in enabling this independence. Metropolitan Planning Organizations (MPOs), as key regional transportation decision-makers, are central to addressing these evolving needs. This study examines MPOs' awareness of and preparedness for age demographic shifts in the US, with a focus on how they are incorporating the needs of older adults into transportation planning. It explores factors such as organizational structure and partnerships, while also addressing additional domains including emerging technology, natural disasters, and housing. A national survey of MPOs across the United States was conducted to assess readiness, followed by seven in-depth interviews with MPO staff members to further investigate key themes that emerged. The findings highlight innovations and opportunities in current planning practices and inform a set of targeted recommendations for MPOs, as well as state and federal agencies, to better support aging populations through transportation policy and planning.



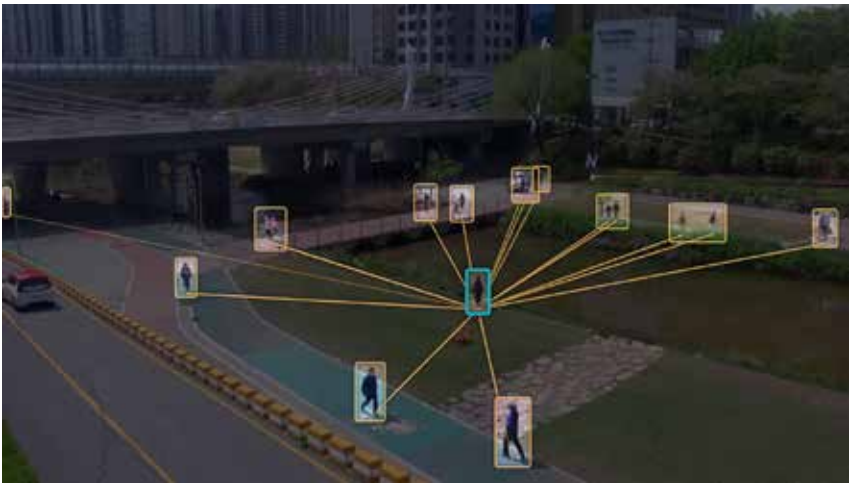
Deniz Aydemir
Thesis Advisor: Fábio Duarte

Loneliness, Copresence, and the Purpose of Cities

Loneliness is a global public-health crisis. This crisis grows as traditional functions of cities move from shared spaces into single-person households. When we do leave home, we experience the presence of many strangers with whom we never interact. This ambient copresence can be fundamental to reducing loneliness. Cities must reorient their purpose to include cultivating copresence and defending against loneliness.

We formalize Goffman's copresence as a spatial grammar that applies across social theories and use social imagination to describe how copresence shapes the way we feel connection and loneliness. We provide a formula for copresence intensity that categorizes types of copresence experiences in space.

Loneliness and its lethal consequences are especially severe in South Korea. We build an LLM-assisted loop to generate computer-vision pipelines optimized for observing copresence, and analyze three weeks of CCTV footage from three walking paths across Seoul and Busan. Our analysis describes the forms and intensities of copresence that individuals experience in each space. We then propose design principles for cities that aim to bring people together and recommend a dedicated city-staff role for loneliness. The project is available at copresencecity.com.



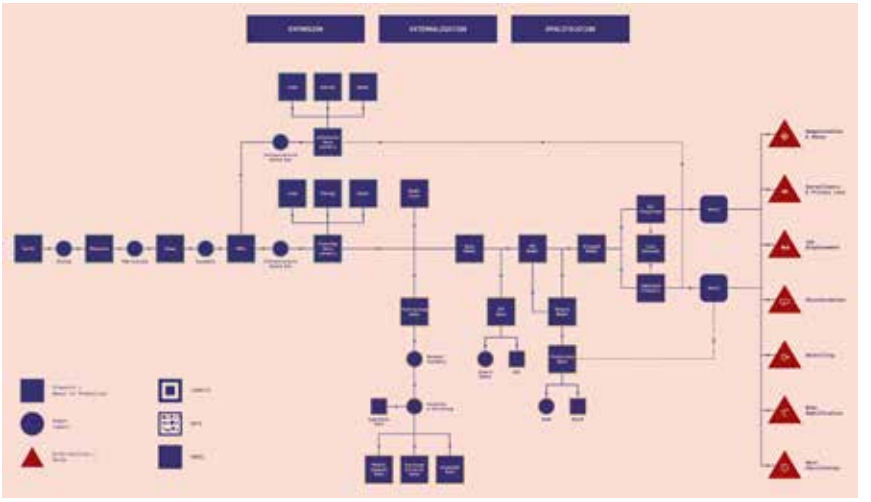
Xavier Ayub
Thesis Advisor: Delia Duong Ba Wendel

Critical Cartography of Frontier AI: A Metabolic Map of OpenAI

Planning's engagement with artificial intelligence has concentrated on harnessing the benefits and managing the risks of AI's downstream applications, or on individual upstream nodes such as data centres — rather than on the production system as a whole. That system, spanning mineral extraction, semiconductor fabrication, hyperscale data centres, contracted annotation labour, and scraped training data across multiple jurisdictions, has gone largely unmapped. This thesis builds a digital metabolic map of OpenAI's infrastructure as a connected planetary socio-technical-natural system. Extending the methodology Crawford and Joler developed in their 2018 mapping of the Amazon Echo, it is, to the best of the author's knowledge, the first comprehensive cartography of a foundation-model AI firm's production system at planetary scale.

The scaling logic governing frontier AI development since the emergence of foundation models in the early 2020s produces three structural dispositions in the firms operating under it: expansion, externalisation, and opacification. Companies obscure these behind what Keller Easterling calls infrastructure stories — narratives of universal benefit, military necessity, and free-market liberty that occupy the space where accountability claims should originate. The map renders all three dispositions visible, making it possible to read OpenAI's own policy documents against what the system actually does.

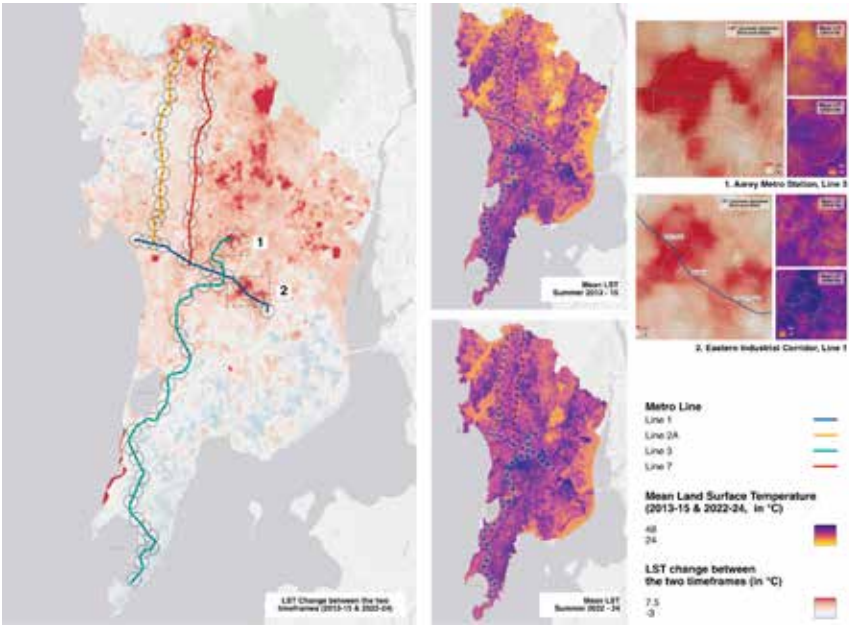
The intervention is informational. International AI governance is fragmented and concentrated downstream, leaving the upstream layer effectively governed by the firms themselves. Planning, permitting, environmental, and labour authorities, alongside civil society organisations and affected communities, hold partial standing over individual nodes but lack any shared picture of the system they are governing in pieces. Adapting Ananny and Crawford's argument that algorithmic systems must be understood by looking across their components, the thesis names this missing operation systemic legibility. Without it, the proactive and bottom-up governance that frontier AI requires has no informational ground to stand on. The map opens avenues for planners, civil society, and a broader public engaged in critical AI literacy, and is offered as an analytical case and transferable framework alongside existing AI transparency, risk, and harm-mapping instruments.



Shreya Bansal
Thesis Advisor: Lawrence Vale

Heat Risk along Urban Transit Corridors: A Spatial Assessment and Resilience Framework across Mumbai's Metro Network

Heat is not evenly distributed across a city — it is a spatial outcome of urban development, and those absorbing its effects are overwhelmingly those with the least power to shape them. India's Heat Action Plans have produced meaningful progress in emergency preparedness, but they are designed to manage heat events, not interrogate the conditions that generate them. As Mumbai accelerates its infrastructure build-out alongside its climate commitments, this gap between intent and practice has become increasingly evident. This thesis proposes a reorientation of both the question and the spatial scale of analysis. Taking Mumbai's metro network as a case study, it proposes 500 meters metro station catchments as the primary unit, departing from the wider ward-level framing that dominates existing heat governance. Drawing on satellite-derived land surface temperature data (2013-2024), land cover analysis, and ground-level thermal measurements (2026), the research constructs a three-part heat risk framework across station buffers on the four operating metro lines in Mumbai, assessing surface heat stress, vegetation deficit, and population thermal exposure separately. The findings operate at three levels. At the network level, station buffers warmed faster than the broader city on average, but thermal outcomes diverged substantially across and within lines, shaped by corridor urban context, construction timeline, and land cover conversion. At the catchment level, the three dimensions of risk do not co-locate they do converge —where they converge, those stations are classified as multi-domain priority, and their divergence identifies what kind of risk exists, who bears it, and what response it requires. At the station level, ground-level measurements captured a 31°C range in a single journey. The thesis closes with an intervention framework covering greening, surface treatment, shade infrastructure, and people-centered cooling access. The infrastructure corridor is a missing spatial unit in heat governance, and as metro infrastructure expands rapidly across the region, this framework has relevance well beyond Mumbai.



Tyler Barron
Thesis Advisor: Ezra Glenn

In Awe of Planning: An Exploration of the Role of Awe in the Built Environment

A growing body of research on awe has demonstrated its capacity to promote prosocial behavior, improve well-being, and foster a sense of connection with the world. However, its relationship to the built environment remains largely unexplored. Urban planners have few frameworks for understanding where awe occurs in cities, what elicits awe, and how it might be intentionally cultivated. In partnership with Gehl's Cities of Awe Lab, this research uses Cambridge, Massachusetts as the site of inquiry to examine how people experience awe in everyday public spaces. In order to interpret awe–an emotion that comes from being in the presence of something vast that transcends one's current understanding of the world–this research develops an original analytical framework. Organized across geographies, morphologies, phenomenologies, and temporalities, and informed by Dacher Keltner's science of awe, Henri Lefebvre's Rhythmanalysis, and theories of sacredness, this framework yields insights on the nature of awe in Cambridge. Drawing on interviews, awe walks, and personal observation that together provide a collection of 220 georeferenced instances of awe, four archetypes of awe emerge from this analysis: Expansive Nature, Wild Nature, Built Beauty, and Inclusive Interaction. The analysis further reveals that street and park-based settings are the most common locations of awe, while plants, architecture, and art/objects are the most frequent elicitors of awe. Participants affiliated with nature-related activities tended towards ecologically and socially driven awe, while those without such affiliations more commonly experienced aesthetically and socially driven awe. Awe walks produced consistent benefits across both groups, including heightened sensory awareness, increased gratitude, and stronger connection to place. As interest in the affective and psychological dimensions of city life grows, this research offers planners a practical framework–anchored in an interactive Awe Atlas–for identifying, preserving, and cultivating urban conditions that offer a sense of vastness and transcendence.

Amelia Baum
Thesis Advisors: John Attanucci, Haris Koutsopoulos

Scheduling Strategies for Bus Operator Retention: A Mixed-Methods Evaluation of Bus Operator Preferences and 4-Day Workweek Feasibility

Public transit agencies face significant and growing challenges related to workforce shortages, absenteeism, and employee retention, which threaten service reliability. Reports found that 90% of U.S. transit agencies are experiencing a workforce shortage, with 84% claiming that the shortage affects their ability to provide scheduled service. Industry-wide, operator absence is a significant contributor to missed work at transit agencies nationwide and has, in many cases, delayed the full reinstatement of service at transit agencies following the COVID-19 pandemic. The quality of bus operators' work is significantly impacted by inflexible crew scheduling constraints. However, most studies focus on pay, benefits, and infrastructure, neglecting the importance of scheduling. This thesis aims to fill this gap by examining the potential for crew scheduling improvements to enhance the quality of life for bus operators through a three-part case study at the Chicago Transit Authority. Part 1 analyzes the historical work preferences of CTA bus operators, providing actionable insights for scheduling improvements. Part 2 presents a high-fidelity proof of concept in HASTUS, using block schedules (10-hour-a-day runs that are intended to be run by an operator 4 days a week) and rostering to reduce negative work traits, increase consecutive and weekend days off for most operators, while maintaining schedules for the top 20% of senior operators. Part 3 evaluates the new 10-hour, 4-day-per-week packaged schedules via an LLM-based paired alternatives survey of operators at one CTA garage, measuring the desirability of the proof of concept and collecting qualitative feedback. Overall, the new schedules substantially improve the quality of work for operators by guaranteeing at least one weekend day off, at least two consecutive days off, and increasing day-to-day schedule consistency and overnight rest time, while maintaining constant vehicle requirements and total pay hours. The survey results show that 72% of operators at the 74th Street garage support the new schedule paradigm, demonstrating strong support for their potential adoption and encouraging future exploration of a block schedule hybrid rostering paradigm at the CTA and other transit agencies.

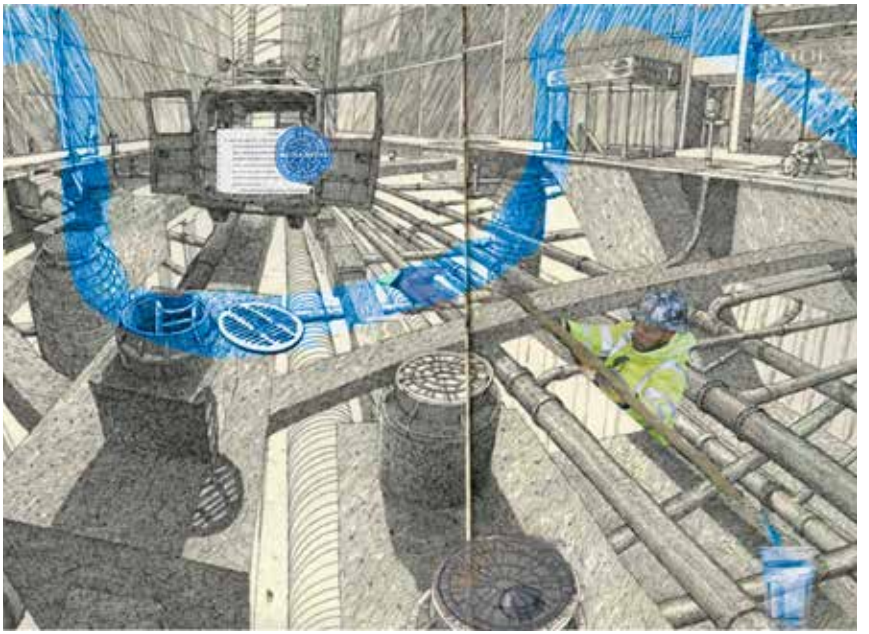
Emily Berkemeyer
Thesis Advisor: Gabriella Carolini

Did You Boil It?: Drinking Water As An Indicator of Public Trust

The provision of clean drinking water is essential for urban life. In the United States, water, unlike most necessities, is provided as public utility by the government. Therefore, the level of trust in tap water can be seen as an indicator of public trust in government. This thesis is an exploration of the visible and invisible governance systems affecting trust in the drinking water infrastructures of New Orleans, Louisiana twenty years after Hurricane Katrina. The research aims to understand three questions: What eroded trust in the Sewerage and Water Board in the post-Katrina era? How do citizens trust in the quality of their drinking water and the institutions that control these infrastructures? And how can collaborations of state actors and nonprofits rebuild trust and governance of water infrastructure when adapting for Lead and PFAS contamination?

Trust is rooted in experience therefore the methods of this thesis assess experiences with infrastructure in New Orleans through journalistic data and publicly available quotes from residents and government officials. In order to understand what eroded organizational trust in the Sewerage & Water Board of New Orleans (SWBNO) the frequency and response to water main breaks, boil water advisories, falsified tests and unaddressed reported water leaks are analyzed. Additional analysis of the numerous financial and governance levers between the Louisiana State Legislature, the New Orleans City Council and the SWBNO is conducted to understand the challenges faced in policy reform, financing and affordability.

To understand active planning efforts, new bills at the state legislature reforming water board governance and Sewerage & Water Board project metrics are reviewed. Finally, initiatives of New Orleans nonprofits, the Water Collaborative and Civic Studio Co-Op, are examined to understand opportunities for co-governance with state actors as a method rebuilding trust through education, communication and responsive projects on lead and PFAS contamination. This thesis produces a template for mapping breakages in the flow of trust and the connectors that need to be fitted to turn water governance blockages into flowing opportunities for knowledge building and restoration of trust in the ability of a city to serve its citizens.



Arielle Blacklow
Thesis Advisor: Jeffrey Levine

Long Term Asset Management Planning for Housing Security and Climate Stability: A Case Study of Decarbonization Roadmapping for Allston Brighton Community Development Corporation's Affordable Multifamily Rental Housing Portfolio

In collaboration with the Allston Brighton Community Development Corporation (ABCDC), a Boston-based multifamily affordable housing provider pursuing net-zero emissions by 2040, this project develops a mechanism and framework for portfolio decarbonization roadmapping of existing residential housing assets. The research links decarbonization planning to equitable long-term asset management by aligning efforts of emission reductions with housing affordability, capital needs, financial capacity, climate adaptation, accessibility compliance, and resident engagement. Grounded in real-world constraints faced by mission-driven affordable housing organizations, the study draws on practitioner interviews, scenario planning, multi-criteria decision-making, and ABCDC's experience with recent retrofit projects to develop actionable planning tools. The research produces adaptable property-level decarbonization planning dashboards that inform a dynamic portfolio-wide energy projection and tracking dashboard, providing user-friendly, data- driven mechanisms to support organizational decision-making. Through iterative scenario analysis, the thesis explores a combination of Zero over Time (ZOT) and Simultaneous Energy Upgrade (SEU) strategies for ABCDC's portfolio in order to balance energy, regulatory, cost, and logistical factors. The research also introduces a prioritization mechanism for portfolios facing resource constraints and develops resident engagement frameworks to promote equitable and participatory decarbonization planning processes. The thesis contributes a practical bridge between technical decarbonization modeling and long-term asset management planning while identifying key implementation challenges, including funding constraints, data limitations, and knowledge transmission barriers. Although reliant on a single case study, the framework developed through this thesis offers transferable insights for affordable housing providers seeking to disrupt the reinforcing cycle between housing insecurity and climate instability.

Gabriel Bonnamy
Thesis Advisor: Lawrence Susskind

Planning Around Ecological Constraints: A Degrowth Curriculum Proposal for MIT

Planning education is preparing practitioners for a world that no longer exists. The sustainability frameworks that organize most planning curricula – from green growth and smart cities to net-zero development and sustainable development goals – share a common assumption: that the current polycrisis can be resolved within a system organized around the imperative of perpetual economic growth. The empirical record assembled across decades of research in ecological economics says otherwise. Global absolute decoupling of GDP from material throughput has not occurred. The energy transition is more accurately described as energy addition and the planetary trajectory we are on has no precedent in the history of human civilization. Growth is not only ecologically impossible. Beyond a certain material threshold, it is also socially undesirable, actively eroding the relational goods on which human wellbeing depends.

Planning education, and alongside it, the education of policymakers, engineers, business leaders, and designers, has almost entirely avoided incorporating the body of knowledge which challenges the endless pursuit of economic expansion: degrowth. I argue that the response to this gap in how we train future sustainability professionals requires a reorientation of planning education around the degrowth frameworks and vocabulary that match the ecological constraints of today and tomorrow. It proposes a course titled Rethinking Sustainability Planning, designed for MIT's Department of Urban Studies and Planning, as a contribution to that reorientation.

