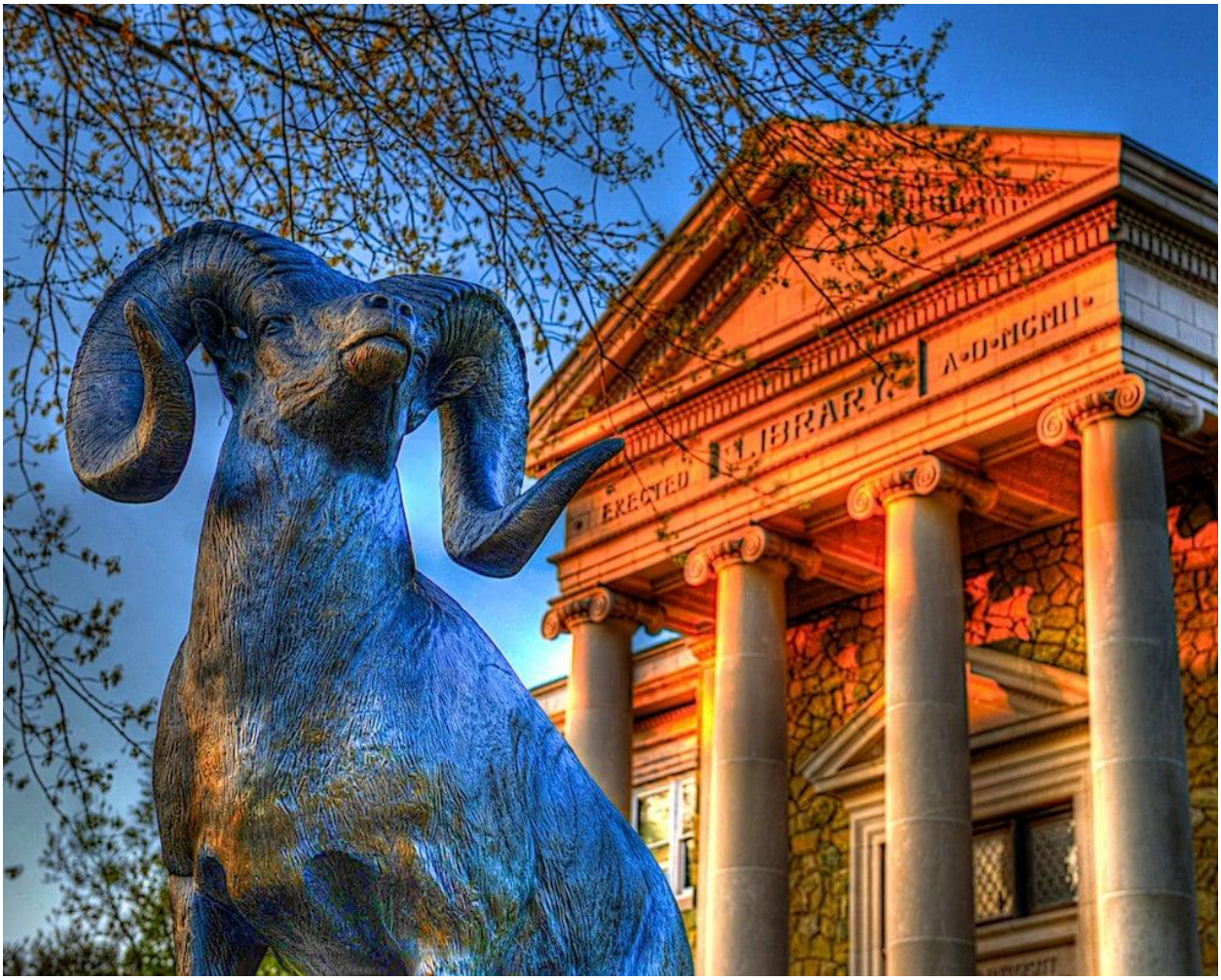
Middle States Division

American Association of Geographers

2024 Annual Meeting

November 1-2, 2024



West Chester University

West Chester, PA

Schedule at a Glance

Friday, November 1

Time	Event	Location
11:30	Registration Opens	BPMC Lobby
12:15	Welcome Remarks	BPMC 101
12:30-1:50	Sessions A, B, & C	BPMC 110, 116, 210
2:00-3:20	Sessions D, E, & F	BPMC 110, 116, 210
3:30-4:30	Poster Session 1	BPMC 1st floor hall
3:30-4:30	Snack break	BPMC 102
4:30-5:50	Sessions G, H, & I	BPMC 110, 116, 210
6:00-7:30	Dinner & ***Keynote Address*** Patricia Ehrkamp, *AAG President* "Geopolitics of Disability and the Ablenationalism of Refuge"	BPMC 102 & 101
7:30-10:00	***Geography Bowl***	BPMC 101

Saturday, November 2

Time	Event	Location
9:15	Registration Opens	BPMC Lobby
9:30-10:50	Sessions J, K, L, & M	BPMC 110, 113, 115, 116
11:00-12:00	Poster Session 2 & Graduate School Fair	BPMC 1st floor hall
12:00-1:00	Lunch & Awards Ceremony	BPMC 102 & 101
1:00-3:00	***Workshop***: Posters of Peril: A Tabletop Roleplaying Adventure	BPMC 117

Session Details

A: Geography Education, Friday 11/1, 12:30-1:50pm, BPMC 110

Moderator: Carlos Morales-Ramirez, West Chester University

Carlos Morales-Ramirez, *West Chester University*: From Location to Hierarchy: Using Seven Spatial Thinking Concepts to Evaluate Spatial Thinking Abilities

David Fyfe, *York College of PA*: Design Thinking and Student-Driven Global Travel Exriences

Michael Davis, *Kutztown University of Pennsylvania*: Harlan Sanfrancisco: A Geographical Roleplay Adventure

Nathaniel Gabriel, *Rutgers University*: An Experiment in Teaching Critical Digital Geographies