Mica Caine
Thesis Advisor: Karilyn Crockett

Mountain Blues & Water Gospel: How Affrilachian Women Cultivate Worlds in the Afterlives of Coal Extraction

The Appalachian Mountains began forming nearly 480 million years ago, and the coal seams of present-day southern West Virginia were born from ancient Carboniferous rainforests buried and compressed hundreds of millions of years before industry arrived to claim their carbon-rich rock. Along Elkhorn Creek and the Tug Fork watershed, Indigenous worlds preceded settler occupation by thousands of years. Early coal operators and the Norfolk and Western Railway created the coalfield order, making extraction spatial through land control, mineral rights, rail corridors, opened seams, and company towns.In the decades after emancipation, Black migration into McDowell County marked a profound shift from enslaved labor and sharecropping toward wage labor in the coalfields; descendants came largely from Virginia, North Carolina, Alabama. Howard Wade captures the scale of this transformation: McDowell County had only three Black residents in 1880, but by 1890 the Black population had grown to 1,591, and by 1940 to 23,910. McDowell became the Blackest county in West Virginia, and along Elkhorn Creek, towns such as Keystone, Northfork, Welch, Landgraff, Speedwell, Kimball, Gary, and Maybeury became sites of Black modernity and mid-century prosperity. Though the coal industry did not free Black families from racial capitalism; it offered a better life within the afterlives of the plantation.

Affrilachian history remains underrepresented in dominant regional histories. This erasure is especially pronounced in Black women's lives along Elkhorn Creek, whose care, faith, teaching, organizing, and memory work helped cultivate worlds of kinship and belonging. This thesis asks: How did Black women of Elkhorn Valley cultivate worlds in the afterlives of coal extraction, and how might that history help imagine repair? I approach this as a descendant seeking wholeness and reconciliation with family, land, and memory. Grounded in Black feminist ethnographic practice, I use oral history, field observation, archival research, autoethnography, material culture analysis, and arts-based speculative practice to examine Black women's lives, institutions, landscapes, and memories as a coalfield counter-archive.

I argue that Black women in McDowell County did more than survive the coalfields; they cultivated worlds within and against the afterlives of coal extraction. Using mountain formation and watershed logics, this thesis first reads the coalfield order as a racial-capitalist formation organized through ongoing collision of the coalfield order with ecological harm, segregation, debt, labor conflict, mechanization, and institutional neglect. Against that extractive formation, I center Black women as the eroding counterforce, where flow is embodied through adaptable navigation; confluence as communal grounds; and settlement as the buried and sedimented traces of Black life after mass exodus out the county. The thesis concludes by turning toward Violette Ranger, a speculative reconciliatory worldmaking project that draws from this counter-archive to imagine futures beyond extraction.

Sophia Campbell
Thesis Advisors: Jeffrey Levine, Walter Torous

Welcoming New Mainers Home: Maine's Housing System Response to Increased Immigration

In recent years, Maine has experienced a sharp rise in asylum seeker arrivals, heavily concentrated in the city of Portland. Drawn by job opportunities, safety, and eligibility for Maine's public welfare system, these young families presented an opportunity to address the state's aging population and increasingly acute labor shortages. Their arrival intersected with a rising housing crisis in the state, however, necessitating creative strategies by the state's affordable housing network to shelter, stabilize and integrate these households into Maine.

I interview Maine policymakers, developers, service providers, and asylum seekers to examine each tier of Maine's housing response. I find that emergency shelters initially faced severe overcrowding and relied on improvised solutions, but evolved into more coordinated systems, including a dedicated asylum seeker facility that improved service delivery. The Asylum Seeker Transitional Housing Program, offering private short-term units and comprehensive wraparound services, emerged as a particularly effective intervention with high rates of success obtaining permanent housing and local employment. Pairing rental assistance with housing navigation services and cultural mediation also proved successful in helping families stabilize in long-term housing. Although intensive upfront public investment was required to support families awaiting work permits, Maine's asylum-seeking population has been notably upwardly mobile, with high rates of employment once authorized and close to zero evictions resulting from these programs.

Despite these successes, significant housing needs remain among Maine asylum seekers. Large, family-sized units are especially scarce, particularly those with access to public transit and social gathering spaces. In response, I propose an affordable housing development located in downtown Portland that is tailored in design, unit mix, and programming to the needs of asylum-seeking families. Expanding housing of this kind will be critical to retaining asylum seekers in the state and ensuring their ability to help build Maine's future.

Emily Canales
Thesis Advisor: Eric Robsky Huntley

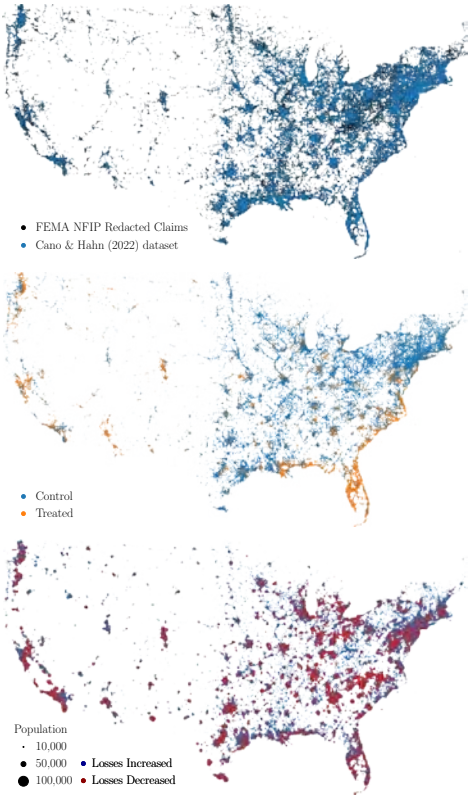
Activating Kendall Square into a Whole-day and Weekend Destination

Kendall Square in Cambridge, Massachusetts has emerged as one of the most concentrated innovation districts in the world, attracting major corporations such as Google, Microsoft, Pfizer, and Moderna. Yet despite its identity as an innovation center, the neighborhood struggles to maintain vitality outside of traditional working hours, functioning largely as a corporate space disconnected from the surrounding residential communities and the student population of nearby MIT. This thesis examines the factors that have produced a sterile, office-dominated urban environment and investigates what interventions could foster a more inclusive and vibrant neighborhood identity. Through a mixed-methods approach, this research combines resident and student surveys assessing perceptions of the neighborhood, GIS mapping of land use, amenities, and worker commute patterns, and Rhino 3D pedestrian flow modeling to evaluate how current and planned developments affect street-level activity. By analyzing the historical trajectory of Kendall Square's development alongside a survey of forthcoming projects, this thesis assesses whether planned growth is likely to address or further entrench the neighborhood's lack of appeal to non-office users. Findings suggest that the prioritization of commercial office space over mixed-use, community-oriented development has systematically excluded local residents and students from the neighborhood's public life. This thesis concludes with recommendations for urban design and policy interventions aimed at transforming Kendall Square into a more equitable, active, and livable urban district.

Lidia Cano Pecharroman
Dissertation Advisors: Lawrence Susskind, Justin Steil, Craig Kauffman

HUMAN & OTHER THAN HUMAN PARTICIPATORY PLANNING FOR CLIMATE ADAPTATION

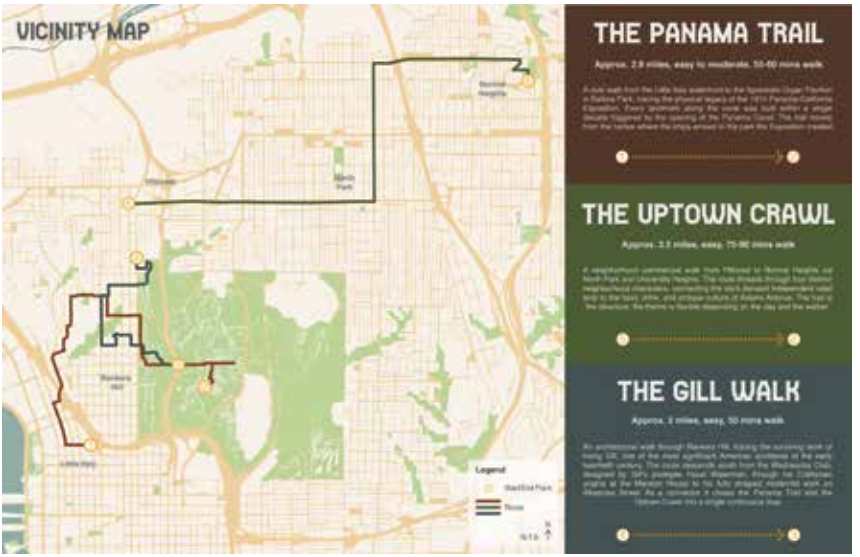
The last two decades have seen an increasing emphasis on stakeholder engagement for planning and a body of evidence has examined and documented some of the intrinsic benefits derived from such engagement. Simultaneously, the number and frequency of extreme weather events punishing communities and the ecological systems that support them is on the rise, and planning efforts are sought after to reduce their effects. Despite a pervading discourse that supports and encourages the employment of stakeholder engagement for resilience and disaster risk reduction, the body of evidence is still very limited regarding what are the contributions of such engagement towards reducing losses and towards building a more resilient future. This thesis makes novel contributions to the literature in three ways. First, it quantifies the contributions of stakeholder engagement to reducing flood losses and assesses such effectiveness from a climate justice lens. Second, it provides a more in depth understanding of the types of losses that are identified and planned for when plans are the result of coproduction efforts between technocrats and other stakeholders. Third, it sheds light on the implications for planning when we include the other than human within those stakeholders with a seat at the table in envisioning a more resilient future.



Wing Man Chan
Thesis Advisor: Anne Whiston Spirn

Step by Step: Reimagining Urban Walking Systems for Contemporary Cities

This thesis examines what makes people willing to walk, and uses the principles derived from a comparative study of successful walking trails to propose a walking system for San Diego. The core argument is that walkability depends less on the quality of streets than on the presence of meaningful destinations, and that a city can begin to support walking not by rebuilding its infrastructure but by making what it already has legible and worth finding on foot. Three case studies in Boston and Hong Kong form the basis of the research, each approached through fieldwork conducted on foot. The Freedom Trail shows how narrative, organized into a sequential route with a consistent visual identity, generates pedestrian motivation independent of any purpose-built pedestrian infrastructure. The Kam Tin Heung Jiao Festival, a once-a-decade Taoist ritual in Hong Kong's New Territories, demonstrates how a temporary destination can produce thousands of willing walkers on a road with no footpaths or designed amenities. The Tsuen Wan elevated pedestrian network shows how a system built around the daily movement needs of a dense urban district sustains walking through convenience and connectivity rather than spectacle or story. San Diego serves as the design case. The city's canyon edges, historic bridges, Exposition-era architecture, and neighborhood commercial corridors already reward walking, but they are scattered, unconnected, and without the kind of identity that gives people a reason to seek them out on foot. The proposal organizes these into three walking routes with a shared wayfinding system, treating visibility as the primary design problem. A transferable framework for other car-oriented cities concludes the thesis.



Emilia Charno
Thesis Advisor: David Hsu

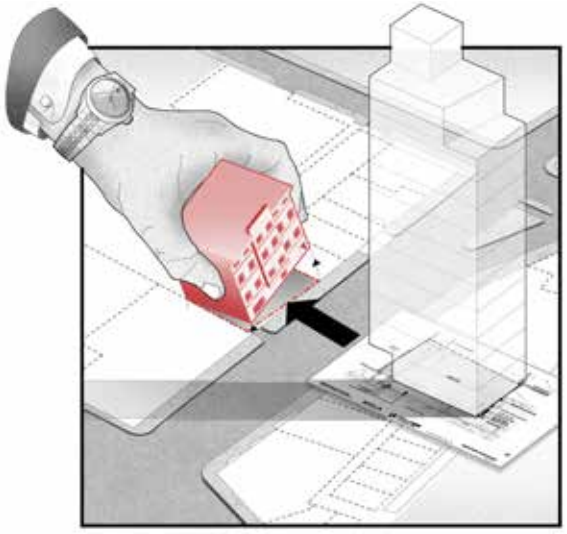
Deadly Temperatures: Municipal Governance, Seasonal Protection Gaps, and Energy Utility Disconnections in New York City

Increasing levels of energy insecurity across the United States is leading to renewed examination of consumer protections. Utility disconnection is the practice of disconnecting customers from utility service during periods of sustained non-payment and serves as a proxy metric of energy insecurity. The principal venue for protecting utility consumers is state government, given its primary role in regulating investor-owned utilities, but disconnection practices and corresponding protections vary by state. New York State exhibits notable gaps in its legacy protections in terms of extreme heat, procedure, information asymmetry, and account-based protections. New York City reveals many of the gaps and tensions between energy transition, affordability, and social services provisions. This thesis assesses the role of New York City in responding to gaps in protections for utility disconnections. This thesis conducts a novel longitudinal analysis of customer and sales data from Consolidated Edison, Inc. (the largest investor-owned utility in New York State and a New York City service provider), descriptive data from the NYC311 call system, and a statutory and programmatic scan. By analyzing this data, this thesis finds that protections designed to protect residents from extreme cold are increasingly being used to confront extreme heat. However, cold-weather protections and benefits, themselves insufficient to meet heating demand, are dominant while warm-weather protections and benefits are scarcer. This regime concentrates disconnection activity and affordability concerns during warm-weather months, increasing pressure for utilities and utility consumers alike. This thesis proposes a framework of both existing and aspirational municipal tools of response by combining empirical results and with primary stakeholder interviews. This issue connects to future discussions extends to extreme heat governance, advanced metering infrastructure, tenant-landlord gaps, and other implications of eliminating utility disconnections. The thesis concludes that utility disconnections under intensifying climactic conditions are unsustainable and therefore recommends a model for expanded municipal involvement within current regulatory dynamics in New York City.

Mingjia Chen
Thesis Advisors: Justin Steil, Rosalyne Shieh

The Right to the Parcel: Making a Case for Boston Chinatown's Stabilization Activism

For the past year, I have been closely following Boston Chinatown's Rezoning Process as a community opinion writer for the local bilingual Sampan Newspaper. In 2024, the developer Sing-Ming Chan submitted a proposal to the Boston Redevelopment Authority (BRA) for a 25-floor hotel tower on a site currently occupied by a historic building at 25 Harrison Ave, agitating Chinatown residents who wanted that parcel returned to use by the community as housing (it had most recently been used as an apartment building). In Boston, the granting of planning permissions and development rights for large projects, such as 25 Harrison, is largely discretionary and it takes place through the Article 80 process. At development reviews, however, power is imbalanced. The city is being pressured by community advocates to better represent their interests as it negotiates with developers. During my organizing with neighborhood leaders and activists at the Chinese Progressive Association (CPA), I learned that Chinatown's public amenities emerge from struggles for community development: parcel by parcel, lot line to lot line. Through my interrelated personal perspectives as an architecture & planning student, and as a community advocate, I study how major spatial struggles in Boston's Chinatown have been structured from 1990 to the present. I also propose and design an organizing toolkit for the Chinatown Stabilization Committee, the Chinese Progressive Association's (CPA's) housing advocacy group, with whom I have been collaborating this year. The toolkit includes a storybook about 25 Harrison Avenue and its significance in Chinatown, an index/glossary that explains Boston's planning processes, and structured, low-barrier activities guiding people to envision their own futures for the parcel. Together, the toolkit components deploy architectural techniques to aid Chinatown residents in challenging Chan's proposal, producing noise outside the negotiation table, and leveraging community pressure for an alternative development. Guided by a right to the city framework (Lefebvre 1967, Marcuse 2009) for community development struggles (King 1981, Liu 2020), I contend that municipal policies and development narratives usually interpreted as ""neutral"" contexts in architectural projects are not merely static or procedural knowledge, but are sites of struggle themselves for desired futures. By advocating alongside working-class community members throughout the development process instead of designing for them, planners and architects can commit to doing the political work necessary to support neighborhoods that are adversely affected by gentrifying forces.



Yeonhoo Cho
Thesis Advisor: Eric Robsky Huntley

Whose Quality of Life? Exploring Migrant Massage/ Sex Workers' Practice and Vision for Safety and Solidarity

This thesis explores the "quality of life" rhetoric in New York City as it pertains to the targeted policing of migrant massage/sex workers and unlicensed street vendors on the Roosevelt Avenue commercial corridor. Called Operation Restore Roosevelt since October 2024, an interagency coordination such as between police and Department of Buildings (DOB) use violations to shut down migrant-run massage parlors. As sex workers' voices continue to be sanctioned, the heavily militarized terrain of the corridor remains largely misrepresented. Coincidentally, just blocks away, the city rezoned a public lot, granting leases for venture capital projects. This thesis asks: Whose desires have been mobilized as neighborhoods in Queens undergo a process of social cleansing? I engage in mixed methods that combine 1) semi-structured interviews with nine migrant massage/sex workers, 2) spatial analysis of police arrests and DOB violations, and 3) close reading of media, press releases, internal city records, and the casino's proposals. Drawing from Du Bois's articulation of human incalculability and agency, Anzaldúa's la facultad, Tuck and Yang's desire-based research, and praxis of local organizers, I argue that migrant massage/ sex workers diagnose the city's contradictory policing regime. They exercise self-determination and mutual care in their journeys of migration and labor; develop a possibility of solidarity across culture and language within the migrant working class. The workers propose a more inclusive anti-harm approach as an alternative to the anti-vice approach held by some residents of Queens and demand decriminalization and protection of their labor. I call for continued knowledge co-production everywhere, that reimagines equitable urban planning by amplifying those excluded in the "quality of life" debates.

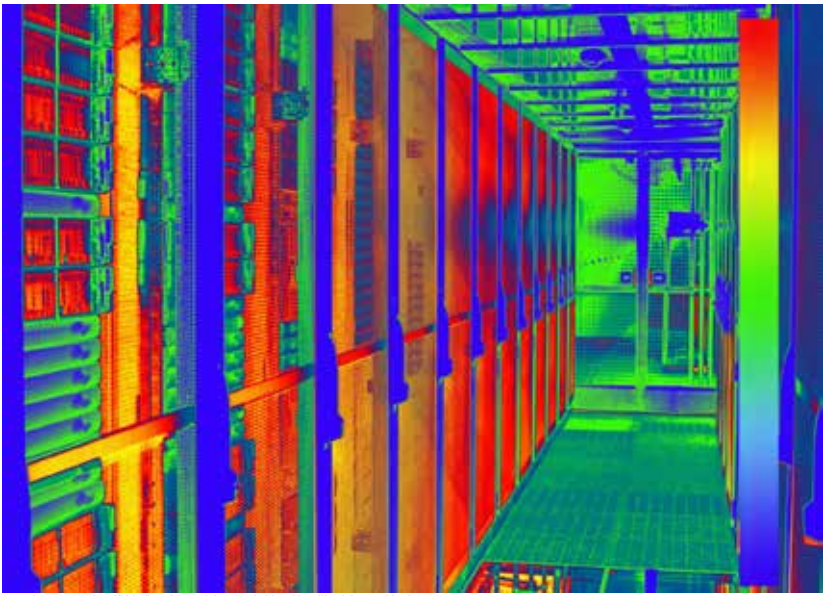
Summer Cooke
Thesis Advisor: Lawrence Susskind

From Byproduct to Benefit: A Case for Waste Heat Recovery Planning in Pennsylvania's Data Centers

Waste heat is a byproduct of data center (DC) operations. Nearly all of the electricity a facility consumes is converted to heat, which the cooling system removes to keep computing equipment within safe operating temperatures. In the United States, this heat is typically rejected to the atmosphere while nearby buildings burn fuel to generate the heat data centers next door already produce.

Pennsylvania is experiencing substantial growth in data center development, particularly in the central and southeastern regions. As of April 2026, these areas host roughly 30 active facilities, four under construction; mostly hyperscale campuses; and 37 in the planning pipeline, nearly doubling existing capacity. Sites are typically chosen for proximity to fiber networks, power capacity, and water access, and compute demand proximately from nearby megalopolis. Yet waste heat recovery rarely enters this calculation, and once construction begins, the opportunity to recover and redistribute heat to nearby offtakers diminishes.

This thesis is written for county and municipal planners drafting ordinances and reviewing data center construction proposals. It addresses two questions. First, why should waste heat be treated as a recoverable planning resource rather than a disposal problem, and what thermal, spatial, economic, and regulatory conditions determine whether recovery is viable at a given site? Second, where and how can planners intervene during development review to shape recovery outcomes? Rather than offering site-specific engineering or financial analysis, the thesis draws on Pennsylvania's data center geography, agricultural and industrial base, heating climate, and emerging ordinance landscape to identify where recovery is viable, where the strongest offtaker matches sit, and where planners hold leverage. It closes with two interventions designed for adoption during local review: model ordinance language requiring a feasibility study at the 100 MW threshold and a county level offtaker mapping workflow that grounds development review in local geography.



Emma Cutler
Thesis Advisor: Delia Duong Ba Wendel

"Will I see you at Powwow?": Relational and Reparative Planning with Members of the Wampanoag Tribe of Gay Head (Aquinnah)

This client-based thesis explores opportunities for repair between the Aquinnah Wampanoag community and non-Indigenous residents on Nôepe (Martha's Vineyard). Its scope was collaboratively developed with Brad Lopes, Aquinnah Wampanoag, through a series of conversations that established three guiding goals: 1) explore opportunities for repair, 2) develop communication tools that support community-led reparative action, and 3) critically reflect on my role as a non-Indigenous planner within this process.

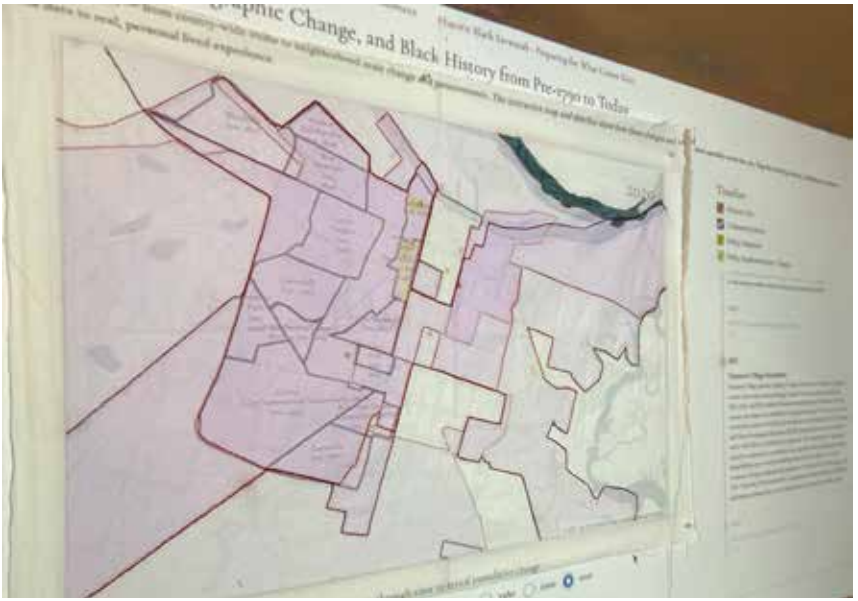
In response, Brad and I co-convened three talking circles with Aquinnah Wampanoag Elders, knowledge bearers, and community organizers. These gatherings created spaces to share relationships to land, imagine forms of repair, and reflect on how such knowledge may be mobilized within and beyond the Aquinnah Wampanoag community.

What I heard from the talking circles is that repair is not singular or linear. Participants discussed reparative change in terms of cultural perpetuity, land back, and self-determination over land.

Deena Darby
Thesis Advisor: Holly Harriel

From Cultural Memory to Implementation | Participatory Co-Design as a Planning Tool for Black Community Self-Determination in West Savannah, Georgia

Focusing on the historic spatial practices of African American communities, this thesis examines how participatory co-design processes can transform cultural memory into tools for implementation to resist displacement, preserve local culture, and advance collective self-determination in West Savannah, Georgia. Through a reparative planning lens, I analyze how urban policy has both constrained and enabled Black spatial practice, particularly in communities shaped by continuous land stewardship and strong traditions of community building. This thesis documents how residents imagine, contest, and enact collective self-determination, challenging dominant paradigms of city planning and economic development. Centered on a community vulnerable to displacement, this research draws on oral histories, collaborative workshops, and archival materials to co-create alternative spatial futures rooted in equity, memory, and self-determination. A combination of digital data and hand-crafted artifact, the thesis introduces Threaded Cartography, a textile-based methodology for tactile engagement. This method visualizes Black land tenure and stewardship through census data, archival research, and community oral histories using embroidered outlines, fills, and points layered on cotton fabric. Threaded Cartography humanizes quantitative data and materializes Black Epistemologies, adding depth to the stories, histories, and legacies of communities that have persisted. Functioning as both an archival record and an engagement tool, Threaded Cartography is designed to be touched, felt, and experienced, offering a tactile way to engage with generations of history, labor, and resilience embodied by Black residents of West Savannah.



Cameron Dougal
Thesis Advisor: Jim Aloisi

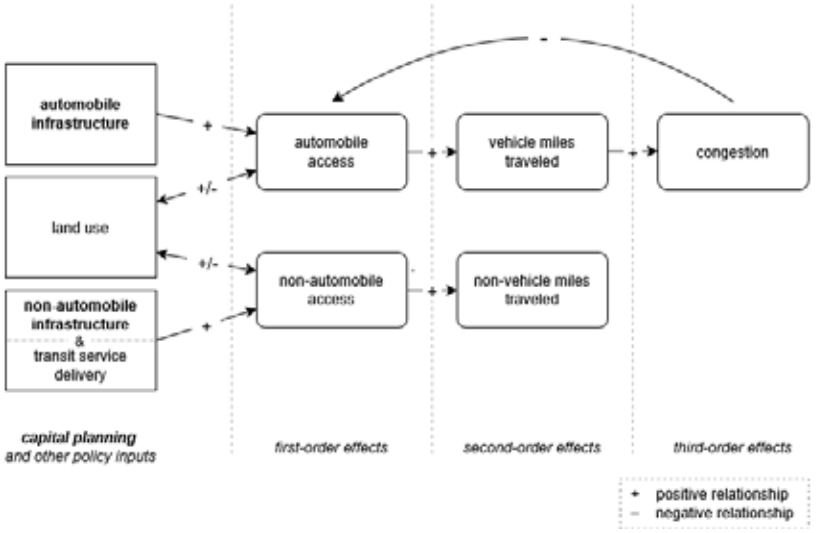
Enabling Mode Shift via State Transportation Planning Policies

This thesis analyzes the early results of several recent state-level transportation policies designed to steer capital planning processes in the United States. Specifically, it examines policies that, through either mitigation requirements or project prioritization frameworks, incorporate forecasts of impacts on greenhouse gas (GHG) emissions, vehicle miles traveled (VMT), or non-automobile accessibility.

The first section defines a set of "societal goals"—climate, affordability, equity of access, safety, air quality, and economic development—that transportation policy may seek to advance, and reviews the expected benefits of doing so. It then argues that capital planning reform should not be overshadowed by vehicle electrification policy, which cannot fully advance—or may even hinder—this broader set of societal goals.

The second section categorizes recently enacted capital planning policies as either enforced or unenforced mandates. It then analyzes the design of enforced mandates in five states: Virginia, California, Colorado, Minnesota, and Hawaii. It also presents a novel analysis of the effects of these mandates on 34 highway projects in California and 7 long-range transportation plans in Colorado. The section concludes with six takeaways: (1) ensuring complete coverage across a state's transportation portfolio, (2) constraining the use of land use-based mitigation strategies, (3) mitigating at the plan level instead of the project level, (4) creating dedicated funding sources, (5) establishing guidelines for setting model parameters, and (6) shifting from VMT to accessibility as the central policy metric.

The final section reviews emerging transportation policies in the US, with a special focus on Massachusetts bill S.2246, which is contextualized within the state's history of transportation policy and infrastructure. The thesis concludes with a list of recommendations for refining S.2246 based on the findings of the policy review.



Anisha Gade
Dissertation Advisor: devin michelle bunten

Bridging the Logics of Technocracy and Communitarianism: Translational Micropractices in Housing and Urban Development

Our current, entrenched housing crisis requires aWending to fricXons and conflicXng agendas between resident groups and developers of many stripes. Each of these sets of actors maintains disXncXve aims, knowledge-creaXon methods, measures of success and relaXons to power - all of which amount to a bundle of communicaXve and meaning-making pracXces that I term a 'logic.' The two logics entail, on the one hand, the technocraXc logic indicaXve of developers, landlords, and someXmes, planners who are oriented to apoliXcal neutrality, deploy empirical data analysis, establish meaning through quanXtaXve metrics and financial valuaXons, and are proximate to power. On the other hand, communitarian logics deployed by certain resident groups and their advocates prioriXze the redress of harms, trust lived experience, establish meaning through longstanding cultural pracXces, and are typically distant from power. This dissertaXon seeks to understand how proponents of these two incommensurable logics struggle to become legible to and negoXate with one another. FacilitaXng the insXtuXonal contexts where such tensions are translated and negoXated are intermediaries of many kinds, including, at Xmes, planners. I explore the process of translaXon and negoXaXon between the two logics (a phenomenon that I call 'bridging') through three, in-depth case studies. Each of my cases exemplifies an experimental effort at realigning technocraXc pracXces, to varying degrees, with the prioriXes of residents, even as these prioriXes are not monolithic. The first case is the creaXon of a novel cultural preservaXon district and anX-displacement zoning overlay. The second involves two parallel projects: a parXcipatory acXon research study linking housing stability to social determinants of health and a real estate equity fund whose ROI metrics are Xed to the public health study. And thirdly, public housing administrators deploy digital tenant screening services—proptech—to streamline housing allocaXon and therefore, improve housing access for poor and disabled populaXons. With the three cases, I assess the efficacy of realignment efforts by examining the varying degrees of bridging between the two logics. I find that the highest degree of bridging is achieved through the deployment of translaXonal "micropracXces" (Healey 2012a). In the cases where this is prevalent, the experimental soluXon had the greatest potenXal to make good on its promises. Following the lessons from my cases, to overcome the deep intractability of the current housing crisis, I argue that planners, advocates and scholars must engage with the insXtuXonal–and not just economic or market- related–contexts where the poliXcal economic dynamics of the relaXonship between the housing industry and community development proponents play out.

Marine Gapihan
Thesis Advisor: David Hsu

Materializing the Cloud: Data Center Siting and Environmental Justice in the United States

Recent years have been marked by an unprecedented expansion of digital technologies and services, driven in large part by the rapid rise of artificial intelligence. At the core of this digital ecosystem are data centers, the facilities that house the computational power and storage systems of artificial intelligence. While data centers are not new and have supported the digital economy for decades, their scale, energy intensity and spatial footprint have changed drastically, bringing them to the forefront of public and political debate. These facilities often require continuous, energy-intensive operations and extensive cooling systems, leading to significant resource consumption and localized environmental impacts. Concerns have emerged around their contribution to grid stress, water scarcity, air pollution from backup generation, and broader cumulative environmental burdens in host communities.

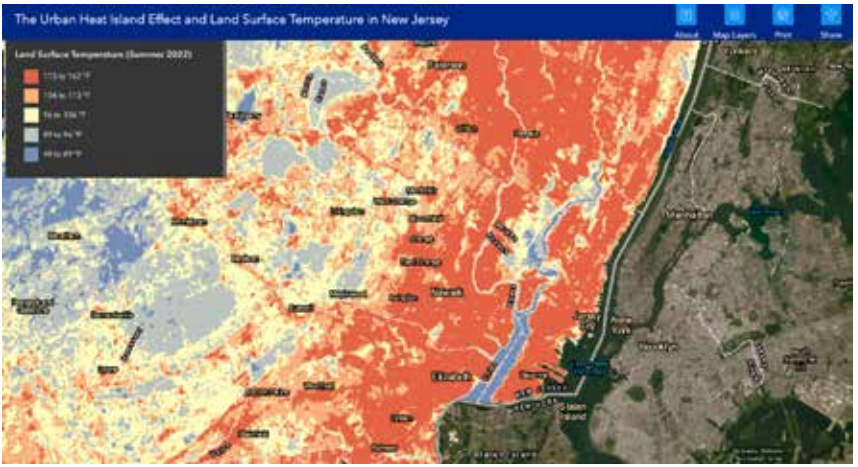
As a result, a growing body of research has begun to examine the intersection of data center infrastructure, land use, and environmental justice. This emerging literature raises critical questions about where these facilities are sited, which communities bear their environmental and infrastructural costs, and how existing planning, zoning, and regulatory frameworks shape these outcomes. In doing so, it situates data centers not only as digital infrastructure, but also as a new form of industrial land use with potential uneven spatial, social and health consequences.

Using a mixed-methods approach, this thesis draws on quantitative and geospatial analysis, as well as semi-structured interviews to determine whether data center facilities are disproportionately located in places where environmental harms and structural vulnerabilities intersect, and to generate insights that can inform more equitable infrastructure governance. It seeks to understand not only where these facilities are located and being proposed, but also the local power structures, planning processes, and regulatory gaps that have shaped data center siting outcomes.

Nicholas K. Garcia
Thesis Advisor: J. Phillip Thompson

Bounded by All Sides: Addressing Newark, New Jersey's Urban Heat Islands

Anticipated effects of climate change in the mid-Atlantic United States include increased precipitation risk, frequent heat waves, and substantial sea-level rise. These temperature and flooding outcomes grow strikingly worrisome against the backdrop of aging infrastructure and efforts to upgrade existing infrastructure to meet renewable energy, electrification, and other climate resiliency goals that support economic development, public health, and access to resources and amenities within the New York City Metropolitan Region. As such, there is a need to mitigate these risks by increasing climate change adaptation investments and enforcing recent accountability mechanisms for polluting facilities in New Jersey's overburdened communities. The Port Authority of New York and New Jersey (PANYNJ) recognizes that across the region, low-income communities and communities of color have been disproportionately exposed to higher levels of air, water, and soil pollution, but has yet to publish climate resilience design guidance on additional climate change stressors, particularly extreme heat and the impacts of urban heat islands (UHIs). Cognizant that the PANYNJ operates within a complex political setting of constraints and conditions from its bi-state authority, this thesis aims to: (1) examine to what extent New Jersey's Environmental Justice Law, affirmed in full by the State Appellate Division in January 2026, can create new accountability mechanisms for overburdened communities adjacent to parcels owned by the PANYNJ; and (2) offer policy and planning recommendations towards design guidance as it relates to mitigating the Urban Heat Island (UHI) effect on overburdened communities in the PANYNJ 2026 – 2035 Capital Plan. In doing so, this thesis provides community-based organizations, policymakers, advocates, and environmental planners with a clearer understanding of how to address existing gaps and barriers to achieving environmental justice and to implementing climate resiliency standards, guidelines, and precedents, while offering a planning framework for strengthening environmental justice accountability and resiliency standards for large-scale infrastructure in overburdened communities.



Enjoli Dominique Hall
Dissertation Advisor: Mariana Arcaya

Healing the Postindustrial City: Black Grassroots Organizing, Health Care and Urban Revitalization in Buffalo, 1960s-1970s

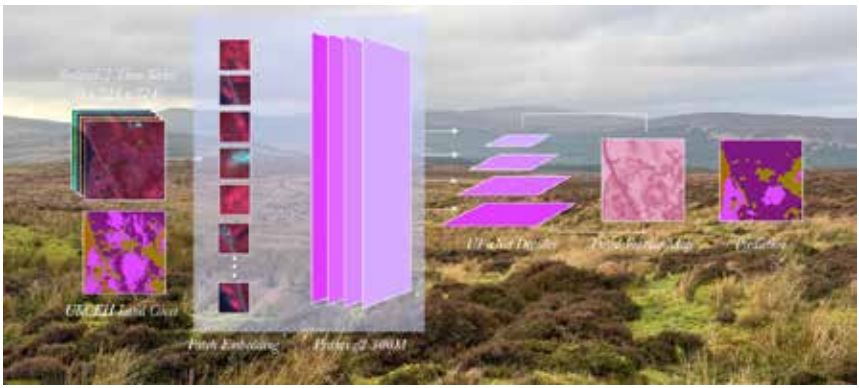
This study emerges from an urgent need to complicate conceptual and empirical understanding of abandonment in urban studies and planning beyond dominant frameworks that foreground narratives and numbers related to loss, absence, vacancy, and decline in the context of small and mid-sized postindustrial cities of the U.S. Rust Belt region such as Buffalo, New York, particularly for health equity-oriented planners. Combining community-based archival research with cross-disciplinary theoretical frameworks that understand abandonment as a highly organized and racialized process, I recover grassroots counter histories that illustrate how and why Black residents and activists envisioned these places as vital terrains for Black community formation, organizing, and movement building at the moment when many others neglected them during the 1960s and 1970s. This study asks: What community organizing models and strategic interventions did Black residents and activists employ to counter planned abandonment and to improve the physical, emotional, and political well-being of Black communities during this time? What analyses, actions, solidarities, and victories did their approaches facilitate and foreclose? To pursue these questions, I focus on the historical case of BUILD (Build Unity, Independence, Liberty, Dignity), a Black community federation of over 160 local Black community groups in Buffalo. Drawing on organizational records, program documents, personal papers, and local newspapers in local archives, this study reconstructs BUILD's broad-based grassroots community organizing and health activism to trace lineages, legacies, and lessons for contemporary organizers and health equity-oriented planners for building collective power and broadening the knowledge base on place and health. First, I identify and analyze key distinguishing features of BUILD's organizing model and strategic interventions, emphasizing the group's ideological and tactical hybridity; simultaneous conflict and collaboration with local institutions; and state-supported efforts to create community-centered alternatives to oppressive systems. I pay particular attention to the interplay between the community organizing traditions of local Black women leaders, Saul Alinsky and the Industrial Areas Foundation, and the cultural and political imperatives of the Black Power movement, analyzing how BUILD reflected and reconciled these traditions in their work on issues of housing, employment, education, health care, policing and incarceration. Next, I focus on specific examples of BUILD's health-related activism as a fresh vantage point into the breadth and complexity of the organization's vision and work and Buffalo's postindustrial transformation, asking what we can learn from the group's confrontations with local hospitals surrounding their evolving roles in urban renewal, economic development, and community health provision. Finally, I examine BUILD's engagement with the federal Model Cities program, which catalyzed the creation of new health services while 2 bringing the organization into closer collaboration with the state in ways that heightened internal fractures and contradictions, foreshadowing the organization's eventual decline and dissolution in the early 1980s. The example of BUILD demonstrates how Black communities organized against abandonment and how locally rooted, broad-based grassroots community organizing practices that employ a wide range of strategies to build community power, both within and outside of formal institutions, can transform community-level social, economic, and physical conditions that shape population health and health equity.

Claire Gorman Hanly
Thesis Advisor: Lawrence Susskind, Sara Beery

Bog Embeddings: Information and Capital on Northern Irish Peatlands

Peatlands store more carbon per hectare than any other terrestrial ecosystem; embedded in their sodden mantles are not only the carbonaceous remains of decomposing mosses but the archaeological castings of the Iron Age, the gouges of agricultural trench-drains, and the topographic scars left by turf-cutting for fuel. In the United Kingdom, restoration of these ecologies has been motivated by the Peatland Code, a standard for carbon credit issuance and an instrument of the emerging "Natural Capital" conservation framework that seeks to generate ecosystem service support through private investment. This thesis maps the transformations in environmental epistemology that proceed from the capitalization of the boglands, uniting methods from computer vision, earth observation, and environmental history and planning to interrogate how these ecosystems come to be known and valued in the present political economy.

Intervening critically in the production of an updated peatland inventory for Northern Ireland, it presents a scientific comparison of two machine learning approaches to peatland mapping from satellite imagery: the classical Random Forest classification underpinning the UK Centre for Ecology and Hydrology's (UKCEH) national land cover mapping strategy, and a fine-tuned adaptation of NASA and IBM's Prithvi Earth Observation foundation model: a 300-million-parameter vision transformer pre-trained on global multispectral imagery. The foundation model's "embedding," or internal feature representation, represents a globally abstracted knowledge structure that can be adapted for task-specific learning with minimal additional training data. Experiments testing its capacity to predict peatland extents from Sentinel-2 imagery over Northern Ireland form the basis of a critical discussion about the utility of learned global representations for localized environmental mapping. These results are situated within a broader narration of the knowledge and value structures that have represented the Northern Irish peatlands over time, theorizing the ontological significance of the embedding to ongoing debates about remote sensing epistemology, natural capital, and cultures of land stewardship.

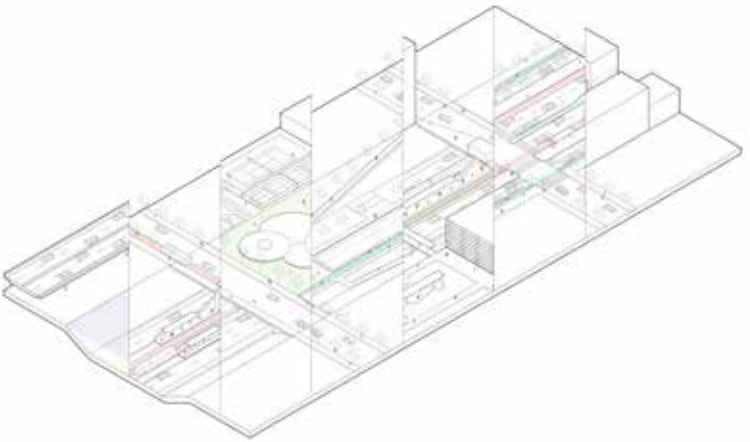


Aaron He
Thesis Advisors: Brent Ryan, Jim Aloisi

To Remove, Remediate, or Reconstruct? An Evaluation Framework and Design Toolkit for the Future of American Urban Freeways

This thesis presents an evaluation framework and design toolkit for freeway interventions to inform future community engagement and decision-making on urban freeways in the United States. It begins by establishing a working definition of freeways and a classification system based on jurisdiction, physical typology, level of service and urban context. It then identifies the seven common intervention types: bus and HOV / HOT lanes, urban rail transit, freeway lid, complete removal, boulevard conversion, trail conversion, and freeway relocation.