B. History Rocks! Friday 11/1, 12:30-1:50pm, BPMC 116

Moderator: Gregory Pope, Montclair State University

Gregory Pope, *Montclair State University*: The Marble Chip Experiment: Adventures in Rock Decay and Field Methods with Students

Hale Oal, *Rutgers University*: Birth of a hybrid: Interpreting the History of the Western Hemisphere Shorebird Reserve Network through a political science lens

Mark Blumler, *Binghamton University*: Ecological Niche Construction and Agriculture

Suiyuan Wang, *SUNY University at Buffalo*: Continuous monitoring of impervious surfaces based on PlanetScope time series*

C. Technology, Friday 11/1, 12:30-1:50pm pm, BPMC 210

Moderator: Hamil Pearsall, Temple University

Hamil Pearsall, *Temple University*: Community-engaged Machine Learning Models for Sustainable Cities

M. Naser Lessani, *Pennsylvania State Universit*y: Enhancing computational efficiency of the similarity and geographically weighted (SGWR) regression model along with its Python package implementation*

Temitope Akinboyewa, *Pennsylvania State University*: GIS Copilot: Towards an Autonomous GIS Agent for Spatial Analysis

Michael Penn, *Binghamton University*, Elucidating Geographical Dynamics Of Invasive Knotweeds on Susquehanna River Islands Via Remote Sensing*

D. Cities & Urban Planning 1, Friday 11/1, 2:00-3:20pm, BPMC 110

Moderator: TBD

Cordelia Martin-Ikpe, *SUNY Binghamton University*: The Granular Landscape of Health Disparities: A Socio-Spatial Examination of Chronic Disease Prevalence within New York City's Community Districts

Grant Saff, *Hofstra University*: Planned versus lived space: The case of Plaça dels Àngels in Barcelona.

Tyler Munn, *Temple University*, A Systematic Literature Review of Neighborhood Investment Flow Measures*

E. Trees & Forestry, Friday 11/1, 2:00-3:20pm, BPMC 116

Moderator: Amy Lynch, West Chester University

Agnes Bryan, *Temple University*: Tree Planting Initiatives through the Community Lens: An Analysis of Survey Results

Amy Lynch, *West Chester University*: Forest Connectivity and Land Use Planning in Ten Vermont Timber Towns

Paul Kelley: A Geographer's Take on Penn's Woods

F. Geography Grab Bag, Friday 11/1, 2:00-3:20pm, BPMC 210

Moderator: TBD

Daniel Moscovici, *Stockton University*: Ski resort closures in New York State: Is it guaranteed and predictable?

Gabrielle Reagan, *Temple University*: Geographies of Pleasure: Prioritizing Pleasure in the Food-Body-Environment Nexus

Natalie Correa, *University of Wisconsin-Madison*: Birds of a Feather: Mapping the Hofstra Bird Sanctuary

Elizabeth Boulanger, *West Chester University*: Challenges in the Field Methods of Historical Mapping

G. Cities & Urban Planning 2, Friday 11/1, 4:30-5:50 pm, BPMC 110

Moderator: TBD

Austin Martin, *Temple University*: Urban processes and bee diversity: Urban ecology and urban political ecology in dialogue

Kelly Haggerty, *Temple University*: Material and Affective Flows Between Discard and Derelict in New Orleans, Louisiana

Liana Katz, *Rutgers University*: This Is Not a Political Forum: Producing Evidence and the Subject in Municipal Land Use Planning

H. Urban Greening & Green Infrastructure, Friday 11/1, 4:30-5:50 pm, BPMC 116

Moderator: Sarah Heck, Temple University

Reeya Shah, *Temple University*: Architectural Development and Environmental Intersections in Norris Square, Philadelphia

Sarah Heck, *Temple University*: Balancing Water Quality Mandates and Equity: A Comparative Study of Green Infrastructure Implementation

Sophia Camacho, *Hofstra University*: Cultivating Change: Hollenback Garden's Influence on Clinton Hill and the Community Garden Movement

Yichun Zhou, *New York University*, How perceived residential environments affect neighborhood park visitation? A nonlinear analysis of mobile data and street view imagery*

I: Roundtable on Undergraduate Experiences in Geography, Friday 11/1, 4:30-5:50 pm, BPMC 210

Roundtable Participants:

Jodi Vender, Sam Ajah, Michael Coupland, Danielle Dedeaux, Raven Henager, Eli Mylonas, and Nate Vincent, Penn State

J. Brandywine Watershed, Saturday 11/2, 9:30-10:50, BPMC 110

Julia Williams, *West Chester University*: The Emergency Management Solutions Application

Ariel Whaley, *West Chester University*: Brandywine Hub

Connor Walker, *West Chester University*: Using SWAT to model the impacts of a severe weather event in the Brandywine watershed

K. Social Justice, Saturday 11/2, 9:30-10:50, BPMC 113

Moderator: Craig Borowiak, Haverford College

Craig Borowiak, *Haverford College*: Solidarity Cities: Confronting Racial Capitalism, Mapping Transformation

Gabriela Mundaca, *University of Delaware*: The Socio-Ecological Dividends of Peace: a geospatial analysis of the Guatemalan conflict and its aftermath

Luke Taliaferro Riddick, *Poly Country Day Preparatory School*: Batter Up: On Equity and Access to Youth Baseball in New York City

Sonja Dahl, *Temple University*: Expanding horizons: Closing toxic prisons and a just transition*

L. Geopolitics, Saturday 11/2, 9:30-10:50, BPMC115

Moderator: TBD

Marta Gintowt, *West Chester University*: An Exploratory Analysis of Ukrainian Refugees Resource Needs in Poland

Kaitlin Stewart, *West Virginia University*: The Global Movement to Community Sponsorship: What Does it Mean for the Future of Refugee Resettlement?

Katrinka Somdahl, *Rowan University*: The Geopolitical Codes of Late Night Comedy

Richard Wolfel, *US Military Academy West Point*: Fragile Stability: The Impact of Geopolitical Interests and Environmental Security on Burkina Faso's Political Landscape

M. Grad School? A Panel Discussion, Saturday 11/2, 9:30-10:50 BPMC 116

Panelists:

Daniela Aiello, Penn State

Temitope Akinboyewa, Penn State

Gary Coutu, West Chester University

M. Naser Lessani, Penn State

Hamil Persall, Temple University

Jodi Vender, Penn State

Poster Session 1, Friday 11/1, 3:30-4:30, BPMC first floor hallway

Shibbir Ahammad, *Binghamton University*: Exploring Urban Greenery and its' Impact on Heat Distribution in Rochester, New York*

Sharmin Akter, *Binghamton University*: Accessibility and Functionality of Cooling Centers to Vulnerable Communities Across Binghamton*

James Colella, *MacArthur High School*: Students' Perceptions of Digital Place Compared To Their Perceptions Of Physical Places*

Valerie Davidheiser, *Kutztown University*: The Influence of Climate Change on Dew Point Temperatures in Pennsylvania

Oscar DeGus, *MacArthur High School*: High School Adolescents' Perceptions of Gap Years as an Alternative Enrollment Option Post Graduation*

Maya Feinstein, *University of Delaware*: Vertical Motions in the Southern Ocean*

Ava Fitzgerald, *Temple University*: Chasing Cool Air: A walkability assessment of cooling centers in Philadelphia

Erin Foley, *Kutztown University of Pennsylvania*: Average Seasonal Trends in Climate in Contiguous USA

Genevieve McCormick, *Hofstra University*: Subdividing Historic Bergen County

Estrella Pacheco, *Haverford College*: Geographies of (Il)legality and Immigrant Disaster Vulnerability in Sonoma County, CA*

Thabo Sebobi, *Binghamton University*: Structures of Power and Health: A Political Ecology of Approach to Understanding HIV Prevalence and Interventions in Botswana

Justin Shade, Binghamton University: Hospitalization Disparities Among Children with Sickle Cell Disease: The Significance of Race, Age, and Health Status

Connor Walker, *West Chester University*: Community Centric Urban Planning - An Assessment of West Chester Borough as a 15-Minute City*

Yichun Zhou, *New York University*, Nonlinear relationship between perceived residential environments and neighborhood park visitation: An analysis of mobile data and street view imagery in Tokyo*

Poster Session 2, Saturday 11/2, 11:00-12:00, BPMC first floor hallway

Md Awual Baksh, *Binghamton University*: Environmental Valuation of Land Cover Changes in Rajshahi Metropolitan Area: Integrated approach of GIS, Remote Sensing and CVM

Renata Blumberg, *Montclair State University*: Cultivating Place-Based Research in Food Systems at the Science-Policy Interface

Aleyana Boothe, *Hofstra University*: Are outdoor environmental education opportunities a privilege in Long Island?

Jaylin Calistro, *Kutztown University of Pennsylvania*: Intensification and Evolution of Nor'easters affecting the New England Region, 2000 to 2020

Bryan Collins, *SUNY Oneonta*: Agent-Based Modeling to Explore Social, Economic, And Environmental Links Within the North Carolina Poultry Industry

John Gross, *Farmingdale State College*: Developing Interactive Web Applications For Small Local Cemeteries - A Long Island Case Study

Md Farhan Ishrak, *SUNY - Binghamton*: Assessing Public Transit Accessibility and Equity in Johnson City, NY: A Spatial Analysis of Socioeconomic Disparities

Preston Long, *Binghamton University*: Ar-Raqqa, Syria, a Cradle of Civilization Plagued by Conflict

Nicholas Lucchetto, *Hofstra University*: Geographies of Weather, Buses, and the Commutes of New Yorkers in Queens

Alana McKeon, *Binghamton University*: The Hidden Cost of Cloud Computing: Mapping the Environmental Footprint of Major U.S. Data Centers

Dakota Overland, *United States Military Academy*: Airborne Surveying Degraded: Using Small Unmanned Aerial Systems (Suas) To Assess Helicopter Landing Zone Suitability In A Gnss Denied Environment

Steven Schnell, *Kutztown University*: Place as Palimpsest: Building Deep Maps in Comics and Graphic Novels

Special Session Abstracts

Roundtable on Undergraduate Experiences in Geography - Friday 11/1, 4:30-5:50 pm, BPMC 210

Current geography undergraduates will articulate engagement experiences including (but not limited to) internships, research, study abroad, and student organizations and invite others to share their own experiences and exchange ideas to incorporate in their home programs.

Grad School? A Panel Discussion - Saturday 11/2, 9:30-10:50, BPMC 116

Whether you're considering graduate school or seeking advice on your academic path, this panel offers perspectives on selecting and applying to graduate programs in geography

Workshop Posters of Peril: A Tabletop Roleplaying Adventure – Saturday 11/2, 1:00-3:00, BPMC 117

In this immersive tabletop roleplaying workshop, participants are thrust into the fictional world of academia as attendees at a seemingly routine geography professional conference gone wildly awry. As animated posters and rogue maps spring to life, participants must use quick thinking, the power of teamwork, and a touch of creativity to survive the chaos. Avoid menacing posters, rampaging projectors, swarms of poster pins, and other monstrosities!

Designed for newcomers and roleplay veterans alike, this session explores collaboration, problem-solving, and networking over a tabletop roleplaying adventure. Grab your lanyard and poster tube for this fun closing to Middle States 2024!