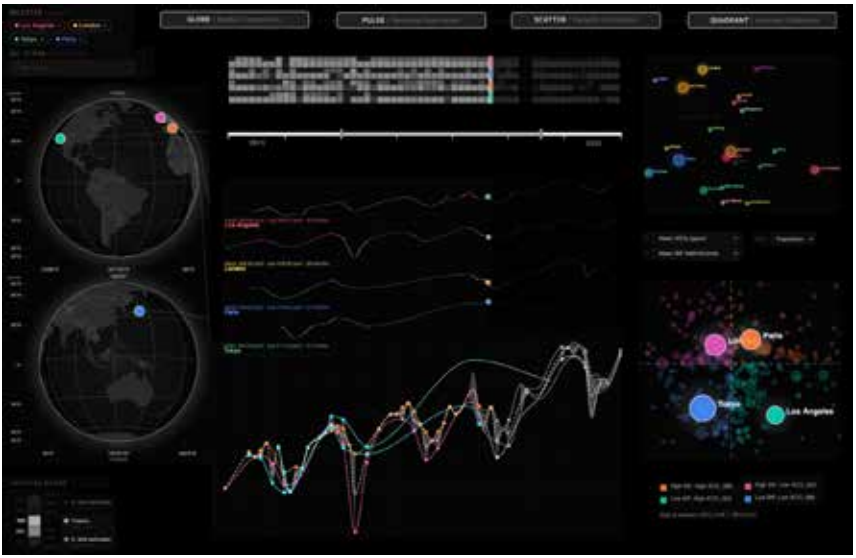
Through a cross-sectional literature review, the thesis evaluates these interventions across five key dimensions: traffic and mobility, environment and health, urban design, cost, and gentrification and equity. In parallel, it compiles a comprehensive inventory of built freeway interventions in the United States. By integrating the literature review and empirical inventory analysis, the framework develops a set of evaluation matrices that examines (1) how freeway typological variables have historically shaped intervention design and implementation outcomes, and (2) how each intervention type aligns with contemporary planning objectives. To address contextual nuances and reconcile inherent tensions within the framework, the thesis concludes with an adaptable design toolkit that enables a stakeholder-led design by re-integrating elements from multiple interventions.



He Yutian
Thesis Advisor: Cong Cong

Carbon Cities: Interactive Geographies Where Burden And Responsibility Diverge

The global rise in CO2 levels is well-established, but the spatial-temporal nuances within and underlying mechanisms are less known, with cities being evaluated by emissions but experienced through exposure. Top-down observations from the Orbiting Carbon Observatory-3 (OCO-3) mission offer meaningful advances in geographic reach and sub-annual temporal resolution relative to bottom-up and annually-reported inventories, and can enable seasonal analysis across climate zones, but interdependencies between multi-indicator climate datasets limit interpretability without purpose-built analytical tools. This thesis introduces Carbon Cities, an interactive visualization tool and analytical framework designed for global structure detection, mechanism diagnosis, and policy action. It systematically and strategically addresses three questions: which cities sit at structural extremes of rising CO2 levels, what might explain those anomalies, and what could be done next? Drawing on OCO-3 retrievals for 346 cities spanning 2019-2025, the tool enables targeted correlation exploration across common and user-defined variables, organized within a taxonomy of indicators structured by temporality and mechanisms (dispersion, biogenic uptake, population exposure, anthropogenic emissions), to contextualize climate-zone-specific policy interventions. By centering transparency and interpretability of climate data, this work functions as a decision support tool for discovery and exchange between carbon cycle scientists and climate governance networks, facilitating research-driven policy and policy-informed research.

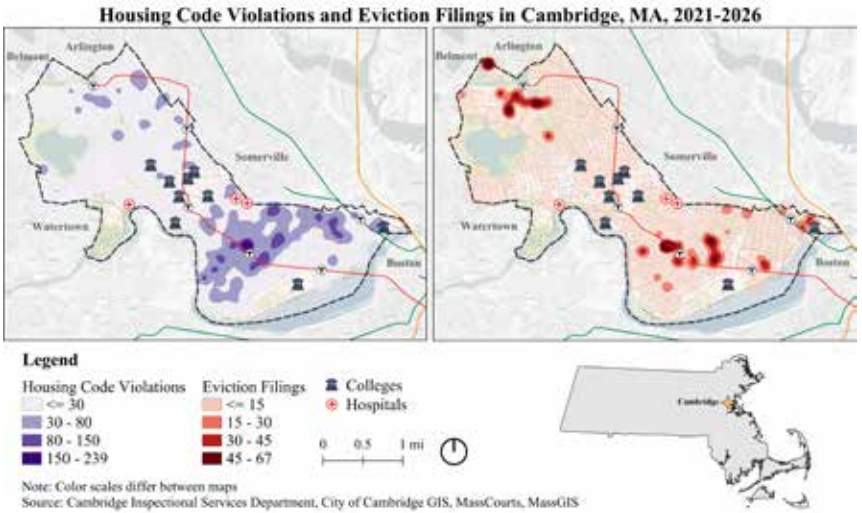


Becca Heilman
Thesis Advisor: Justin Steil

From Neglect to Displacement: Housing Code Violations, Landlord Characteristics, and Eviction Filings in Cambridge, MA

Safe, stable, affordable housing is a fundamental determinant of health and well-being. Substandard conditions such as mold, pests, and inadequate heating are associated with increased risk of negative physical and mental health outcomes. To identify and remediate these hazards in rental housing, many cities rely on complaint-driven enforcement systems governed by state housing or sanitary codes. However, this places the burden on tenants to report violations and exposes them to the risk of retaliation and housing instability. Landlords may respond by raising rents, refusing to renew leases, or filing for eviction—even where retaliation is prohibited by law. Corporate and investor ownership intensify these dynamics, with a growing body of research linking these landlord types to higher rates of both code violations and eviction filings.

This study examines the association between code violations and eviction filings in Cambridge, Massachusetts. In Cambridge, two-thirds of households rent, nearly half of renters are rent burdened, and more than one-third of occupied housing units exhibited substandard conditions between 2018 and 2022. Using administrative data from the Cambridge Inspectional Services Department, Massachusetts court records, and property assessor records, this study analyzes rental properties in Cambridge from 2021 to 2026, employing logistic and time-to-event regression models controlling for building, landlord, and neighborhood characteristics. Across all models, the presence of a code violation was significantly associated with an increased risk of an eviction filing. The thesis then explores policy interventions that address the power imbalance tenants face when reporting unsafe conditions, including proactive inspection programs and rental registries. Findings from this study can inform code enforcement policies that protect tenants from displacement.



Lauren Higgins
Thesis Advisor: Justin Steil

Evaluating the Fair Housing Act's Disparate Impact Standard Ten Years After Inclusive Communities

In Texas Department of Housing and Community Affairs v. Inclusive Communities Project, 576 U.S. 519 (2015), the Supreme Court affirmed liability for disparate impact claims under the Fair Housing Act, but set out specific complaint-stage cautionary standards to prevent frivolous lawsuits and limit the scope of defendant liability. This thesis evaluates how these new cautionary restrictions set forth in Inclusive Communities have affected plaintiffs' ability to prosecute disparate impact discrimination cases under the FHA. In an analysis of every substantive appellate FHA disparate impact case from 1974 to 2025, I find that the proportion of all FHA appellate cases that arose from complaint dismissals more than doubled from before ($M = 14.8$, $SD = 3.53$) to after Inclusive Communities ($M = 38.5$, $SD = 7.99$); $t(54.1) = -2.73$, $p < .01$. Limiting the analysis to those circuits already applying the three-step burden shifting process approved by the Court and where, therefore, the only change after 2015 was the specific application of the complaint-stage cautionary standards, the proportion of complaint dismissals exhibited an even more significant increase from before ($M = 12.9$, $SD = 4.29$) to after Inclusive Communities ($M = 50.0$, $SD = 10.8$); $t(84) = -3.93$, $p < .001$. These findings indicate that, since the Inclusive Communities decision, plaintiffs face greater obstacles to alleging disparate impact discrimination at the level of district court evaluations of motions to dismiss. Despite the narrowed pathway for disparate impact litigation, it nevertheless remains the only legal recourse for identifying and remedying covert or unintentional discrimination.

Jingchuan Hou
Thesis Advisor: Amy Glasmeier

Amplifying the Right Things? Federal Place-Based Industrial Policy and Regional Industrial Development

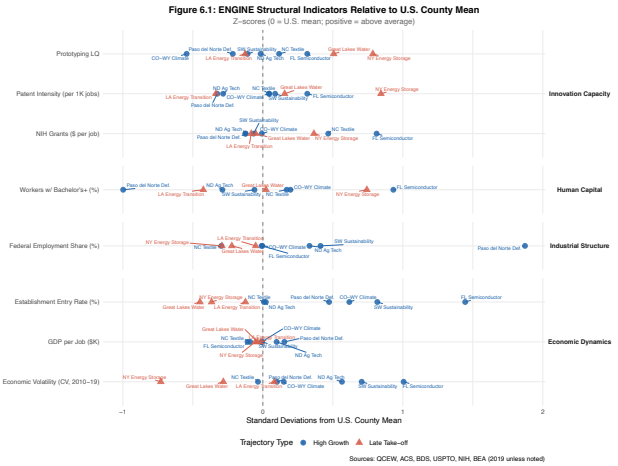
The United States federal government has invested substantially in place-based innovation policy through programs like the NSF Engine to Advance Innovation program (ENGINE), premised on the assumption that strengthening regional research capacity generates employment growth. This thesis tests that premise empirically across nine ENGINE-designated regions from 2002 to 2023.

Using a three-layer analytical framework of employment quantity, employment quality, and ecosystem formation capacity, combined with cluster analysis of QCEW longitudinal data, this thesis identifies two structurally distinct trajectory types among ENGINE regions. High Growth Engines achieve employment index gains of 32 to 65 percentage points above their 2002 baseline. Constrained Growth Engines stagnate or decline despite comparable or superior research capacity indicators.

The central finding is a Stage 1 and Stage 2 mismatch. Federal investment effectively strengthens Stage 1 research infrastructure including patents, NIH grants, and prototyping capacity, but fails to generate employment growth in regions lacking Stage 2 commercial ecosystem capacity: firm entry rates, economic volatility, and the commercial-to-research employment ratio. Statistical analysis confirms that only Stage 2 indicators significantly discriminate between trajectory types (entry rate p=0.028; volatility p=0.053), while Stage 1 indicators show no discriminating power (human capital p=1.000).

Process tracing across three causal mechanisms reveals that federal investment functions as a commercial amplifier in High Growth Engines but as a substitute for absent commercial ecosystem activity in Constrained Growth Engines. When a substitute is reduced, there is no private-sector buffer. Scenario analysis through 2030 projects asymmetric harm under the partial retrenchment conditions assessed as most likely given March 2026 federal policy conditions.

These findings carry direct implications for place-based industrial policy design. Selection criteria weighted toward Stage 1 research capacity systematically misidentify regions most likely to convert federal investment into employment outcomes. This thesis proposes four-level program redesign: reweighting selection criteria toward Stage 2 ecosystem indicators, restructuring funding allocation, reforming performance evaluation, and creating a dedicated Stage 2 Catalyst instrument for absorption-constrained regions.



Matthew C. Jarrell
Thesis Advisor: Jim Aloisi

Is The Bus Bad for Business? Neighborhood Dynamics of Transit Priority in Boston

Transit priority – a category of street design interventions that includes bus lanes, queue jumps, and transit signal priority – is shown to improve performance for surface public transit in urban areas. However, as with other reallocations of scarce urban street space away from private automobiles and towards other modes of transportation, the installation of transit priority infrastructure is often controversial. While some welcome these changes to the streetscape, others, particularly owners and employees of nearby businesses, protest them due to concerns about increased traffic congestion and incursions on curbside parking. This mixed-methods thesis examines the perceptions and realities of bus transit priority's impacts on commercial corridors in the city of Boston. I study three corridors with different bus lane typologies installed between 2018 and 2021: Brighton Avenue in Allston, Washington Street in Roslindale, and Columbus Avenue in Egleston Square. The first part of this study includes a qualitative investigation of the bus lane debate in each neighborhood, featuring interviews with business owners and employees, residents, and leaders. These showcase the great variety in perspectives on the effects of each neighborhood's bus lane, and the critical importance of targeted outreach and communication from city planners and transit agencies during the planning phase of these projects. The second part is a data analysis of business patronage using a staggered-treatment difference-in-differences methodology, examining the treatment effect of bus lanes on footfalls at nearby businesses. The analysis shows that the installation of bus lanes in these areas did not have a significant overall effect on business visits. Given the lack of evidence that they hurt local institutions, planners ought to continue to pursue transit priority projects, mediating business and resident concerns through intentional engagement and collaboration via trusted neighborhood partners.

Tatiana Sofía Jiménez
Thesis Advisor: David Hsu

Resources, Revenue, and Rights: The Intersection of Water Infrastructure Finance, Policy, and Governance in California

California, home to the world's fourth-largest economy and considered the most hydrologically altered landmass on Earth, is facing a water crisis. Climate change is expected to usher in a future of uncertain water supply to an already chronically water-constrained state, and California lacks the water infrastructure to adapt to increased water volatility. Stakeholders across the state, representing urban centers, rural communities, businesses, and advocacy groups, are hoping to secure their future water access. This requires addressing the foundations of water access in the state: (1) holding the legal right to use water and (2) having reliable water infrastructure to manage water. The heightened uncertainty of the water supply with climate change has opened debates between stakeholders as they contend with how these two foundations can be improved for a resilient future. In this thesis, I interview 15 California water stakeholders, categorized as water regulators, advocates, and managers. Our discussions center on their concerns for the future of water management, including financial gaps in water infrastructure, their ideas for funding mechanisms to build resiliency in water infrastructure, whether the water right system interacts with financing opportunities, and how policy has shaped investments thus far. These discussions are grounded in theories of policy change, including the Multiple Streams Framework, Policy Feedback Theory, and Advocacy Coalition Framework, to consider why California has faced challenges to implement reforms to fund statewide water improvements. In the end, stakeholders emphasized the importance of pursuing multiple solutions to improve infrastructure funding in the state. Some shared they believe there is potential for the water rights system to interact with local funding, and future research on this interaction can define opportunities. Policy change will rely on unique coalitions and policy windows—which will likely rise as climate events, such as rapid snowmelt, place pressure on decisionmakers for action.

Takehiro Kawahashi
Thesis Advisor: P. Christopher Zegras

Comprehensive Transit-Oriented Development (TOD) in Developing Countries: Challenges and Opportunities for Development Assistance

Global population growth and urbanization are accelerating and the trends are particularly pronounced in the Global South. Serious challenges such as traffic congestion, air pollution, greenhouse gas emissions, and widening social disparities have become increasingly evident. As an approach to overcoming these challenges, Transit-Oriented Development (TOD) is garnering significant attention. In developing countries, the financial and technical foundations necessary to realize TOD are often lacking. Consequently, support from international development organizations can play a crucial role. This study aims to determine the extent to which TOD-related support provided by the organizations comprehensively reflects the eight TOD principles outlined in the ITDP's TOD Standard. Using a case study approach, it analyzes which elements are seemingly prioritized versus those that are underemphasized, as well as the underlying reasons for these disparities. Based on these findings, the study offers recommendations for how international organizations can improve their TOD support to facilitate the realization of more comprehensive TOD outcomes. The research focuses on three case-study cities: Bengaluru (India), Dar es Salaam (Tanzania), and Lima (Peru). For each case, this included: examining financial and technical assistance provided by various organizations; and, systematically evaluating the specific TOD elements incorporated into each project. Additionally, semi-structured interviews were conducted with these organizations to help uncover underlying causes observed in the support. Based on the findings from the case studies and interviews, this research offers the following recommendations: comprehensive financial support including sidewalks, bicycle lanes, and affordable housing; legal and institutional frameworks for TOD; prioritize TOD planning from the initial master-planning stage; and position TOD and Multimodal Integration (MMI) as mutually complementary strategies. Through these measures, the study seeks to foster an awareness of structural biases within organizations' support frameworks and to contribute to the design of improved assistance strategies aimed at achieving more comprehensive and effective TOD outcomes.

Takumi Kitamura
Thesis Advisor: Brent Ryan

Everyday Resilience: Pocket Parks, Disaster Risk, and Palliative Planning in Tokyo's Mokumitsu

This thesis examines urban planning in Tokyo's mokumitsu neighborhoods, low-rise wooden housing clusters that face significant disaster risks. Focusing on Kyojima in Sumida City, this thesis investigates how disaster-resilient planning has been implemented over the past decades, and evaluates its achievements and limitations. The study argues that restorative planning, an incremental approach to improving disaster resilience, has slowly enhanced physical resilience through interventions such as building fireproofing and street widening. However, it has largely failed to address ongoing social challenges, particularly population decline and aging. As a result, social resilience in the community can be perceived to be at risk. At the same time, restorative planning has produced new urban typologies as byproducts, particularly pocket parks created from residual spaces. This thesis focuses on these small-scale spaces and explores their potential to mediate social resilience, the capacity of a community to absorb and adapt to social change, in Kyojima. Drawing on fieldwork, analysis of alley spaces (roji), and existing studies on pocket parks, it proposes design and management principles to enhance their social function. Finally, the thesis presents a design proposal for a pocket park that applies these principles. While such interventions cannot reverse demographic decline, they offer a palliative planning approach that seeks to improve everyday life and strengthen social resilience for existing residents.

Nathan Klima
Thesis Advisors: David Gamble, Jim Aloisi

Forever Open, Clear, and Free?: Mediating Public Access on the Post-Industrial Great Lakes Waterfront

Across the Great Lakes, former industrial waterfronts are being transformed into public spaces that reconnect people to the water's edge. Yet creating and sustaining public access is not simply a matter of design: it also depends on how cities govern land, finance redevelopment, and work with private actors. This thesis examines how governance shapes waterfront public access outcomes through a comparative study of Chicago, Milwaukee, and Cleveland.

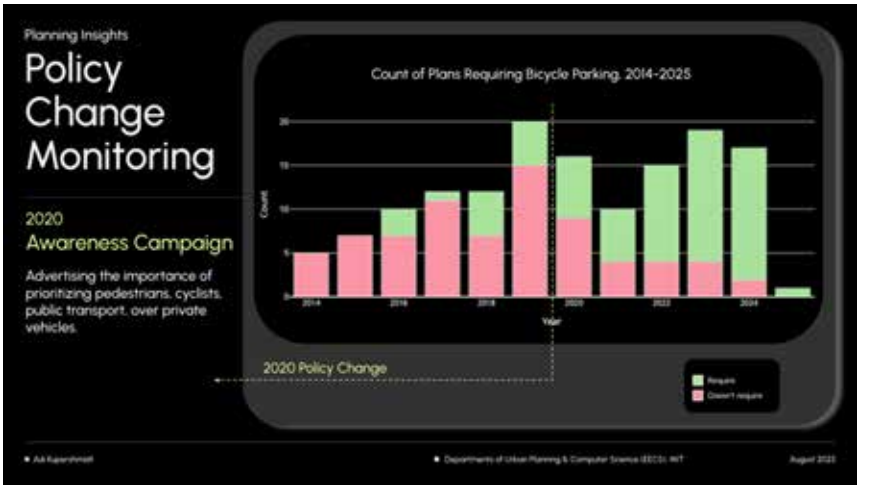
Drawing on plan analysis, site visits, and interviews with planning professionals, the research explores how each city's history produced distinct approaches to waterfront redevelopment and governance. In Chicago, a legally protected public lakefront is supported through a park district model that uses revenue-generating assets to help maintain public access. In Milwaukee, the city has expanded access incrementally using regular municipal tools like zoning requirements and public-private cost-sharing agreements to expand its Riverwalk network. In Cleveland, longstanding physical and institutional barriers have historically severed downtown from Lake Erie, prompting the creation of a quasi-public development corporation focused on coordinating redevelopment and assembling capital for the infrastructure needed to make that redevelopment possible.

Together, these cases show that waterfront public access is something that is actively shaped through governance rather than passively produced through redevelopment. Different institutional arrangements lead to different kinds of waterfronts, from publicly managed spaces to negotiated access embedded in private development. By foregrounding governance as a central factor, this thesis highlights how institutional design, strong leadership, and fiscal innovation influence who can access the waterfront and how that access is sustained over time. It offers lessons for cities seeking more equitable and durable approaches to reconnecting people with post-industrial shorelines.

Adi Kupershmidt
Thesis Advisor: Sarah Williams

Urban Data Memory: Using Generative AI to Structure and Visualize Zoning Data for Urban Planning Evaluation

Urban planners face significant challenges in systematically and quantitatively evaluating past planning practices, stemming, among other reasons, from the scarcity of accessible structured data. The period from a plan's initiation to implementation can span generations; recorded data from the planning processes are often deemed obsolete for addressing present concerns by the time of post-occupancy evaluation. This research examines whether generative AI can help bridge this gap and under what conditions - highlighting both challenges and opportunities - by introducing a system that responsively transforms qualitative zoning data into structured, queryable formats to support the quantitative analysis of planning practices.
A database of ~150 approved semi-structured urban plans under Tel Aviv municipality's local jurisdiction supports this project's case study. The system relies on proprietary LLMs (ChatGPT, Claude), streamlining a natural language query input through 3 agentic tasks: (1) RAG (Retrieval Augmented Generation) based querying, generating free-text answers from all plans, (2) structuring the answers to a valid JSON, and (3) visualizing structured data. Key findings indicate an 85.45% precision of the system, as evaluated through an end-to-end assessment of 11 representative queries, each validated against 40 manually labeled plans. The tool provides actionable insights, enabling queries such as trends in sheltered bicycle parking approvals or the status of affordable housing planning over the past decade. This research underlines the significance of flexibly structuring non- and semi-structured data for urban science. It addresses the growing gap between static legacy data collection and real-time policymaking, democratizing access to planning information and fostering informed decision-making practices. Integrating cutting-edge AI-driven tools contributes to the current discourse on AI applications for city management and planning by providing a replicable model for more cities and planning datasets to build upon and improve.



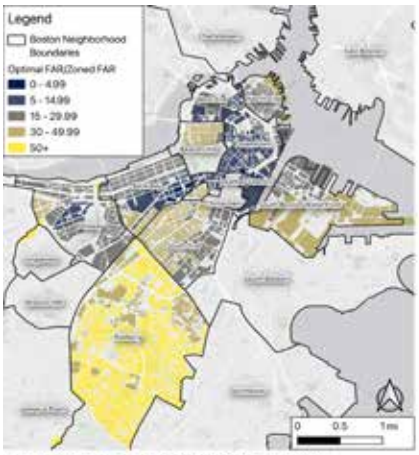
Colin Larsen
Thesis Advisor: Siqi Zheng

How FAR is FAR Enough? Modeling Expected Residential Density in Boston

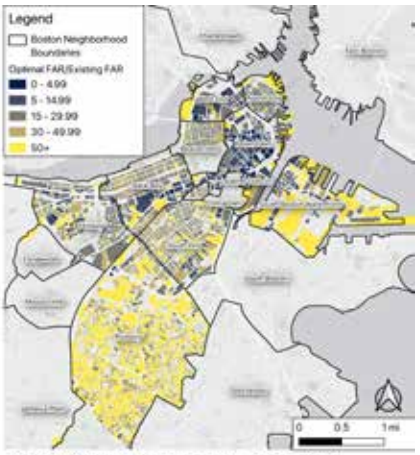
Housing affordability remains a critical challenge in many United States cities. Existing scholarship on policy interventions in the housing market have emphasized the role played by dimensional regulations on restricting the supply of housing. Using Boston as a test case, this thesis seeks to identify the gap between the current regulatory limit and built environment and the market-optimal floor area ratio (FAR) as adapted from DiPasquale and Wheaton's economic model described in their 1996 text, Urban Economics and Real Estate Markets.

Using a sample of 7,644 condominium sales, I estimate a hedonic price model incorporating building characteristics, property views, and neighborhood fixed effects, which serves as a demand curve to establish the Boston-specific relationship between price per square foot and FAR. I develop a construction cost curve using RsMeans data, accounting for non-monotonic behavior across building scales due to structural system transitions. Costs outside the observed range are estimated using quadratic extrapolation informed by international precedent.

A land residual optimization suggests market FAR's 5 to 50 times greater than what is currently built or zoned for within neighborhoods in the dataset. It also suggests the DiPasquale-Wheaton model is insufficient in capturing the full complexity of price and cost behavior of modern urban housing markets. This finding suggests Boston could enable significant market-driven housing production through FAR liberalization, with implications for Boston's built environment, affordability and equity goals.



Ratio of Optimal FAR to Zoned FAR by Parcel



Ratio of Optimal FAR to Existing FAR by Parcel

Brian Le
Thesis Advisor: Jeffrey Levine

Better Bureaucracy: How organizational structures can prepare local governments to deliver more housing more fairly

This thesis examines the efficacy of different organizational strategies local governments deploy throughout the development review and permitting process. This research was prompted by a surge of permitting reform initiatives announced by large cities across the United States in 2025, as cities looked to ease procedural burdens contributing to the national housing shortage. Using a mixed-methods case study approach to gather data from four cities across Greater Boston, this research compared differences in governance structures and processes against outcomes related to permitting (e.g., time to issue a permit, number of building permits issued) and housing (e.g., number of units permitted, type of building structure). Interviews, documents, and datasets were collected from each case study and analyzed from the perspective of residential developments seeking a building permit and all prerequisite approvals. Analyses of each case study's structures and processes were grounded in organizational science theoretical frameworks like information networks, information processing, and institutional logic. This thesis argues that Cities seeking permitting reform to improve development goals should not neglect people-centered coordination mechanisms that enable departments to work together more efficiently and more collaboratively. These cities would benefit from (1) clear leadership on and explicit articulation around housing as a citywide priority, (2) stringently defined phases to enable parallel reviews, (3) structured forums for coordinated reviews, (4) shared digital systems with visibility into each department's feedback, goals, and status, (5) concentrating public engagement under one vertical that can coordinate all public processes, and (6) creating clear conflict resolution pathways or authorities to mitigate individual gatekeepers. The findings suggest that process re-engineering and digital modernization alone are insufficient without addressing how organizational structure shapes inter-departmental coordination. Ultimately, effective permitting reform requires treating organizational coordination as infrastructure—investing in the structures that enable departments to align around shared goals while preserving necessary regulatory oversight.

Michelle Kim-Lee
Thesis Advisor: Anne Whiston Spirn

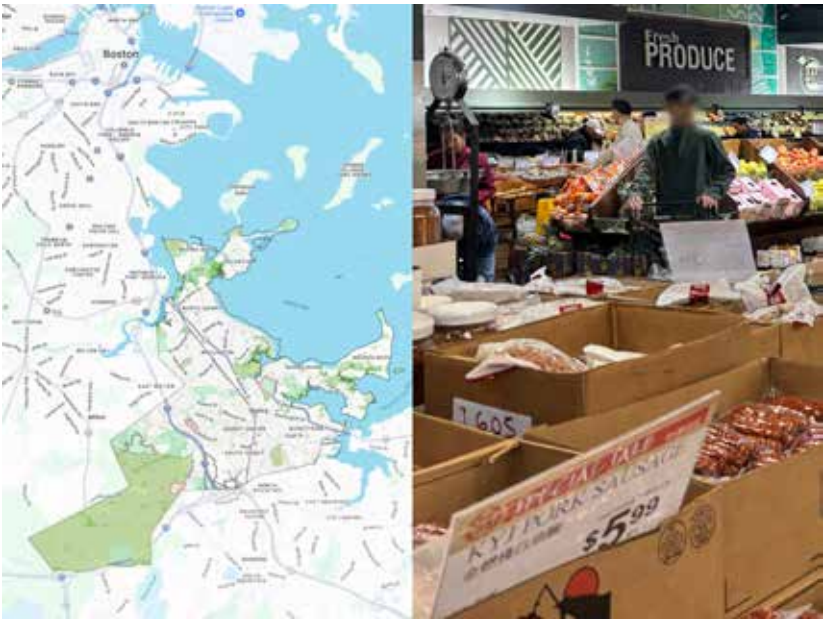
Gardens as Mental Health Infrastructure in Military Barracks

The U.S. military faces an unprecedented mental health crisis, with 523 service members dying by suicide in 2023 alone. Despite decades of investment in prevention programs and expanded clinical mental health services, these numbers continue to rise. This thesis argues that there needs to be a different approach as something fundamental is missing from existing ones: an understanding of how the physical environments where soldiers live shapes their psychological wellbeing, and how those environments can be redesigned to support it. This thesis proposes integrating gardens into military barracks as mental health infrastructure, not as clinical programs, but as ordinary features in the living environment, accessible informally, and particularly without stigmatizing designation. Drawing on evidence-based research of Attention Restoration Theory, psychophysiological stress reduction research, and the sociology of third spaces, this thesis establishes that garden environments produce measurable reductions in mental health symptoms and social isolation through mechanisms that require no conscious help-seeking. A soldier who steps outside to tend vegetables or sit among plants does not need to identify as someone with a mental problem in order to gain any of the benefits. Two overlooked factors drive the crisis. First, mental health stigma remains a structural barrier that rational soldiers navigate by avoiding clinical services, even when in desperate need. Second, barracks conditions across the United States are deteriorating, overcrowded, and institutionally dehumanizing, while simultaneously eliminating the informal social spaces that protect against isolation, which is among the strongest predictors of suicidal behavior. The military has inadvertently engineered isolation into the daily lives of its most vulnerable population: junior enlisted personnel, aged 18–24, in their first term of service, who have never deployed, and who now account for the highest suicide rates of any military demographic. 2 The proposal is grounded in historical precedent where soldiers have consistently created gardens in conditions of confinement and deprivation. From WWI trenches, to barracks in Iraq and Afghanistan, and most commonly in the documented experience of veterans who seek out gardening post-service and report benefits that clinical treatment alone cannot provide. If service members consistently turn to cultivation as a pathway to recovery, the questions this thesis poses is simple: why wait? A design framework is developed and applied to Fort Bragg, North Carolina. Five evidence-based principles guide the prototype: accessibility without clinical framing, privacy as psychological protection, graduated social flexibility, naturalistic over formal aesthetics, and sensory richness through planting variety. The resulting proposal transforms underutilized ornamental green space into a layered garden environment that functions as primary and secondary prevention infrastructure, supporting wellbeing before crisis develops, and offering accessible early intervention for those beginning to struggle, without requiring any soldier to ask for help Gardens will not solve the military's mental health crisis. But for a population that too often dies waiting for help it will never seek, embedding quiet, non-stigmatized, evidence-based support directly into the environment where they live may save lives that formal systems cannot reach.

Angela Lei
Thesis Advisor: Garnette Cadogan

Rethinking the Chinese American Suburban Diaspora: Understanding Changing Identities in Quincy, Massachusetts

In Greater Boston, Quincy has emerged as a new center of Chinese American life, a shift from the previous urban Chinese enclave in the heart of downtown Boston. This thesis explores the lived experiences of Chinese American residents in Quincy, MA, a traditionally blue-collar white suburb outside of Boston. Quincy is a suburban backdrop creating an active condition shaping how Chinese Americans experience identity, belonging, and everyday life. Drawing on interviews with Chinese American residents who live or have previously lived in Quincy, this research reveals a range of perspectives. For some, they grew up surrounded by people who looked like them in a city that served their needs; their identity not constantly questioned. For others, identity and feelings of belonging remains in flux. And others embrace assimilation as a natural outcome of new generations becoming American over time. By centering these everyday experiences, this thesis moves beyond reductive narratives that flatten Chinese American identity into a singular story of immigration and marginalization. This thesis will also offer strategies for addressing gaps in social infrastructure, strengthening community networks, and fostering more inclusive forms of belonging. This research can help community organizations, planners, and policymakers to better understand Chinese American community formation in the suburban environment.



Yifeng Liu
Thesis Advisor: Sarah Williams

From Extraction to Retrieval: A Graph-Enhanced Framework for Spatio-Temporal Reasoning in Historical Legal Documents

Accurate understanding and querying of historical legal property documents remains a sig- nificant challenge for urban planning research. These records typically exist only in analog format—scanned images with inconsistent quality, archaic language, and no structured meta- data. This limitation severely hinders systematic analysis of how discriminatory housing practices, particularly racial covenants, shaped city development patterns. While researchers have begun applying Generative AI systems to assist with legal documentation work, fundamental challenges persist in retrieval accuracy, model hallucination, and reliable extraction of structured facts from unstructured historical text.

Using racial covenant analysis as a test case, this thesis addresses two interconnected challenges. Information Extraction: How can structured spatio-temporal information be accurately extracted from degraded historical documents? Reasoning at Scale: How can retrieval systems maintain accuracy when answering complex queries requiring multi-hop reasoning across thousands of documents with temporal and spatial constraints?

To address the first challenge, a document processing pipeline was developed and applied to 569 historical deed records from a test subset of the Massachusetts Covenants Project, spanning 1861–1930 in North Middlesex County. The pipeline integrates optical character recognition, named entity extraction, and geographic information systems to transform scanned deeds into structured spatio-temporal data. The case study demonstrates successful extraction of policy-relevant keywords and accurate geolocation, achieving 64.9% complete accuracy across all documents (or 76.3% when considering only documents containing extractable geographic information), validating the e!ectiveness of this approach for systematically analyzing discriminatory housing patterns. The pipeline has been released as an open-source tool and is currently being packaged for deployment by MassHousing, a state affordable housing agency, to support ongoing collaborative research.

While the pipeline produces structured data, querying this information at scale presents its own challenges. To address this second problem, a Graph RAG (Graph-based Retrieval-Augmented Generation) framework is adapted and optimized, with its knowledge graph structure designed to specifically encode the spatio-temporal relationships inherent in historical deeds. Through controlled experiments on 2,000 synthetic documents mirroring real deed characteristics, it is demonstrated that the spatio-temporal-optimized Graph RAG achieves an overall F1 score of 0.598, compared to 0.007 for traditional vector-based RAG—an absolute improvement of 0.591 in F1 score. Notably, vector RAG performance degrades significantly when scaling from 100 to 2,000 documents, while the proposed method maintains stable accuracy. Performance was further benchmarked across a five-level query complexity hierarchy, with Graph RAG achieving particularly strong results on multi-hop queries (F1: 0.923) and temporal reasoning tasks, highlighting the critical role of graph construction and query parsing for complex spatio-temporal tasks.

These dual contributions establish a replicable framework for historical document analysis in urban planning research, comprising an open-source processing pipeline achieving 64.9% complete accuracy (76.3% on valid samples) and a retrieval architecture that maintains performance at scale. The methods generalize to legal document review, housing policy analysis, and other domains requiring structured, scalable reasoning over large archival collections.

Olivia Lovett
Thesis Advisor: Ezra Glenn

"Atlantic City All the Time": A Workforce Development Strategy for Atlantic City, New Jersey

This thesis investigates how Atlantic City, New Jersey, can diversify its workforce, given the expected changes in the local labor market as a result of the impending increase in casino competition in New York City, the implementation of numerous redevelopment plans, and renewed state oversight. Using a combination of case studies from successful workforce development programs and interviews with practitioners from Atlantic City, the thesis identifies tenets frequently used in successful workforce development strategies and the existing barriers to comprehensive workforce development projects in Atlantic City, given its history and reliance on seasonal tourism. Drawing on the case studies and interviews, this thesis concludes with a series of recommendations and an implementation plan, identifying funding sources and partnerships that should be leveraged. However, for these recommendations to be successful, Atlantic City must come up with a comprehensive vision for its future and reckon with both its past and present to make effective change.

Calvin Jacinto Macatantan
Thesis Advisor: Justin Steil

School Resources and the Distribution of Opportunity: Magnet Access and Educational Stratification in Philadelphia

Magnet schools in Philadelphia are formally open to all students, but admission to criteria-based programs depends on grades and test performance that are themselves unequally distributed across the school system. This thesis examines whether that structure expands or constrains opportunity, tracing the relationship between school-level academic resources, magnet access, and student outcomes across Philadelphia's district-operated high schools. The analysis proceeds in three stages. First, I construct an Academic Preparation Capital Index (APCI) from school-level measures of curricular rigor and support infrastructure, using Pennsylvania Department of Education Future Ready data, School Fast Facts, and School District of Philadelphia staffing and enrollment records. Second, I use SDP school selection application data to test whether magnet capture rates (the share of students from a given sending school who enroll in criteria-based programs) rise with APCI quintile and whether that sorting pattern maps onto race, income, and geography. Third, I assess outcome gaps in Keystone proficiency, four-year graduation rates, and postsecondary enrollment by magnet status and APCI quintile, using within-quintile comparisons to evaluate whether observed magnet advantages persist after accounting for prior preparation context. The findings indicate that preparation inequality concentrates in majority-minority, low-income neighborhoods and predicts magnet access. Students from low-APCI schools face compounding disadvantage at three sequential stages: lower preparation resources, lower magnet capture rates, and worse outcomes conditional on non-magnet attendance. The net system-level effect of the magnet structure is reproductive rather than redistributive. These findings suggest that interventions targeting the selection mechanism alone are insufficient; the preparation gap that precedes selection is the more fundamental constraint on equitable access.

Shogo Maeda
Thesis Advisor: P. Christopher Zegras

Who Drives Older Adults? An Empirical Study on Family-Provided Mobility

This thesis empirically examines ride provision by family members for older adults. In aging societies, supporting the mobility of older adults who can no longer drive is a pressing challenge, yet family-provided rides have received relatively little systematic investigation owing to data limitations and the informal nature of such mobility arrangements. In particular, quantitative evidence on who provides rides to older adults and how the burden affects providers' activity patterns remains scarce. This study uses person trip survey data from the Yamagata area, a car-dependent region in Japan, to identify and quantify ride provision through a matching and classification algorithm, and to estimate the determinants of ride provision and the mobility burden on providers through logistic and two-part models.

Regarding the determinants of ride provision, while a gender imbalance is observed in descriptive statistics, no statistically significant gender difference is found once employment status and household composition are controlled for. The license status of the older family member is the variable most strongly associated with ride provision, and the role of ride provider concentrates structurally on those with available time and no one else to share the task. Regarding the mobility burden, ride providers make approximately 40-80% more trips and experience 35% longer travel time than non-providers in a day (though the travel time difference is not statistically significant for those providing rides to a spouse). Leisure dwell time at destinations visited for discretionary purposes is approximately 40% shorter, a pattern consistent with care-related time poverty.

This study is among the first to systematically quantify and analyze family-provided rides to older adults using a large-scale household travel survey, contributing empirical evidence at the intersection of older adult mobility and informal caregiving.

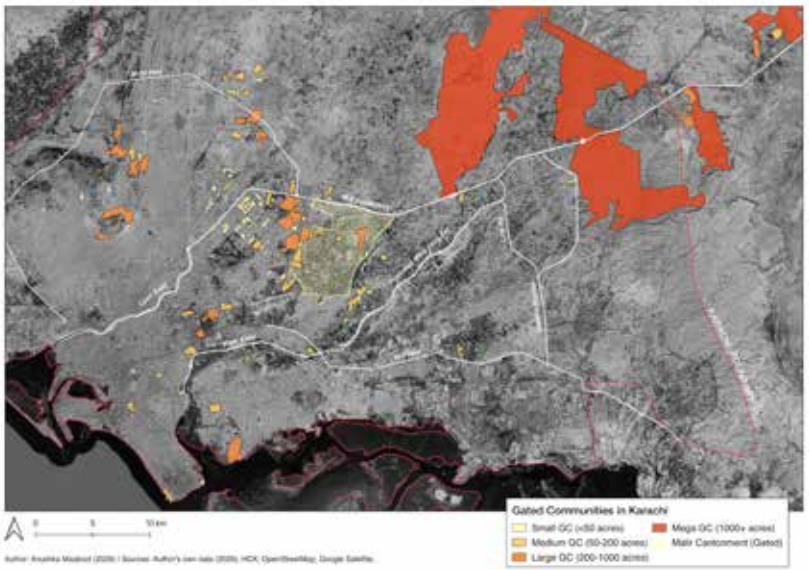
Anushka Maqbool
Thesis Advisor: Gabriella Carolini

Beige Walls, Grey Roads, and Dreams: A Study of Karachi's Gated Communities

Gated communities have proliferated across Karachi, Pakistan, since the early 2000s, transforming residential patterns, land use, and access to space in this coastal mega-city of over 20 million people. This thesis examines the trajectory of this transformation, leveraging spatial mapping, typological analysis, and an examination of developer marketing discourse to deliberate on its implications for the social and physical life of the city.

A novel database of over 100 gated communities was developed using satellite imagery analysis and GIS mapping, documenting developments ranging from small cooperative societies to Bahria Town Karachi's extraordinary 21,484 acres. These developments are organised by scale and then related to developer type, target markets, and amenities. The analysis reveals that military-affiliated housing authorities, national mega-developers, local developers, and cooperative societies produce distinct forms of enclosed living, marketed through evolving aspirations that typically go beyond security to encompass 'world-class' lifestyle imagery, profitable investment opportunities, and access to infrastructure and amenities not available elsewhere in Karachi. Mapped developments reveal a clear spatial trajectory: they are extending deeper into Karachi's periphery along highway corridors, redrawing the effective boundaries of the city, and accelerating the conversion of rural and agricultural land.