Paper Abstracts

Temitope Akinboyewa, Zhenlong Li, Huan Ning, and **Naser Lessani,** Geoinformation and Big Data Research Lab, Department of Geography, The Pennsylvania State University: *GIS Copilot: Towards an Autonomous GIS Agent for Spatial Analysis*

Recent advancements in autonomous GIS systems, driven by Generative Artificial Intelligence (GenAI), particularly Large Language Models (LLMs), offer promising spatial analysis and decision-making capabilities. However, integrating these AI-driven systems with established GIS platforms remains unexplored, limiting the potential applications of Generative AI within the domain of GIScience. This study proposes a framework for integrating LLMs directly into existing GIS platforms, using QGIS as a case study. Our approach leverages the programming capabilities of LLMs to autonomously generate spatial analysis algorithms through an informed agent that has comprehensive documentation of essential GIS tools and parameters. The framework also incorporates external tools, such as Python libraries, including GeoPandas, SciPy, and PySAL, to enhance the system's versatility. The implementation of this framework resulted in the development of a copilot, an interface that allows GIS users to interact with QGIS using natural language commands. We evaluated the agent's performance across three levels of autonomy: selecting suitable tools, generating correct executable algorithms, and successfully performing complete tasks autonomously. The results show promise, particularly in tool selection and code generation, although challenges remain in achieving full autonomy for more complex tasks. This study contributes to the emerging vision of Autonomous GIS, providing a pathway for non-experts to engage with geospatial analysis with minimal prior expertise. While full autonomy has yet to be achieved, the developed copilot demonstrates significant potential for simplifying GIS workflows and enhancing decision-making processes. This study is among the first attempts to integrate GenAI within GIS platforms.

Mark A. Blumler, Dept. of Geography, Binghamton University: *Ecological Niche Construction and Agriculture*

Humans had already been engaging in ecological niche construction long before agriculture, primarily via sophisticated use of fire. Ecological niche construction also was a feature of the successful dispersal of farming out of agricultural origin centers. On the whole this is a poorly recognized or understood topic; in this talk, I sketch some examples to illustrate what is known and what is not, and the complexities of ecosystem change in differing dispersal contexts. I also stress some ramifications such as on invading species, biodiversity, and the evolution of weeds.

Craig Borowiak, Haverford College, **Maliha Safri**, Drew University, **Marianna Pavlovskaya**, CUNY - Hunter College, and **Stephen Healy**, Western Sydney University: *Solidarity Cities: Confronting Racial Capitalism, Mapping Transformation*

I propose to present on my forthcoming book "*Solidarity Cities: Confronting Racial Capitalism, Mapping Transformation*" (University of Minnesota, 2025). Solidarity economies, characterized by diverse practices of cooperation and mutual support, have long played pivotal but largely invisible roles in fostering shared survival and envisioning alternatives to racial capitalism globally and in the US. Collectively coauthored by a political theorist, an economist, and two geographers, SOLIDARITY CITIES maps such cooperative networks in three differently sized American cities--NYC, Philadelphia, and Worcester, MA. Drawing on theories of racial capitalism and scholarship on Diverse Economies and Black Geographies, the book analyzes the deeply

entrenched racial and economic urban divides from which cooperative networks emerge as they work to provide unmet basic needs, including food security, affordable housing, access to fair credit, and employment opportunities. The authors highlight how relatively small yet vital interventions into public life can expand into broader movements that help bolster the overall well-being of their surrounding communities. Bringing together insights from political theory, geography, and political economy, with mapping and spatial analysis methodologies, surveys, and in-depth interviews, *"Solidarity Cities"* illuminates the extensive footprints of solidarity economies and the roles they play in communities. The book shows how these initiatives act as bulwarks against gentrification, exploitation, and economic exclusion, even as they can also reproduce underlying divides.

Agnes Bryan, Temple University: *Tree Planting Initiatives through the Community Lens: An Analysis of Survey Results*

Municipalities around the country are planting trees to reduce temperatures, absorb stormwater runoff, beautify public spaces and streets, and address disparities in canopy cover across neighborhoods. Many municipalities rely on civic and community organizations to plant and care for trees in both public and private spaces. As these entities become the primary stewards of their local urban forests, it is important to understand the characteristics and operations of these different groups and organizations. The purpose of this study is to examine how these groups plan to plant and care for trees and engage local communities. We distributed an online survey of 200 organizations in Pennsylvania who participated in a state-wide tree planting initiative to ask questions about tree care and success of the program. We had a 30% response rate, and results indicate factors in which these communities find success, such as planting demonstrations, trainings, and maintenance. For example, the results of the survey indicate that the top three motivations for communities to request trees were to increase shade and provide cooling, to improve the appearance of the community, and to plant in an area that lacked trees. The trees were planted, by 87% of the communities, in a park or arboretum. Most communities relied on paid staff and volunteers for tasks like grant writing, transporting trees, and planting day. The findings from this study identify ways that state programming could better support these groups in growing their local canopy and advancing equitable urban forestry.

Sophia M. Camacho, Hofstra University: *Cultivating Change: Hollenback Garden's Influence on Clinton Hill and the Community Garden Movement*

I have visited the Hollenback Community Garden firsthand to compare ecological changes since its creation in 1979. I conducted a historical analysis of community gardens in predominantly working-class communities of color, focusing on the effects of redlining and the increase in vacant lots. I examined how gentrification in Clinton Hill has shifted gardening practices from collectivist to hobbyist approaches. Additionally, I used the concepts of inside and outside meaning to guide my oral history interviews with current and past gardening members, allowing me to gain their perspectives on what the garden means to them.

Natalie Correa, University of Wisconsin-Madison: *Birds of a Feather: Mapping the Hofstra Bird Sanctuary*

Ever wondered how to make a hand-drawn map that combines art and referenced information? This talk covers my experience creating a hand-drawn map for the first time and advice on how you too can create a hand-drawn map! The Hofstra Bird Sanctuary is a 2-acre NYS DOT rainwater recharge basin that also acts as an educational center and outdoor lab on campus. While there are efforts to increase access and awareness of the bird sanctuary to the Hofstra

community, there are no maps that show the features and help visitors navigate the space. I will cover how to use sketch mapping, drone imagery, ground truthing, and community partnership as tools to build a map that is suited for first time
visitors.