Situating the proliferation of gated communities within Pakistan's political economy — characterised by neoliberal restructuring, state retreat from service provision, and weak democracy — the thesis demonstrates that these developments are not peripheral urban phenomena, but are critical mechanisms of urban transformation. They reshape urban citizenship through privatised governance, continued fragmentation of the metropolitan region, and the displacement of existing communities through controversial land acquisition. Gated communities are increasingly becoming the dominant form of private-sector housing provision, with new developments announced regularly across Karachi's metropolitan region. These findings raise urgent questions about equity, sustainability, and possibilities for collective urban futures in rapidly growing cities of the global South like Karachi.



Mohammad Omar Masud
Dissertation Advisor: Joe Ferreira

Inside the App Bureaucracy: The Use of Smartphone Apps in Public Service Delivery Organizations in Pakistan

Smartphone apps are being used in governments in developing countries for monitoring of frontline officials in delivery of public services. Development literature has expressed doubt about transformative impact of digital technologies on entrenched bureaucracies in developing countries. While smartphone monitoring apps have improved speed and reliability of information from the ground, we do not know how availability of such apps among large number of middle to low level officials affect work and practice in large government bureaucracies in a developing country. The dissertation looks at four in depth cases studies involving use of smartphone apps in Pakistan. The cases involve the anti-Dengue program in the city of Lahore, garbage collection agency in Lahore, crime mapping by Lahore police and school monitoring by the provincial school department in the province of Punjab (which includes Lahore). Using a detailed analytical framework, I trace out the evolution of the smartphone monitoring apps in each case starting from design and implementation and continuing to use of their data among multiple levels of the bureaucracy. Using Zuboff's concept of informating and literature on accountability and performance in government organizations, I look at how design, implementation and use of smartphone monitoring apps and their data bring about changes in workflows and practices, among lower echelons of the bureaucracy without any major restructuring or reform, leading to greater responsiveness and performance orientation. The research reveals that low level officials are responsive to monitoring data because it gives salience to their work and is an objective performance measure in a challenging work environment. The research also shows that such behavior is contingent upon how effectively the organizations manage viewing and sharing of monitoring data with forums to discuss data with frontline officials. It also points out the importance of effectively managing a smart mobile data infrastructure to sustain emerging workflows and practices.

Kerry Mills
Thesis Advisor: Leslie Jonas

The Warp and Weft: Rematriative Stories Refusing Extraction in the Pine "Barren" Woodlands

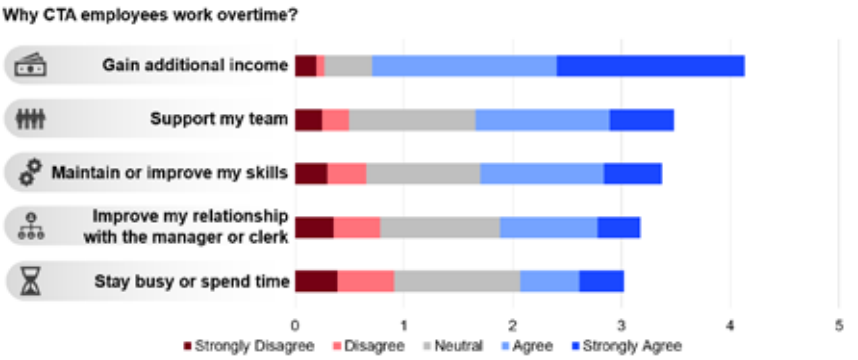
The Pine 'Barrens' have existed as a colonial imaginary, as the English colonists saw the woodland ecosystem as 'barren,' 'empty' and 'unproductive,' culminating in terra nullius (Latin for 'nobody's land'), a justification for land theft and 'improvement.' The Pine 'Barrens' in Southeastern Massachusetts remain as one of the few left in the world, yet the land and all that it holds are still under encroachment and capture. The pristine woodland ecosystems of the Wampanoag Nation have experienced repeated cycles of extraction for lumber, iron ore, and now, silica sand. Much of this work began with the legal documents associated with over 150 sand mining sites across Southeastern MA over the last decade, under the guise of cranberry agriculture. The sand mining sites are on the ancestral lands of the Herring Pond Wampanoag Tribe. A coalition of nonprofit organizations and the Wampanoag Nation has led a grassroots movement to oppose the continued destruction of the land and a sole-source aquifer.

This thesis attempts to read and link feminist geographies within the Pine 'Barrens' of Massachusetts using (A)rchives, testimonies, and community voices. Both Indigenous and non-Indigenous women's refusal, in the past and present, carries more than opposition, but hope for a different relationship to land that can unsettle and reimagine our present. The Rematriation Movement, led by Indigenous women and focused on matriarchal and female-led connection to the Earth, encompasses many kinds of returns, including Land Back, Indigenous lifeways, reinternment of sacred remains and objects, food systems, rights of nature, stories, songs, and much more. Using a rematriative lens, I center women land defenders by reading against the grain of extraction and the absence of women in the Archive.

Magdalena Misiewicz
Thesis Advisors: Xinyi Wang,
Haris Koutsopoulos

Taking Time Off: Understanding Leave Policies, Procedures and Employee Attitudes in Rail Operations

Work-life balance now outranks pay as a leading workforce priority, and the right to rest - including paid leave - has long been recognised as a fundamental human right. Yet the United States remains one of the few countries without a universal paid leave requirement. This gap is reflected sharply in public transport, where leave is managed through fragmented rules spread across contracts, internal policies, local practices, and managerial discretion. The result is a system that is central to workforce management but poorly defined, inconsistently measured, and rarely analysed in full. This research addresses that gap. It sets out why leave is uniquely complex in transit: most work is in-person, schedules are rigid, seniority strongly shapes access, and how if not given time off, employees may take matters into their own hands. It then develops a practical assessment framework for agencies to map leave categories, review policies and procedures, analyse absence records, capture employee experiences, and identify communication or process failures. The framework is applied to Chicago Transit Authority rail operations using policy review, peer-agency comparison, workforce records, leave request analysis, interviews, and a survey of over 170 rail employees. The findings challenge simple assumptions: leave taken is surprisingly similar across seniority groups despite major differences in entitlement; greater vacation access reduces reliance on medical and personal leave; employees report gaps in leave understanding, unmet demand for shift trading, and strong interest in attendance rewards and a four-day workweek. Among employees without leave entitlement, additional leave is preferred over higher pay.



Anna Morgan
Thesis Advisors: Brent Ryan, Rania Ghosn

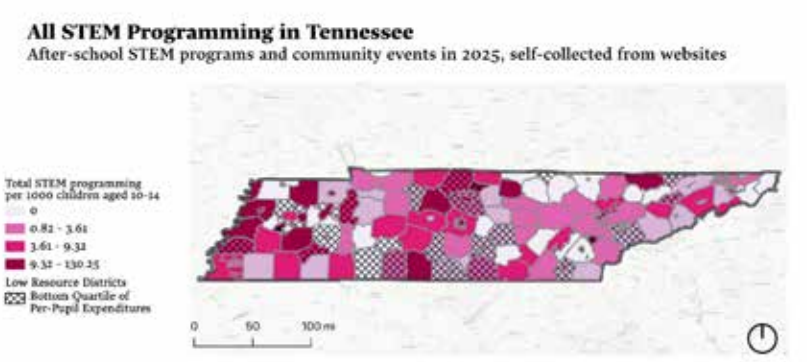
Cloud Castles: A Trans-Scalar Analysis of Virginia's Data Centers

Data centers are commonly framed as clean, immaterial, and economically productive. Yet they are, in fact, materially intensive infrastructures whose social and ecological costs are displaced across communities and scales. This thesis argues that data centers in Virginia are a form of extractive digital infrastructure, and that their concentration in Loudoun County was enabled by sedimented territorial conditions: land regimes rooted in plantation history, imperial and military development, inherited fiber and power corridors, utility governance, and decades of pro-growth planning. As data center expansion intensifies demands for land, energy, water, and transmission, it exposes the scalar limits of local planning authority. Loudoun shows how fragmentation of infrastructural governance benefits developers and utilities and restricts local agency. In response, the thesis argues that planning must move beyond growth accommodation toward counter-scalar strategies that protect public health and build regional accountability.

Amelie Nagle
Thesis Advisor: Eric Robsky Huntley

Spatial Analysis of Informal STEM Learning in Tennessee

This thesis examines the accessibility of informal STEM learning opportunities for middle school students in Tennessee, broadening existing definitions to include educational programs and extracurricular activities. Informal STEM opportunities are a critical area of study because formal education has been insufficient in meeting the demand for STEM workers. A manually compiled dataset of STEM-related programming from January to December 2025 was analyzed using spatial analysis and regression-based structural modeling to identify geographic, socioeconomic, and programmatic disparities in content and design. Results indicate that 41% of school districts in Tennessee are classified as "STEM deserts," where the majority of the region lies beyond a 20-minute drive to the nearest program. However, STEM desert status is not associated with socioeconomic characteristics, suggesting that access is shaped less by district funding or demographics and more by structural factors such as local partnerships and community capacity. Additionally, STEM content varies by program type, highlighting disparities in depth of STEM engagement available to students: community events mostly offer introductory and entry-level content, while school-based extracurricular clubs provide a balanced distribution of STEM content that includes applied and technical STEM topics.



Eunice Ngai
Thesis Advisor: Justin Steil

Circulating Possibilities: Pop-ups and the Creation of a Public Library in Boston's Chinatown

In 2009, the Storefront Library opened in a vacant storefront, and in 2012, the Chinatown Lantern Reading Room opened inside an apartment building. Both were temporary pop-up libraries, created, funded, and operated by the community to advocate for a library in Boston's Chinatown. Libraries are significant yet overlooked third spaces for community development and have a unique role in immigrant neighborhoods. Boston's Chinatown's residents once patronized the branch library on Tyler Street. But during the urban renewal era of the 1960s, which disproportionately targeted areas where communities of low-income residents, immigrants, and people of color lived for clearance and redevelopment, the library was demolished.

In 2001, youth at the Chinese Youth Initiative started to campaign for a library and the Friends of the Chinatown Library was established to support them. The co-founders of Street Lab opened the Storefront Library from October 2009-January 2010, and the Boston Chinatown Neighborhood Center opened the Chinatown Lantern Reading Room from April 2012-February 2013. After years of concerted advocacy, the Boston Public Library opened a temporary branch library in 2018. In 2025, the community celebrated the groundbreaking of a permanent branch library with affordable housing.

Multitudes of people made this library possible, and this thesis explores how library pop-ups worked with the campaign to contribute to its creation. Drawing on archival research, interviews, site visits, and oral history, I argue that pop-ups helped reinforce the library campaign by creating an experience and new memories to advocate for, serving needs for a library in the present, and amplifying the campaign in its long-term advocacy. This research highlights the dynamic relationships between libraries, immigrant communities, and neighborhood development. The thesis contributes insights on how pop-ups, when grounded in collective memory, created by the community, and bolstered by intergenerational advocacy, can contribute to a more just present and future.

Storefront Library. Photo credit: Street Lab

Aaron Ngo
Thesis Advisor: David Hsu

MAssive House: How Massachusetts Grew the US Passive House Market

Energy efficiency is a vital and cost-effective strategy for reducing building emissions, the largest contributor of greenhouse gases (GHG) in many US cities. Recognizing this, Massachusetts has established several policy initiatives to support Passive House (PH), a performance-based energy efficiency certification, making it the leading state with >20% of US projects as of 2026. Multifamily developments can achieve PH standards with only a 2-3% cost premium. However, high construction costs make any premium a barrier to adoption, even with long-term savings.

Key policy initiatives include the PH Design Challenge, Mass Save (™) incentives, additional points for PH in Low-Income Housing Tax Credits (LIHTC) allocations, and the Specialized Energy Code. PH champions pushed for these initiatives over several years at the state and local levels, demonstrating how targeted advocacy can influence policy. Other advocacy efforts, like Brookline's proposed gas ban in 2019, spurred interest in building codes and building decarbonization, indirectly impacting the PH movement.

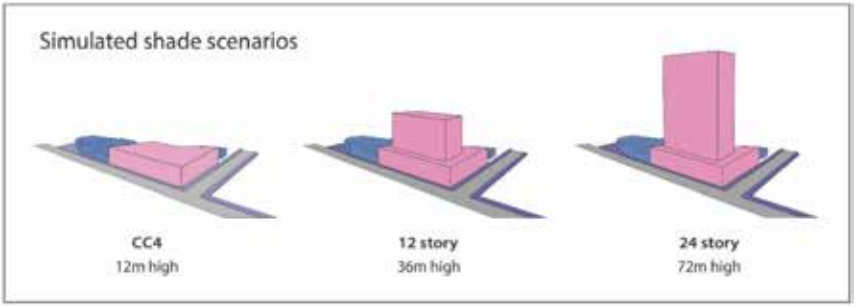
PH's growth in Massachusetts provides a blueprint for advancing policy initiatives with thoughtful advocacy. This thesis identifies the key players, policies, and events that shaped PH in Massachusetts. Through 14 semi-structured interviews with stakeholders and literature reviews on policymaking theories, I summarize PH's market development and takeaways for future advocacy. While prior literature documents best practices for PH delivery, it has not focused on how policy changes drive adoption. I focus on distinct events (e.g., establishment of policy initiatives or completion of PH projects), and the actors who shaped them. Given the current political emphasis on affordability, I also discuss how PH may fit in the current political climate. Lastly, the paper discusses how policymaking theories – Multiple Streams, Punctuated Equilibrium, and Policy Feedback – can augment our understanding of policymaking and provide a foundation for future advocacy efforts.

Dila Sadiye Ozberkman
Thesis Advisors: Cherie Miot Abbanat, Skylar Tibbits

The Dark Side of the Walk: Evaluating Pedestrian Thermal Comfort Through Built Environment Shade Simulation

Global climate change is fundamentally altering the urban thermal landscape, increasing the frequency of extreme temperature events that threaten public health and disrupt pedestrian mobility. While urban planners frequently deploy shade as a passive cooling strategy to mitigate summer heat stress, this approach often overlooks the dynamic requirements of temperate climates. In regions like the Northeastern United States, static urban geometry that provides essential summer relief can inadvertently induce a "winter penalty," trapping pedestrians in cold, sunless urban canyons and increasing physiological strain. This thesis investigates the morphological determinants of outdoor thermal comfort, evaluating how drastic shifts in building massing and height dictate the seasonal human experience.

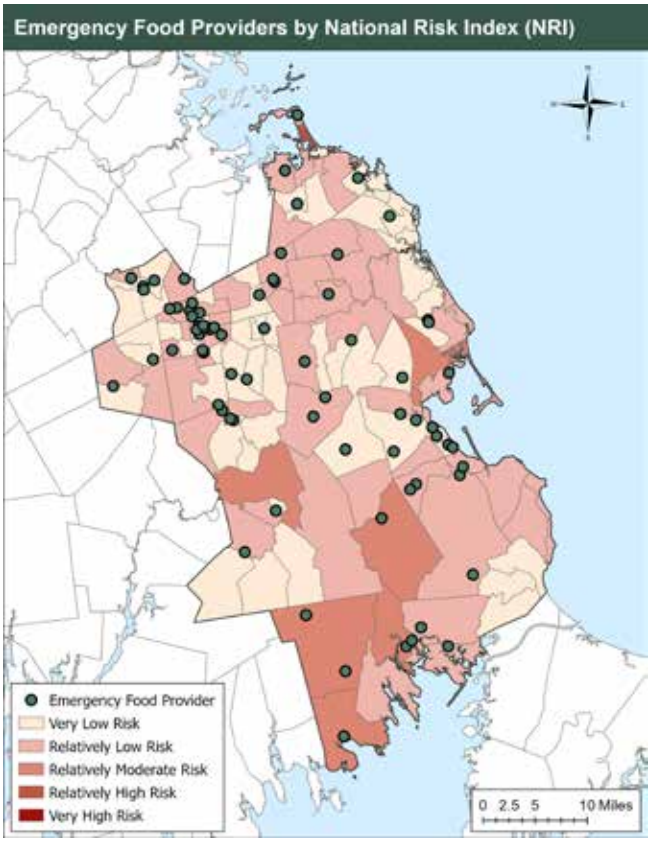
Utilizing a validated, high-resolution shade simulation pipeline, this study quantifies solar exposure at 1- meter intervals along active pedestrian trajectories. The methodology is applied to a proposed 24-story mixed-use development in Davis Square, Somerville, Massachusetts, comparing its spatial thermal footprint against the existing building as a baseline. By modeling extreme summer and winter solar conditions, the analysis quantifies the physiological trade-offs of high-rise densification. Ultimately, this research challenges the standard reliance on static geometric shadow studies, arguing that seasonal thermal impact and pedestrian physiological needs must become a mandatory metric in urban design and zoning processes.



Alyssa Papantonakis
Thesis Advisor: Mariana Arcaya

Disaster Preparedness: Assessing the Impact of Climate Events on Plymouth County's Emergency Food Provision Services

In the face of a natural disaster, emergency food provision services including food banks, food pantries, mobile markets, and meals programs play a critical role in addressing food access and insecurity. Still, the vulnerability of these programs to climate events remains understudied. In partnership with Old Colony Planning Council's Regional Food System Action Plan, this study explores areas of vulnerability and opportunities to improve disaster preparedness among Plymouth County's emergency food providers. Spatial analysis of infrastructure and climate risk, document review of municipal hazard mitigation plans, and interviews with practitioners offer an assessment of existing conditions, challenges, and opportunities for improved resilience. Reflecting on day-to-day challenges and previous disruption experiences, interviewees reveal several key vulnerabilities present within the system and exacerbated by a potential disruption, including supply interruptions, storage and infrastructure failures, staffing constraints, barriers to client access, and building closures. This information is considered through the lens of the Johns Hopkins Food System Disruption Analysis framework, evaluating the system through the resilience attributes of redundancy, diversity, connectivity, flexibility, preparedness, and capital reserves. Together, these findings are used to identify actionable strategies to improve emergency food system resilience in Plymouth County.

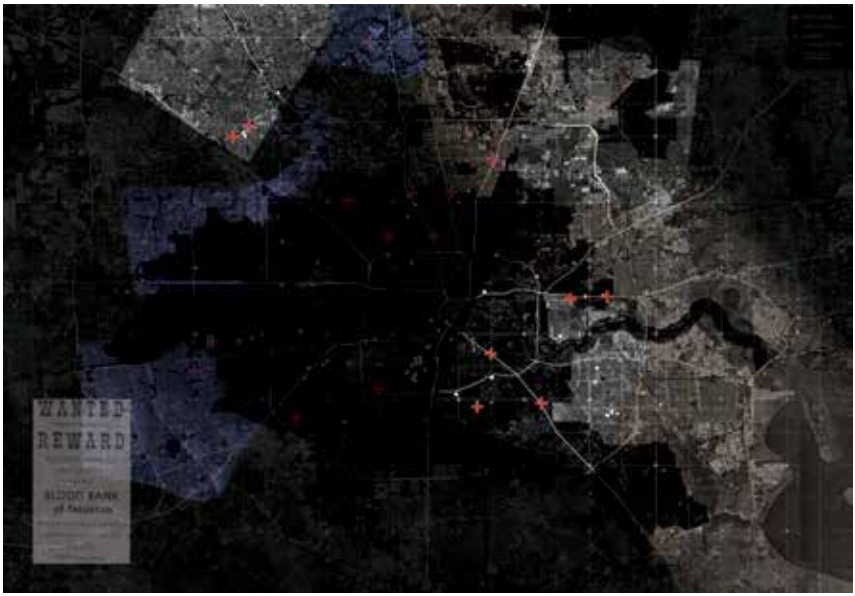


Kaede Polkinghorne
Thesis Advisor: Erica Caple James

Bloodlines; or, backmapping a paid blood plasma donation from Houston, Texas

An estimated 215,000 people are paid to donate blood plasma, the liquid component of blood, each day in the United States. Blood plasma sustains a thirty-five billion dollar global market, and the US (one of few countries that permits paid blood donations) supplies about seventy percent of this market's raw material. The geography of plasmapheresis centers is entangled with class, race, and citizenship, echoing the industry's carceral and colonial history. There are eighteen plasmapheresis centers within Houston's city limits—more than in any other city in the world. Maintaining the paid donor's perspective, this thesis is structured around an autoethnographic account of one paid blood plasma donation in Houston, Texas. As I move through the screening and consent apparatus of the plasmapheresis center, my body is gradually rendered bioavailable to the company that seeks to extract my plasma.

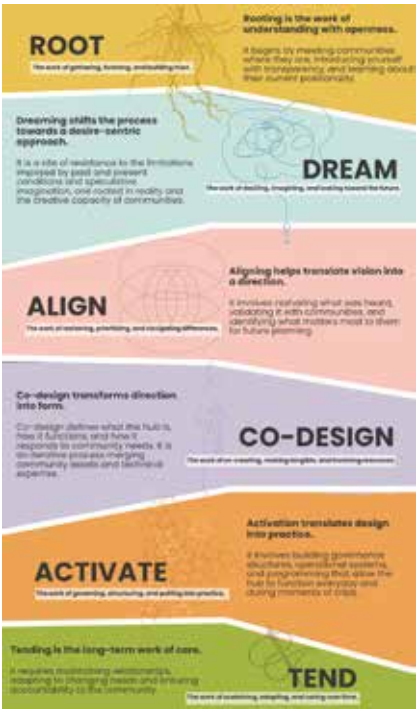
I analyze a series of media objects, some of which are physically present in the center and some of which haunt it from diverse archives. Nestled within the autoethnographic account are portals to three spatiotemporal geographies where other bodies are rendered bioavailable to plasma companies: the Texas-Mexico border, the prison plantation, and the strip mall. I look across these three paradigmatic spatial and temporal conditions to weave my own bioavailability into a broader network of paid donations across space and time. Writing against abstraction, the project augments patchwork ethnography with spatial analysis, archival research, media analysis, and speculative making to backmap a single paid blood plasma donation and ask: How does the extraction of blood plasma in Houston constitute donors as subjects?



Isbah Premjee
Thesis Advisor: Mariana Arcaya

Centering Those Who Matter Most: A Participatory Planning Framework for Designing and Sustaining Hyperlocal Resilience Hubs in Western North Carolina after Hurricane Helene

Disasters are not natural. They are produced at the intersection of physical hazard and socially constructed vulnerability shaped by histories of racial capitalism, geographic disinvestment, and political exclusion, which ultimately determine whose lives are valued and whose losses are normalized. Hurricane Helene's devastation of Western North Carolina in September 2024 made this devastatingly clear when communities already living at the margins of formal systems bore the greatest losses and found themselves reaching, holding, and carrying each other during and after the storm when these systems failed. Drawing from these acts of collective action and mobilization, this thesis finds that the primary infrastructure of disaster recovery is social, relational, and care-based. Building on disaster resilience scholarship, feminist theories of care, participatory planning theory, and asset-based community development, this research situates resilience hubs–community-serving facilities augmented to support residents, distribute resources, and coordinate communications before, during, and after climate-driven disruptions–as spatial expressions of collective care. This thesis argues that the knowledge necessary to design and sustain these hubs is already held by the communities that have experienced disasters. Planners, policymakers, and organizations working on resilience-building must begin with listening, following the lead of frontline communities, and creating the conditions for situated, place-based knowledge to shape the design and function of resilience hubs. The primary contribution of this thesis is a Participatory Planning Toolkit for MountainTrue, a Western North Carolina organization, that proposes a six-phase framework: Root, Dream, Align, Co-Design, Activate, and Tend. The toolkit is designed to support MountainTrue in co-creating and sustaining hyperlocal resilience hubs alongside frontline communities to function in normalcy and during moments of crisis. This six-phase framework begins from the first interaction with communities and culminates in how to tend to both the resilience hub and relations forged with communities through this participatory process. The toolkit was built through a multi-tiered methodology, including community input, in-depth conversations with practitioners, iterative feedback from MountainTrue, and a comparative analysis of six existing resilience hub frameworks. This thesis insists that the kind of knowledge resilience planning requires is situated, embodied, and relational, and can only be generated by those who have lived through the storm, carried their communities after it, and know what it will take to survive the next one.



Elina Rodriguez
Thesis Advisor: Janelle Knox-Hayes

Co-Theorizing New Imaginaries for Land and Housing: Indigenous Paradigms and Tenant Unions

Against the backdrop of growing housing unaffordability and precarity in the settler colony known as the United States, the tenant movement has re-emerged in the last decade to contest the exploitation and predation born from global neoliberalism's increasing housing financialization and privatization. Tenant unions are building countervailing power–whether that's through organizing for improved material conditions, collectively bargained leases, rent strikes, or other means. These individual tactics vary across local contexts, but all subscribe to an overlapping concept of power, the ability to exert control over the conditions in which they live; fundamentally, they see the tenant struggle as a land struggle (Rosenthal, Vilchis 2024). These struggles, however, unfurl on land that was never ceded. As it unfolds, the tenant struggle stacks on top of existent and enduring relationships with land that Indigenous people have maintained through millennia of mutual nourishment, stewardship, reciprocity, and kinship. The tenant struggle is a land struggle, one that piles on top of centuries of layers of land struggle continuously undertaken by Indigenous people in the assertion of their sovereignty. Yet, tenant unions rarely theorize their own work with these ongoing relationships and broader Indigenous land-based struggles for sovereignty in mind. This thesis studies the ways in which housing is deeply embedded in notions of land and suggests a new framework that puts these struggles explicitly in conversation with each other and pulls these two streams into alignment.

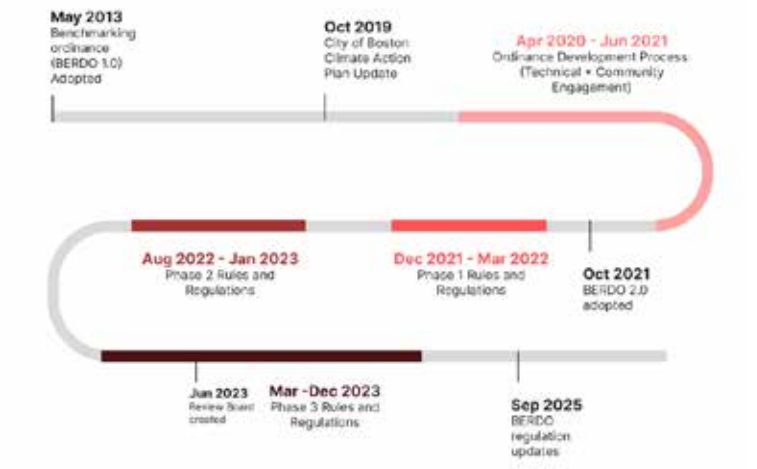
Relationality is both the subject of this research and its methodology. In chorus with other methodologies—braiding Indigenous and Western alike—this thesis engages with an expansive view of land relationality that exceeds the tenant movement's current conception of land and housing under capital. This thesis insists on not just pulling out a chapter from Indigenous knowledge ways, which are universes of philosophy and thought in and of themselves, for use on a specific issue, like housing; but actively respecting and considering these different universes of thought together. Grounded in the enormous expertise shared across 15 semi-structured, close dialogue, qualitative interviews with Indigenous scholars, Indigenous housing practitioners, and non-Indigenous tenant union organizers from across the settler-colony known as the United States, I analyze how Indigenous paradigms on relationality relate to growing tenant movements, and how, if at all, these struggles can or should be co-theorized together. By connecting fields and methodologies often siloed into overly simplified labels, this thesis aims to bridge and expand the connection between land relationality and housing, and in doing so illuminate how sovereignty, care, and community can be realized.

Amy Rogin
Thesis Advisor: David Hsu

Low Carbon, High Friction: The Stakeholder Politics of Building Performance Standards

The built environment accounts for 30-70% of urban greenhouse gas emissions, mainly from fossil fuel use for space and water heating. Therefore, cities with ambitious net-zero emission goals have begun to pass Building Performance Standards (BPS) that require large commercial and multi-family buildings to meet energy-efficiency or greenhouse gas reduction targets over time. These regulations move from a history of point-in-time construction codes to continuous building lifecycle regulations, introducing a number of implementation challenges including a lack of information, limited financing, and tenant-landlord split incentives for energy-efficiency. This thesis explores how stakeholder politics influence the design and implementation of BPS through three case studies: Washington, DC, Boston, Massachusetts, and Denver, Colorado. While prior research focuses on optimal BPS policy design, this thesis focuses on stakeholder group dynamics because of their ability to shape and negotiate policy design away from theoretically optimal conditions. Through 14 semi-structured interviews and a review of public documents, the thesis identifies the enabling political conditions, key stakeholder groups, and major points of contention related to each jurisdiction's BPS. The paper ends with cross-cutting themes and areas for future research.

In each case study, BPS originated out of grassroots environmental campaigns for climate action, and have evolved to varying degrees through regulatory updates, expanding compliance flexibility measures based on operational feedback from stakeholders. While BPS touch a broad swath of building owners, key stakeholder groups included real estate trade associations, affordable housing developers and owners, energy consultants, hospitals and universities, and environmental advocates. Cross-cutting themes also identify the dynamic nature of opposition as real estate market conditions change and compliance deadlines approach. As interest in these policies grows, this research provides practical insights for advocates and policymakers to design effective and politically viable BPS.



Miquel Rossello Xamena
Thesis Advisor: Eric Robsky Huntley

Houses That Do Not Exist: Touristification, Informal Housing, and the Politics Over Land of The Mediterranean

Situated in the Mediterranean, this thesis seeks to explain a neglected territorial phenomenon: the proliferation of single-family houses and villas used as short-term rentals (STRs) or second homes, often developed through tolerated illegality in some of Europe's most valuable landscapes. Contrary to dominant theories that associate informality with marginality, this research shows how informality can also operate as a mechanism of accumulation for middle- and upper-middle-class groups in the Global North, driven by tourism. It further argues that these processes are sustained through an implicit pact with institutions that have consistently allowed such practices to emerge, consolidate, and even be legalized. To explain how this occurs, the thesis develops the notion of politics over land. This concept refers to the interaction of two dynamics: (1) fragmented systems of governance—shaped by decentralization, contradictory regulations, selective enforcement, and close relations between local power and property interests—that enable regulatory changes to produce, reproduce and legitimize tourism-driven informalities; and (2) a local hegemonic formation that normalizes informal development as common sense, presenting it as family effort, a sign of prosperity, and part of a democratized tourism economy. Through historical analysis, legal review, GIS mapping, and institutional process tracing, the thesis grounds this framework in the case of Mallorca, Spain. However, the thesis also moves from explanation to intervention. Using a Participatory Action Research (PAR) framework and a digital data-visualization platform, the study demonstrates in Pollença—a prototype case in the north of the island—how a counter-planning project can be developed to confront an ongoing legalization process. By making visible the territorial, environmental, and social impacts of these tourism-driven elite informalities, the project seeks to reorient public action toward a politics for and of the land: one that places ecological limits, collective needs, and long-term territorial justice at the center.

Dylan Rollo Roth
Thesis Advisor: Garnette Cadogan

All The Levee Holds: Interpreting the River Parishes on Foot

This thesis develops an alternative mode of spatial inquiry grounded in walking, storytelling, and multi-sensory observation to reframe how the River Parishes, an 85-mile corridor commonly referred to as "Cancer Alley" in Louisiana, are known and represented. Centered on a 144-mile walk along the Mississippi River levee between New Orleans and Baton Rouge, the project assembles a body of work composed of field notes, photographs, videos, audio recordings, and collected artifacts. These materials are curated as a constellation of fragments that attempt to register the layered and continuously lived conditions of life within a heavily industrialized landscape. Operating against hegemonic ways of seeing within planning and design, it resists the totalizing gaze of aerial perspectives, cartographic projections, data-driven abstractions, and lifeless narratives. Instead, it offers walking as both method and epistemology. Through the pace of the body rather than the speed of the car or the distance of the satellite, knowledge is produced through movement. Chance encounters with residents, moments of shared vulnerability, and direct exposure and registration of the material and atmospheric conditions of the place drove the active construction of understanding. The thesis document shifts in the terrain that rejects single narrative perspectives and demands a narrative turn in planning that rehumanizes the way we tell stories in practice. This project does not resolve the problem of the River Parishes or Cancer Alley, but reveals a glimpse into a fragment of a much larger and ongoing process. The knowledge gathered along the levee is not exhausted in its telling; it continues to thicken as it demands many more returns. What is offered in these pages is a reading of a place that is embodied, layered, rich in contradictions, incomplete, and alive.

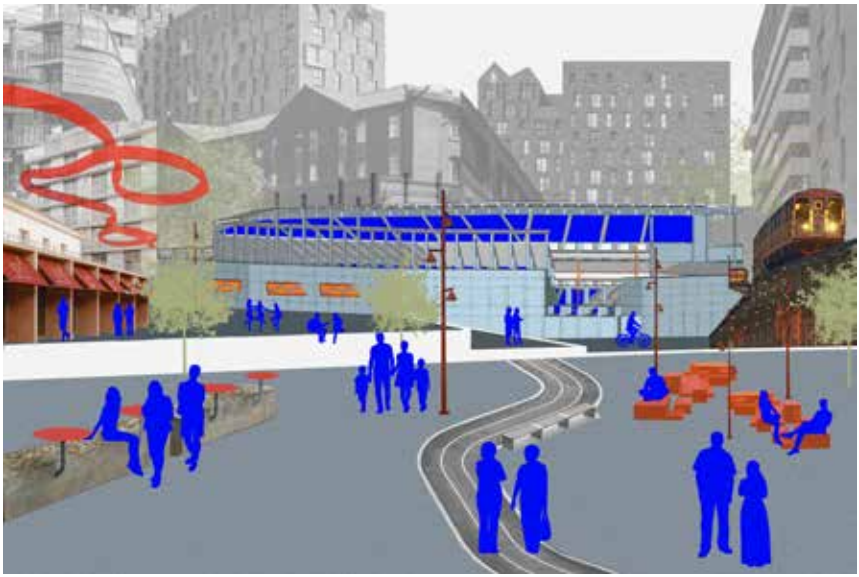
Anna Savino
Thesis Advisor: David Gamble

The Other 284: Urban Design and Programming Strategies to Activate Stadium Districts Beyond Game Days

This thesis investigates how stadium-anchored districts can be activated beyond game days to function as inclusive, vibrant, and economically viable urban environments year-round. While these districts are designed to accommodate moments of intense collective energy, they are often inaccessible, exclusionary, or underutilized outside of scheduled event days. In response, this research calls on designers, planners, and policymakers to reconsider sports-anchored development as a form of public urban infrastructure that must perform across everyday conditions, not solely during peak moments. Although debate persists over stadium development as a universally effective economic development strategy, this thesis acknowledges the continued prevalence of such projects and instead examines how they can be structured to maximize social and economic return on public investment.

Grounded in the relationship between urban design, event activation, and place branding, this research evaluates whether sustained activation is driven primarily by physical design interventions or by intangible place-shaping strategies. Through a comparative analysis of four ballpark neighborhoods in Boston, Washington, DC, and Chicago, it identifies best practices for year-round activation and assesses the extent to which these strategies can be replicated across different typologies and geographic contexts. It further examines how publicly subsidized stadium districts can produce broader civic value and extend event-driven momentum into public life by supporting accessible public space, locally embedded economic ecosystems, and democratic gathering places.

Ultimately, this research advances a set of urban design, programming, and place branding strategies to guide more equitable and continually activated sports-anchored development. It offers practical guidance for ensuring that these districts become socially connective places for residents, workers, and visitors throughout the year, despite seasonal fluctuations in sports programming. Beyond their role as economic engines, stadium-anchored districts have the potential to fulfill a fundamental human need to gather, belong, and connect to a shared civic identity.



Erin Sheehan
Thesis Advisor: Jeffrey Levine

Nourishing Development: Restaurants and the Remaking of Urban Space in Washington, D.C.

In contemporary urban development, restaurants are increasingly central to how cities are built, marketed, and experienced. This phenomenon is evident in Washington, D.C., where the rise of a nationally recognized dining scene has reshaped neighborhoods and intensified questions of equity, identity, and displacement in a rapidly changing city. This thesis defines the culinary district as a distinct urban development form in which food and beverage businesses drive development and shape the brand, identity, and economic activity of a place. It argues that culinary districts in Washington, D.C., function as tools for urban planning, economic development, and placemaking, and evaluates their broader social and spatial consequences. This research draws on comparative case studies of three Washington, D.C., culinary districts—Mount Pleasant's main street, the H Street Corridor, and the Union Market District—to develop a typology for analyzing different models of culinary districts. Impacts vary by typology. Community-based culinary districts, such as Mount Pleasant, emphasize community culture, heritage, and local ownership; revitalized culinary districts, such as H Street, reflect incremental change and ongoing tensions between investment and displacement; destination culinary districts, such as Union Market, prioritize a curated identity and substantial economic growth. These differences produce uneven social and economic outcomes. This thesis concludes with recommendations for more inclusive culinary district development. Because culinary districts represent a distinct urban development form, they require planning approaches that extend beyond conventional strategies for commercial district growth and activation. Recommendations include expanding support for community-oriented leadership and governance; integrating culinary districts into cultural and heritage planning efforts; adopting more flexible and creative approaches to permitting and commercial space design; and establishing pathways for small business growth within larger-scale developments.

ChenAn Shen
Thesis Advisors: Jinhua Zhao, Jim Aloisi

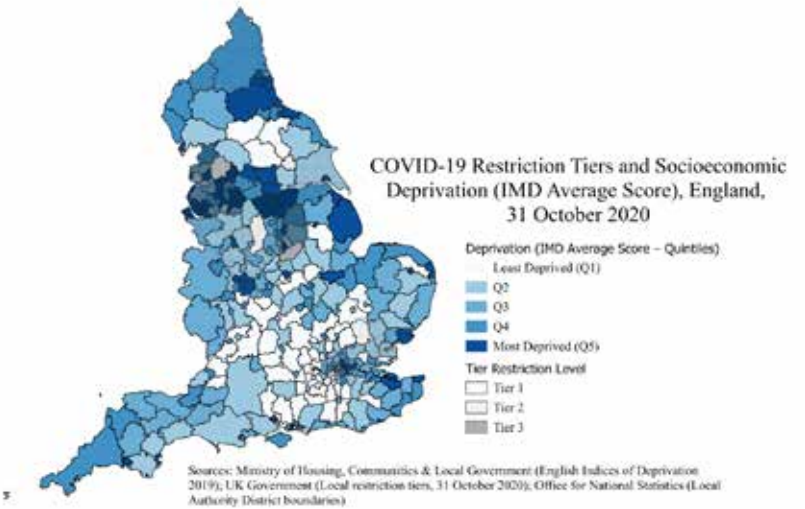
How AI Reshapes Pre-Decision Analytical Workflows: A Case Study in Commercial Real Estate

Pre-decision analytical workflows, the document-heavy investigation, modeling, and memo production that precedes a binding professional sign-off, are common to several knowledge- intensive industries. AI tools have been adopted across these workflows unevenly. Existing accounts of this unevenness sit at the industry level; this thesis decomposes analytical work into workflow components and asks at which component layers AI substitutes and at which it cannot, using commercial real estate (CRE) as the case for deep empirical study. The evidence base is forty-two semi-structured interviews with CRE developers, lenders, syndicators, brokers and capital advisors, and development consultants conducted between February and May 2026 under an IRB-approved protocol; interviewees are anonymized and cited by role descriptor and date. Five recurring pain patterns surface in CRE pre-decision work, counterparty fragmentation, assumption drift, absent cross-deal learning, underwriting staleness, and market-data trust gap, and together make analytical work a capacity constraint on how many deals a firm can carry. No existing intervention category, internal analyst teams, offshore BPO, software tools, or direct practitioner use of general-purpose AI, satisfies all six necessary conditions the evidence supports: accountability travel, assumption-data compounding, judgment-line preservation, marginal-deal cost reduction, dual-evaluation respect, and confinement within analytical bounds. The capacity constraint has distributional consequences for the built environment, weighted toward affordable-housing pipelines and adaptive-reuse projects whose program complexity demands the most analytical labor per deal. The thesis closes by examining one candidate delivery form, an AI-delivered analytical service, against the six conditions, and abstracts a five-layer typology of substitutability across workflow components from the CRE case, projecting it back across the surveyed industries as the framework contribution of the thesis.

Chloe Smith
Thesis Advisor: Justin Steil

Redesigning Resilience: Participatory Design and the Decision Pipeline for Infectious Disease Emergencies in England

The United Kingdom's pre-pandemic reputation as a global leader in preparedness was built on a centralised governance model that concentrated decision-making power within an isolated bubble of experts in Central London. However, the response to COVID-19 revealed that a decision pipeline stripped of the public's diverse lived experience fails to navigate the complex inequalities of a real-world emergency. Whilst post-pandemic inquiries highlight an urgent need for public involvement, few strategies exist to move beyond tokenistic engagement. Using participatory design (PD) as a theoretical framework, this paper analyses national policy documents, existing literature, and local case studies to demonstrate how PD can bridge this gap. Specifically, this thesis maps structural 'participation deficits' in the decision-making pipeline, identifies opportunities for meaningful public collaboration, and offers practical policy recommendations for Local Resilience Forums (LRFs) and Integrated Care Boards (ICBs) to create sustained public participation.