Sonja Dahl, Temple University, and **B. Preston Lyles**, Human Rights Coalition: *Expanding Horizons: Closing Toxic Prisons and a Just Transition*

Since at least the early 2000s, prison abolition and environmental justice movements have worked together on campaigns that focus on the overlap between carceral systems, environmental damage, and human health. Some organizers fighting carceral systems are beginning to consider wider horizons in their struggles to close toxic carceral facilities, through borrowing the concept of "just transition" from climate and environmental movements. In this paper, I build from a larger collaborative research project involving case studies of campaigns that have protested toxic conditions in prisons and used environmental arguments as they sought to close carceral facilities. Grounded in perspectives from Black geographies, abolition geography, and abolition ecologies, I outline the ways in which New York City and California organizers explored visions and practices of a "decarceral just transition." Further building our understanding of what a decarceral just transition can look like, and what stands in the way, helps to widen political possibilities and inform movement strategies.

Michael Davis, Kutztown University of Pennsylvania: Harlan Sanfrancisco: *A Geographical Roleplay Adventure*

Engaging students in a new and innovative ways is essential for a First Year Seminar course. At Kutztown University, faculty are free to use their areas of expertise to acclimate students from high school to university life. My section, Exploring Your World and Others, focuses on learning about the real and fictional worlds from a pop culture perspective. Crafting a geographical module for the freshmen students that pairs roleplaying and geographical education has had good initial success. Moreover, interaction with other students helps to cultivate a closer-knit community and stronger relationships with their peers and the university.

Paying homage to the classic Carmen Sandiego games, in Harlan Sanfrancisco, students work as agents in groups to track down an elusive suspect who has stolen a fictional artifact. Students can mingle for clues with locals, investigate for artifact pieces, verify the accuracy of information received, solve puzzles, or potentially battle the suspect in efforts to apprehend the thief. Through this game, students learn how to communicate with each other, learn about geography, and bond over an interactive game with dice rolling and pencil and paper. An overview of the game, the inspiration behind the module, and student thoughts will be provided.

David Fyfe, York College of Pennsylvania: *Design Thinking and Student-Driven Global Travel Experiences*

Using examples from the Graham Innovation Fellows program at York College of Pennsylvania, this session will highlight program benefits for our scholars community by utilizing Design Thinking to engage in a process of creating their own global learning objectives. This method of empowering students to take the lead in creating their own learning objectives for international travel experiences integrates several high-impact practices and provides faculty with opportunities to learn from how students create desired travel experiences. Examples from the last seven years will show that this method of involving students directly in all aspects of global travel provides meaningful learning opportunities as well as collaborations and partnerships beyond this program.

Nate Gabriel, Rutgers University: *An Experiment in Teaching Critical Digital Geographies*

This paper describes an ongoing teaching experiment in digital geographies for undergraduates. Taking inspiration from critical cartography and software studies, this approach tests the utility of an active learning curriculum in which students design and build software and hardware devices, based on existing devices and of their own design, as a means of examining the disciplinary power of digital technology on everyday spaces. Because the teaching experiment is ongoing, the talk will share preliminary findings related to the challenges and promise of the approach. It also explores future directions for further research in this area.

Marta Gintowt, West Chester University of Pennsylvania: *An Exploratory Analysis of Ukrainian Refugees Resource Needs in Poland*

In late February 2022, the Russian invasion in Ukraine led to a high-magnitude refugee crisis that affected Europe overnight. Over six million refugees—the majority being women, children, and elderly—crossed Ukrainian borders to seek safety, either for the short or long term in bordering countries such as Poland and Hungary to nations even further like Germany and the United Kingdom. As the war continues into 2024 and refugees remain abroad and their needs evolve, it is imperative for government bodies and policy-makers in Europe and beyond to address how to meet the needs of Ukrainian refugees. In Poland, where almost one million Ukrainian refugees have sought temporary protection, there is concern about access to essential, adequate education younger refugees. Through this in-process exploratory analysis that involves quantitative spatial statistics along with applicable qualitative insight, areas of need throughout Poland where Ukrainian refugees need the most resources are sought to be identified.

Kelly Haggerty, Temple University: *Material and Affective Flows Between Discard and Derelict in New Orleans, Louisiana*

Waste is no longer “out of sight out of mind”. Waste has always been, and is now seen as, central to our everyday lives. In the last 15 years, geographers, anthropologists, political scientists, and others have coined the term “discard studies” to examine the political and socioeconomic power dynamics that create injustices, inequalities, and inequities through the lens of waste. Using empirical data from my M.S. at Louisiana State University from 2017-2019 called The Garbage That We Eat: Metabolizing Food-Waste in New Orleans, Louisiana, and taking events that have occurred since – I account for the everyday happenings of discards in New Orleans, Louisiana. A landfill monopolization power scheme, defunding of the New Orleans sanitation department, a labor union waste “hoppers” strike, a global pandemic, the bankruptcy of Metro waste hauling company, Hurricane Zeta and Ida, and roads subsiding throughout this swampy landscape have left waste pick-up and waste management precarious, unstable, and unpredictable in New Orleans. In 2023, following most of these events, a private company (IV Waste) owned by a reality TV star “rescued” the New Orleans waste crisis by replacing the bankrupt public waste hauling company and collecting derelict garbage with their shiny trucks and sleek looks. In this paper, I tell the story of my projected dissertation: 1. the effect of materials slipping out of categories and management flows, and 2. the spatial and political tensions between “public” and “private”.

Sarah Heck, Temple University, and **Chaeri Kim**, Simon Fraser University: *Balancing Water Quality Mandates and Equity: A Comparative Study of Green Infrastructure Implementation*

As urban greening initiatives gain traction, equity has become a critical consideration, particularly in green stormwater infrastructure (GSI) planning. GSI, such as rain gardens and bioswales, is increasingly adopted by cities to manage stormwater and comply with the Clean Water Act. GSI is appealing due to its cost-effectiveness and co-benefits, including improved air

quality, reduced urban heat, and enhanced neighborhood aesthetics. Proponents argue that GSI can rectify the inequitable distribution of green amenities and improve access to decision-making processes by prioritizing investments in underserved communities (GILE, 2021; Mandarano; Meenar, 2017). However, studies reveal that GSI projects often exacerbate existing inequalities, leading to outcomes like infrastructure disinvestment and green gentrification (Heck, 2021; Walker, 2021).