Kaleigh Spears
Thesis Advisor: Justin Steil

Small Town State of Mind: Strategies for Sustainable Growth and Community Building in Fairhope, Alabama

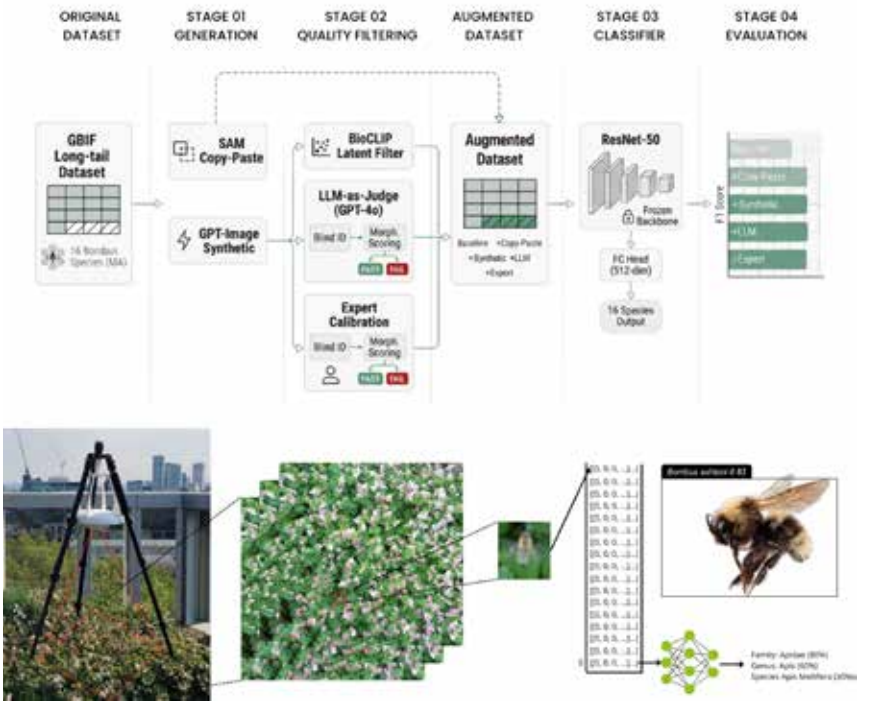
Small and medium-sized towns across the United States are experiencing unprecedented population growth due to post-pandemic flexibility in work location and demand for a lower cost of living. Fairhope, Alabama is one such town, with a roughly 22% growth in population between 2020 and 2026. Rapid residential development threatens infrastructure strain, traffic congestion, overcrowding of schools and loss of community cohesion. As of March 2026, Fairhope has in place a moratorium on specific development projects and is in the process of rezoning and building out infrastructure to support rising demands. This research surveys Fairhope residents to gather opinions on growth and connection to place in a debatably small town, seeking to understand how residents of Fairhope (and potentially other small cities) perceive the "small town" and their role within it. Defining "small town life" can help planners and policymakers prioritize strategies to improve community vibrancy. Findings suggest that residents define small towns as places where (1) community is built on intergenerational and long-term relationships, (2) local business owners are well-known and foster trust, (3) infrastructure remains at a small scale but there are enough amenities to serve everyone, and (4) city-wide public events encourage community activity and gathering. The survey also reveals differences in how new and long-time residents establish a sense of belonging, identifying weaknesses in social capital for both groups of residents. Recent residents struggle to integrate into preexisting social networks, while long-time residents feel a sense of detachment from communities they once knew. Finally, this research identifies opportunities for community-building and strategic growth management in Fairhope. Grounded in local planning goals and context, recommendations include amenity-rich residential development, open space preservation, educational and historic preservation initiatives, and approaches to mitigate sprawl, address tensions between new and incumbent residents, and strengthen connections within the community.

Mingyang Sun
Thesis Advisors: Fábio Duarte, Sara Beery

True Absence or Detection Failure: Generative Augmentation and Expert-Calibrated Filtering for Long-Tailed Bumblebee Classification

Urban biodiversity monitoring increasingly relies on automated image classification, yet rare species remain difficult to detect under long-tailed data distributions. We study 16 Massachusetts Bombus species with an approximately 60:1 class imbalance, where rare taxa are often confused with morphologically similar common species, obscuring true absence from detection failure. Recent advances in multimodal generative image models make it possible to synthesize visually plausible rare-class examples from text prompts and reference images, motivating their use for long-tailed biodiversity classification. This work investigates whether synthetic data augmentation can improve rare-species recognition under such conditions.

I propose a three-stage pipeline: (1) structured morphological prompting for reference-guided image generation; (2) a two-stage LLM-as-judge framework combining blind taxonomic identification with fine-grained morphological scoring; and (3) an expert-calibrated quality filter learned from entomologist annotations. Results show that synthetic data is not automatically useful: copy-paste provides the clearest statistically supported gain, while generated augmentation can reduce rare-tier performance. Overall, we argue that useful augmentation depends not on image volume alone, but on expanding visual diversity without corrupting species-diagnostic morphology.



Virginia Sun
Thesis Advisor: Karilyn Crockett

Communing With Ancestors By Refabulating My Family Genealogy Book (Jia Pu 家谱)

My family genealogy book (jia pu 家谱) traces our lineage to the 14th century, but the original version was burned during the Chinese Cultural Revolution. However, in 2000, my kin in China used fabulation to remake our jia pu, summoning the memory of ancestors, working with archival absences, and knitting together living kin to reconstruct a family tree. In doing so, they also resuscitated the tradition of making jia pu as a textual and spiritual medium that has always demanded speculative thinking and the mediation of relationships between ancestors and descendants. Inheriting this methodology, I read and recreate the jia pu in its historical tradition as an oracle – a means through which I can commune with ancestors in present space-time across spatial and temporal rifts – rather than a closed archival record. Through a critical reading and reconstruction of my family genealogy book, I come back to ancestors and kin across spiritual, temporal, and historical ruptures, including the impact of the Cultural Revolution and migration on my paternal family. By reconstituting the jia pu through craft printing and manual labor, I propose a methodology that incorporates Chinese ontologies of ancestor communication, which extends beyond Western ontologies that limit speculation and fabulation to the realms of rationality, linear time, and traceable histories. I remake our jia pu through craft methods of printing. I use metal etchings, my Chinese name seal, and screenprinting to overlay pictures of my kin in China onto pages of my jia pu to open a dialogue with ancestors as well as interrogate the book's archival elisions, including its patrilineality and systemic exclusion of women. Across the Chinese-American diaspora and beyond, this methodological offering provides insight to those seeking to repair elisions in family archives, address ancestral wounds, and knit together severed relationships with kin across generations.

Freya Tan
Thesis Advisors: Andres Sevtsuk, Phillip Isola

Toward Auditable Repair of Fragmented Pedestrian Networks with LLM-Assisted Spatial Reasoning

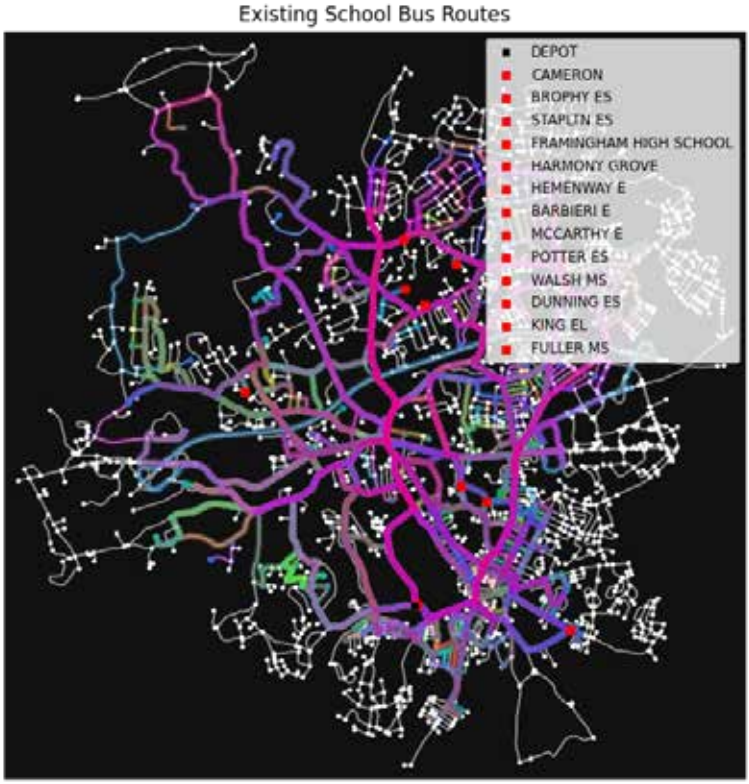
Routable pedestrian networks increasingly underpin walking directions, accessibility measurement, and planning analyses of access to everyday destinations. Yet pedestrian-network datasets assembled from imagery, municipal records, community mapping, and multi-source workflows often retain local discontinuities after production. In the ambiguous cases, repair requires a spatial judgment: whether an endpoint should connect to a missing sidewalk, crossing, or path; remain a valid terminus; or avoid a nearby but misleading connection that would create an unsupported route. This thesis formalizes fragmented pedestrian-network repair as the problem of deciding, executing, and evaluating connectivity changes in existing vector pedestrian networks.

To address this problem, the thesis develops a staged LLM-assisted repair architecture and a repaired-network evaluation framework organized around network change and routing function. The architecture applies deterministic preprocessing to unambiguous geometry and topology defects, then uses LLM-assisted bounded candidate judgment for dead-end connection decisions whose resolution depends on surrounding pedestrian context. Deterministic execution applies accepted repairs to the graph, while repair provenance records the evidence and graph changes behind each decision. The evaluation framework reads repaired outputs in two complementary ways: network change evaluates edit evidence and aggregate fragmentation, while routing function evaluates local and network-wide traversal. When a trusted reference network is available, metric families support stronger claims about repair recovery, added-connectivity validity, and route similarity to the reference. Overall, the thesis contributes a repair architecture and evaluation framework for making repaired pedestrian networks more comparable, auditable, and useful for routing and accessibility analysis.

Diego Temkin
Thesis Advisor: Jim Aloisi

Reimagining Urban Bus Operations: Using Category Theory to Create a Generalizable Framework for Bus Network Redesigns Incorporating Equitable Factors

Cities face persistent challenges in designing bus systems that are efficient, equitable, and responsive to changing urban conditions and rider needs. While computational approaches optimize routes using ridership demand, built environment constraints, and performance objectives, equity is often not systematically integrated. This thesis addresses that gap and presents a framework for bus network redesign that explicitly incorporates equity and accessibility alongside cost and service quality. Using a monotone co-design approach from applied category theory, the framework provides a formal structure to capture interactions among datasets, constraints, and stakeholder priorities. It integrates diverse data sources, including OpenStreetMap-derived street networks, General Transit Feed Specification (GTFS) data, origin-destination demand, and U.S. Census/American Community Survey demographics. A case study of the Framingham, Massachusetts school bus system demonstrates the framework's ability to evaluate existing networks and generate alternative designs. The results show how data-integrated, optimization-driven methods can support transparent tradeoff analysis and help planners design more cost-effective and equitable transit systems.



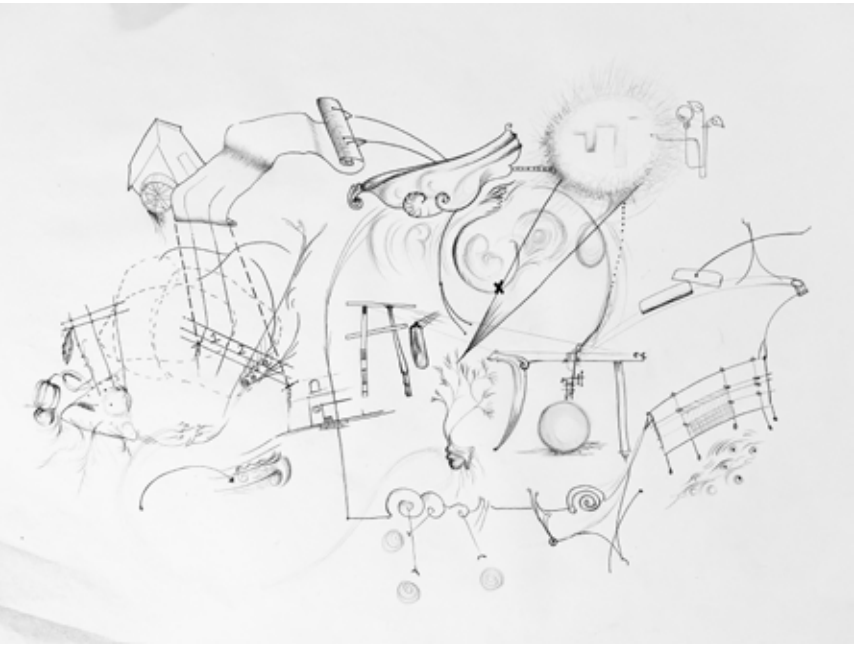
Ananth Udupa
Thesis Advisor: Karilyn Crockett

Sacred Soils: Exploring Soil in the Berkeley Community Garden and Alternative Models for Land Stewardship that center BIPOC and Immigrant communities and culture

How do we conceive of soil today, and what does that perception reveal about the ways we govern land? This thesis reframes soil, reduced to static acreage within extractive economic models, as a relational, embodied, and reparative infrastructure that offers an alternative framework for land stewardship in cities shaped by violence and extraction. Grounded in a case study of the Berkeley Community Garden in Boston's South End, this project examines how community gardens operate as sites of regenerative repair that exist both within and beyond dominant capitalist definitions of ownership and value in city spaces. A central foundation for this research sits in compost and waste management.

The thesis translates these insights through creative tools as a method for youth empowerment towards self-sovereignty. Eight collaboratively designed workshops were facilitated with the Asian Community Development Corporation, Future Chefs, and Apprentice Learning, three community organizations based across the city of Boston, to position young people as critical agents in redefining value, systems, and place through art-making and dialogue.

By bringing together stories of elder gardeners and experiments with young people, this project functions as a sutural process of reparations. Compost becomes both material practice and political metaphor: a regenerative process that challenges linear models of growth and opens possibilities for reparative, community-led approaches to governance. In doing so, the thesis positions soil as a critical site through which to rethink sovereignty, stewardship, and the conditions for equitable urban futures.



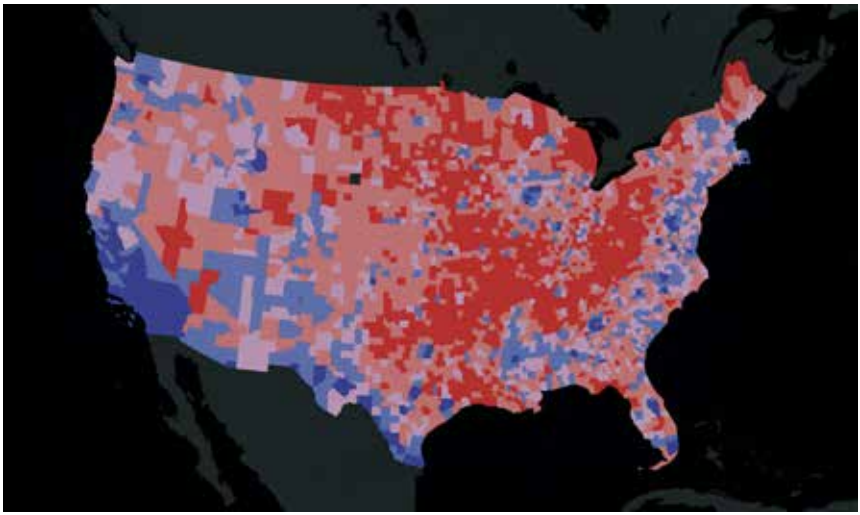
Richa Vera Udayana
Thesis Advisor: Amy Katherine Glasmeier

Losing trust, bowling alone: How precarity shapes political identity in deindustrial America

Economic hardship, especially in the light of deindustrialization, is widely understood to drive rightward political realignment in both academic scholarship and popular commentary since 2016. Yet individual-level evidence for a direct economics-to-politics channel has remained persistently weak. This thesis argues that this weakness is a measurement artifact—and that experiences of economic precarity do indeed meaningfully shape politics, but by eroding institutional trust rather than through direct material self-interest.

Using individual-level data from the General Social Survey (2006–2018) and county-level data from over 3,100 US counties, this thesis develops and tests a mediation architecture linking financial precarity, institutional trust, social capital, and political (re)orientation.

Through a series of econometric analyses, it presents four key findings. First, subjective financial precarity modestly predicts more Democratic partisanship and more liberal ideology—not the rightward drift that dominant lines of scholarship posit—but more powerfully and uniformly erodes every kind of trust, both interpersonal and institutional. Second, a principal components analysis reveals that the GSS's 13-item institutional confidence battery contains a latent three-dimensional structure: trust in traditional institutions (military, organized religion, banks, major companies), in civic institutions (Congress, executive branch, education, labor, press, television), and in experts (Supreme Court, medicine, science). These dimensions pull politics in opposite directions: traditional trust predicts conservative orientation while civic and expert trust predict liberal orientation. Third, formal mediation analysis confirms that the precarity-to-politics relationship is almost entirely mediated through traditional trust. Fourth, at the county level, the observed geographic correlation between post-2000 manufacturing decline and the 2004–2016 rightward swing is almost entirely compositional. Here, social capital operates as an unconditional political "stabilizer" against rightward drift, and its protective effect is stronger in communities experiencing greater population loss and civic erosion. These findings identify institutional trust as the missing mechanism connecting economic experience to political identity.



Zoe Voss Lee
Thesis Advisor: J. Philip Thompson

Power to the People: Realizing Just Energy Futures in the South Bronx

In the South Bronx, situated on the waterfront between two of New York City's most polluting peaker power plants, the former New York Post printing plant sits vacant. Its history represents, in microcosmic detail, the myriad ways decisions have been made about this neighborhood, often in the name of economic development, without asking--who does this development serve?

Amidst a backdrop of a global energy crisis and local energy injustice, this thesis brings together scholarship that describes how land and energy have been co-constitutive of one another under racial capitalism. Through this lens, it traces the history of the land beneath the former Post printing plant, reading its archive and legal record to unearth the entangled histories of energy, waste, and capital that live under its surface. This history serves as both a normative account of how capital has operated as an organizing force in this landscape, and an evidentiary argument for how the state has demonstrated remarkable institutional creativity in building structures that serve private interests in the South Bronx. In asking what could happen if that same creativity was directed toward community-led development, this research insists that what becomes of this site is not a question of feasibility, but a matter of political will. With an eye towards advancing energy justice, this thesis proposes a model for community ownership of utility-scale energy infrastructure at the former Post printing plant, which would serve as the anchor for a Civic Virtual Power Plant--a community-owned and governed alternative to the corporate Virtual Power Plant (VPP). A Civic VPP, as conceived of in this work, builds wealth in the communities whose infrastructure enable its operations.

Overall, this thesis makes three primary contributions. First, it grounds literature on racial capitalism and decolonial energy justice in the South Bronx context. Second, it advances the Civic Virtual Power Plant as a model for community ownership of energy infrastructure and considers what is required to realize this model at the former Post printing plant. Third, it applies process tracing to the land record of the former Post printing plant to produce an actionable legal-historic analysis that speaks directly to disposition pathways for community ownership of the site.

This research is undertaken in the spirit of activist scholarship, in solidarity with South Bronx Unite's vision and goals for Mott Haven-Port Morris.

Jiao Zhao
Thesis Advisor: David Hsu

Rationing the Interconnection Queue: Governing Uncertainty under Reliability Urgency

Interconnection queues, managed by regional grid operators, determine how generators can connect to the electric transmission grid. Over the past decade, these queues have become increasingly backlogged. As projected load growth and resource retirements intensified reliability urgency, grid operators began proposing queue-rationing mechanisms to prioritize certain projects outside the standard process. This thesis examines two such mechanisms, driven by short-term reliability needs and approved by FERC in 2025 after contested proceedings: PJM's one-time, score-based Reliability Resource Initiative and MISO's recurring three-year Expedited Resource Adequacy Study. It asks: when interconnection policymaking responds to reliability urgency, what uncertainties emerge, and how are they understood and managed? Drawing on FERC docket analysis, interviews, and a comparison of the rationed and standard queues, the thesis examines uncertainties contested in the formal process, uncertainties absent from it, and the composition of the rationed queues. Docket analysis shows that formal contestation centered on whether the queue-rationing design could adequately match short-term reliability needs. These uncertainties reflect long-standing problems in interconnection policy and were largely managed through deference to regional grid operators under compressed timelines. Interviews with clean energy and environmental advocates surface uncertainties absent from formal reliability discussions: environmental impacts, downstream costs to ratepayers, and whether state clean energy goals could still be met. Compared with the standard queue, the rationed queues show how short-term reliability was translated into selection rules under unresolved uncertainty, producing a disproportionate share of gas resources, a substantial concentration of data center-driven and utility-led projects, and notable variation across states in ERAS. Taken together, these findings suggest that the short-term reliability frame shaping queue rationing affects which uncertainties the formal process recognizes, which it leaves outside, and how policies made under unresolved uncertainty produce a resource mix distinct from that of the standard queue. I therefore propose reexamining and broadening the concept of reliability and building collective reliability governance beyond FERC and grid operators.

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