This research investigates whether equity considerations in GSI planning facilitate equitable outcomes. Focusing on Cleveland, OH; Philadelphia, PA; and St. Louis, MO—three post-industrial cities with legal obligations to implement GSI—it examines the incorporation of equity in GSI planning documents (e.g., consent decrees, GSI plans, annual reports) and their implications for equitable outcomes. The study also includes interviews with public sector actors, such as federal and state regulators and local stormwater managers, to capture perspectives not evident in the planning documents. Through this comparative analysis, the research identifies best practices, synergies, and challenges in aligning water quality compliance with equity goals. Ultimately, it emphasizes the need for cross-collaboration between utilities, city departments, stakeholders, and communities to achieve sustainable and equitable water management.

Liana Katz, Rutgers University New Brunswick: *This Is Not a Political Forum: Producing Evidence and the Subject in Municipal Land Use Planning*

Municipal planning boards are a locus of small-scale and, to some degree, publicly accessible decision-making about how land is used in the state of New Jersey. As such, their proceedings are constituted through political struggle. Yet, participants often describe the planning process as structured by apolitical legal frameworks, as “quasi-judicial” in nature. This creates a tension between the imagined space of municipal land use planning and how it plays out on the ground. This presentation draws on over a year of ethnographic research in a community in suburban New Jersey that has been embroiled in a multi-year battle over warehouse construction waged on the floor of the local planning board. Following a group of activists as they make their case against warehouse development, this presentation considers how board meetings are constructed as a “quasi-judicial” legal space that admits only certain forms of participation and evidence presentation. It argues that in order to render themselves and their arguments legible to the planning board, local activists fashion themselves as “citizen experts.” The counterevidence they present, however, reveals intractable gray areas in planning law and a fundamental vagueness inherent in local zoning ordinances. This presentation concludes with a discussion of the potential political openings generated by both public participation in land use planning and the gray areas revealed in the process. Engaging with Kai Bosworth’s concept of “resigned pragmatism,” this presentation questions whether public participation further entrenches the hierarchies embedded within municipal planning boards and how they might be contested by other means.

Paul A Kelley, Independent Scholar, Instructor at Osher Lifelong Learning Institute at Widener University: *A Geographer’s Take on Penn’s Woods*

The name 'Pennsylvania' was inspired by a forested landscape that once covered nearly the entire colonized territory. Surviving several dozen decades of conversion to farmland and development, clearing for timber, and the juggling of interests in the name of conservation and preservation, forests have maintained a central role in the history of the state. Reviewing maps of Pennsylvania's physical and cultural regions, one is struck by a common geographic pattern which highlights the influence of physical landscape processes, but maps of forest communities appear to march to the beat of a different drummer. A closer examination of forest community patterns represented on maps delves into two forest community mapping projects, one led by Jean Fike and

the Pennsylvania Natural Heritage Program; the other, by the Nature Conservancy's Conservation Gateway. The precision mapping of the latter contrasts with the former's mere listing of the ecoregions in which the various forest communities occur. The Nature Conservancy maps suggest some correspondence between certain physiographic regions and certain forest communities, likely based on climatic factors related to elevation. Exploring these maps with patterns that break the mold stimulated intellectual curiosity about regional patterns and their representation.

M. Naser, N. Lessani and **Zhenlong Z Li**, Penn State University: *Enhancing computational efficiency of the similarity and geographically weighted (SGWR) regression model along with its Python package implementation*

SGWR is a spatial regression model that functions similarly to Geographically Weighted Regression (GWR) but incorporates a spatial weight matrix derived from both geographical proximity and data attributes similarity. The integration of these two weights is controlled by a parameter (alpha), which determines their respective contributions to the regression. Optimizing the alpha value was computationally demanding in the previous SGWR model. In this study, we have enhanced the computational efficiency of the model and developed a Python package available in both sequential and parallel versions and demonstrated their code implementation as well in the attached supplementary material. The computational time is improved from two perspectives: modified AICc value calculation and the implementation of Message Passing Interface (MPI). We also developed a GUI tool to improve user access to the new model. Furthermore, a bi-square kernel function is added alongside the Gaussian function to expand the model's flexibility. For comparative analysis, three datasets are selected, and the results demonstrate that the new SGWR model significantly improved the computation efficiency of the model, particularly for larger dataset. For instance, with the Housing dataset containing 21,613 observations, the computation time decreased from 117 minutes to approximately 28 minutes when using a single core, and from 56.4 minutes to just over 11 minutes with six cores for alpha optimization phase. The overall computation time of the model decreased from 64 minutes to around 18 minutes with 6 cores.

Amy J. Lynch, West Chester University, and **Tom Daniels**, University of Pennsylvania: *Forest Connectivity and Land Use Planning in Ten Vermont Timber Towns*

After decades of adding forest cover, many communities in Vermont are now experiencing scattered residential development in forested areas. This development fragments large forest blocks, negatively impacting ecosystem services and threatening Vermont's rural economy. The phenomenon involves two key and related metrics: parcelization and fragmentation. Parcelization, an increase in the number of parcels in a municipality, occurs ahead of development. Fragmentation is a product of development, caused by conversion of land from natural to managed or development land uses. Both are impacted by local land use planning and zoning.

This study uses an existing land parcel database, plan and policy review, and forest connectivity metrics (Fragstats) to examine forest parcelization and fragmentation in Vermont's timber towns and their relationship with local planning actions. Key planning factors include the presence or absence of zoning, residential lot size restrictions, and forest protection plans. This work is ongoing and the results presented here are part of an exploratory analysis of land use planning and forest parcelization and fragmentation in 10 Vermont timber towns. The results include land use policy recommendations that are relevant to municipalities in states like Pennsylvania where rural and urban-rural fringe development can threaten rural resources.

Austin J. Martin, Temple University: *Urban processes and bee diversity: Urban ecology and urban political ecology in dialogue*

Pollinators and bees are facing global population declines, fueling calls for investigating the landscape-level factors influencing spatial patterns in bee diversity. Urban ecologists have shown that cities can be important havens for bee diversity. However, even as an inherently interdisciplinary field, urban ecology's theoretical scope at times remains limited to reductive understandings of urban processes. Here, I cross-examine the concept of the luxury effect in urban ecology, or the observed tendency for urban biodiversity to exhibit positive correlations with household income in a given area. My own empirical data from sampling wild bees in the City of Detroit, Michigan, USA and its suburbs display a negative correlation between bee genus diversity and household income, providing a counterexample to the luxury effect. I outline alternative theoretical foundations in the sub-field of urban political ecology, providing additional context with my recent field work in Philadelphia, PA, USA and Montreal, QC, Canada. Results from the Detroit wild bee study run counter to the luxury effect hypothesis, which calls for a more robust theoretical foundation for understanding of urban socio-ecological systems. One reason for this current lack in explanatory power is that urban ecology's reductive understanding of urban processes does not adequately account for the dimensions of urban land cover change and uneven urban development. A framing of political economic drivers (e.g. the sustainability fix framework) would offer a more robust and complete framework for interpreting urban ecological empirical data and would open more dialogue between urban ecology and urban political ecology.

Cordelia A. Martin-Ikpe, SUNY Binghamton University: *The Granular Landscape of Health Disparities: A Socio-Spatial Examination of Chronic Disease Prevalence within New York City's Community Districts*

This study investigates the relationship between neighborhood Socioeconomic Position (SEP) and the prevalence of hypertension and coronary heart disease (CHD) across New York City's community districts. By using a composite SEP index derived from multiple socioeconomic indicators, the research seeks to uncover health disparities that may be obscured in broader geographic analyses. A primary objective is to identify community districts where hypertension and CHD prevalence is significantly higher than expected, even after adjusting for SEP. This focus helps pinpoint areas where targeted public health interventions may be urgently required, especially when the anticipated inverse relationship between SEP and health outcomes does not hold. A linear mixed-effects model (LMM) was used to analyze the association between SEP and these health outcomes, incorporating both fixed and random effects to account for variation across the city's 59 community districts. The analysis revealed a significant negative association between SEP and both hypertension and CHD, with higher SEP levels generally correlating with lower prevalence rates. However, some districts exhibited high random effects, indicating a higher-than-expected prevalence of these conditions, even after controlling for SEP. The authors suspect that additional factors—such as environmental exposures, healthcare accessibility, or community infrastructure—may contribute to these unexplained disparities. The findings emphasize the need for public health strategies that are sensitive to local contexts and the multifactorial nature of health inequities. Understanding the complex drivers behind these disparities can inform policies aimed at reducing health inequities in diverse urban environments.

Carlos A. Morales-Ramirez, West Chester University: *From Location to Hierarchy: Using Seven Spatial Thinking Concepts to Evaluate Spatial Thinking Abilities*

High levels of spatial thinking skills are pivotal for many disciplines and is the bastion of geographical education. This study measures geography tertiary students' spatial thinking abilities

of seven spatial thinking concepts – location, distance, direction, distribution, pattern, association, and hierarchy – within a biogeographical context with a two-part assessment. The first assessment recorded 72% of the students answering questions on six concepts correctly and the second assessment recorded 61% of the students answering questions on four concepts correctly. A comparison of proportions test was conducted to determine if the change were significant for each spatial thinking concepts. Three tests were performed to analyze positive change, negative change, and overall improvement between the two assessments. Location, distance, distribution, and association all recorded a statistically significant positive change. For the negative change, the concepts of direction and pattern show a statistically significance implying that students recorded more incorrect answers in the second assessment compared to the first assessment. Hierarchy showed no change with the fewer correct answers. Based on these results, to understand and apply the concept of hierarchy, more focus needs to be placed on questions concerning hierarchy towards the end of a students' secondary education and into tertiary education.

Daniel Moscovici, Stockton University: *Ski resort closures in New York State: Is it guaranteed and predictable?*

This research identifies the number of open and closed resorts in every US state and Canadian province and finds that more than half of ski resorts have closed in North America since the building boom of the 1960s and 1970s. Our analysis further analyzes the state of New York. This state has the most existing opened resorts but has also lost more resorts than every other US state or Canadian province. We present a methodological analysis that could lead to a predictive model for ski resort closure (external industry factors omitted). Many of our data points (i.e., elevation, precipitation, temperature, latitude, etc.) are connected to geography and climate change. We believe that more resorts will close in the coming decade in New York, and this could have significant economic and social impacts in very rural areas dependent on this tourism development.

Maya Mueller, Drexel University, **Simi Hoque**, Drexel University, and **Shengao Yi**, University of Pennsylvania: *Community-engaged Machine Learning Models for Sustainable Cities*

This study seeks to advance community-based artificial intelligence (AI) research by engaging the public in machine learning models on green gentrification in a North American city. Artificial intelligence (AI) and machine learning (ML) models are having a profound impact on both urban research and urban service delivery. There is growing evidence of the benefits of AI for sustainable cities and communities, including enhancing productivity, optimizing energy consumption and transport systems, and supporting environmental monitoring. However, there is also evidence of drawbacks, including biased decision making and lack of transparency/explainability and risk of overfitting. Because many ML models are black box, there has been limited opportunity for community or public engagement with this highly disruptive and transformative technology. This study developed a new approach to make AI research inclusive of a diverse public and to center community perspectives in ML models. Our team of geographers and architectural engineers developed analytical and communication methods at the intersection of community geography, urban analytics, and built environment-centered predictive analyses to forecast and map neighborhoods vulnerable to gentrification. We held focus groups with community organizations and residents across the City of Philadelphia to inform our model on how, when, and which urban sustainability programs lead to gentrification outcomes. This study contributes to research on inclusive AI methods and communication skillsets on transdisciplinary research teams.

Gabriela Mundaca, University of Delaware: *The Socio-Ecological Dividends of Peace: a geospatial analysis of the Guatemalan conflict and its aftermath*

It is important to analyze the outcomes of initiating and implementing Peace Agreements because it can help to improve future peace processes and designs of peace agreements that ultimately benefit the parties involved in the conflicts. We analyze the degree by which the initiation of the conflict resolution and the peace accord have resolved the most important economic problems in the post-conflict period in the Guatemalan society, problems that were the main causes for the initiation of the Civil War. Using geographic information system (GIS) methods and econometrics analysis, this paper studies the effect that conflicts and conflicts resolutions have on poverty and agricultural productivity, considering the case of the Civil War of 1960 – 1996 between the Guatemalan government and Guatemalan National Revolutionary Unity (URGN). We compare municipalities, where a majority of indigenous people live, that were most affected by and involved in the conflict with those that were not.

Halé Oal, Rutgers University, **Jesse McLaughlin**, City University of New York, **Eduardo Gallo**, Colorado State University, and **Jenny Isaacs**, Rutgers University: *Birth of a hybrid: Interpreting the History of the Western Hemisphere Shorebird Reserve Network through a political science lens*

The creation of the Western Hemisphere Shorebird Reserve Network (WHSRN) in the 1980s offers lessons for conservation practice and environmental governance scholarship. In its simplest form, WHSRN is an institution, understood as rules that shape human behavior to achieve collective action goals. WHSRN can too be considered as a hybrid institution, spanning various sectors of society and levels of governance, which were primarily described starting in the 1990s. Hence, we argue that WSHRN was an early case of innovative governance for addressing environmental problems across large spatial scales. Drawing on archival data and semi-structured interviews with WHSRN founders, we apply a Historical Institutionalism and International Relations lens to analyze WHSRN' s history. Specifically, we ask: (i) what was the early history of WHSRN?; (ii) what motivated the development of WHSRN?; and (iii) which factors shaped the formality and design of WHSRN? In this study, we unveil how the development of WHSRN was spearheaded by a small, determined group of shorebird biologists and governance entrepreneurs concerned with shorebird survival. We posit that the formality adopted by WHSRN was motivated by mistrust in traditional international environmental agreements amongst governance entrepreneurs. Reanalyzing the history of WHSRN from a political science perspective has the potential to improve understanding of what sparks institution building, explain how institutions take on particular trajectories, and summarize those factors that limit what institutions can achieve.

Gregory A. Pope, Busra Anil, and **Joshua Galster**, Montclair State University: *The Marble Chip Experiment: Adventures in Rock Decay and Field Methods with Students*

The soil environment is the seat of active chemical reactions responsible for rock and mineral decay (weathering). These processes take place over hundreds or thousands of years. We sought a means to measure rock decay in an accelerated and quantifiable way in real-time soil environments, associated with our summer field methods course.

We deployed packets of marble rock chips, held in mesh bags, buried ~20 cm in soil, for ~1 year, weighed before and after. For comparison and control, we also deployed similarly sized basalt rock chips. Marble (calcite) was expected to be rapidly soluble in acidic soils, while basalt (Mg/Fe silicate) much less so. With the help of undergraduate students in a field-methods class, we deployed the samples May/June 2023 in the Bonsal Wildlife Preserve in Montclair, New Jersey. Seven of nine samples were retrieved by June 2024.

The experiment was successful and deemed feasible for future investigation. The greatest difficulty involved relocating the buried samples, demonstrating the need for detailed, accurate field notes. One basalt sample was unretrieved under a felled tree, and one marble sample could not be located. All five retrieved marble samples had measurable mass loss, -0.6 to -1.1%/yr, mostly solutional but partially fine granular loss. Both basalt samples gained mass slightly, +0.2 to +0.5%/yr, possibly due to mineral hydration or oxidation. Experiments such as this can detail the local variations in factors that are important controls on rock decay.

Gabrielle E. Reagan, Temple University: *Geographies of Pleasure: Prioritizing Pleasure in the Food-Body-Environment Nexus*

Our current food system as inefficient, inequitable and climate-damaging adversely affects the individual body—or what Adrienne Rich defines as "the geography closest in" (Rich 1984:2003 p.30). While efforts to create a more sustainable food system are underway, they often neglect issues of equity and access to pleasurable food experiences.

Additionally, research at the intersection of food, bodies and health predominantly centers on the issue of obesity, framed as a "disease" and its scale an "epidemic". Recent developments in weight-loss drugs, particularly those under the umbrella of "Ozempic," promise a future where obesity is eradicated. By manipulating bodily systems, such drugs alter feelings of fullness and satiation, disrupting usual dynamics of food experiences such as taste and pleasure.

In prioritizing pleasure over thinness, this research places itself at the thorny crossroads of contested areas of study including critical health geographies; political ecology of the body; and food studies. At a time when society appears to be too busy to feel, this work brings a lens of pleasure to the field of geography introducing the concept of "geographies of pleasure". Through the lens of Ozempic, this work asks particularly geographic questions: how and why is pleasure important—materially and politically—to individual and collective wellbeing and why is it not prioritized by those at the center of food-body-environment interventions? As such, it proposes to deepen our collective understanding of micro and macro scales of pleasure and their connection to individual and collective wellbeing, exploring the compatibility of pleasure with bodily and environmental health.

Grant Saff, Hofstra University: *Planned versus lived space: The case of Plaça dels Àngels in Barcelona*.

The focus of the presentation is the contradictions between the design and the use of a public square (Plaça dels Àngels) that is adjacent to the Museum of Modern Art (MACBA) in the downtown Barcelona neighborhood of El Raval. The presentation considers the contradictions between the visions of policymakers and the lived reality of the space, especially how the policymakers have used the development of prestige projects as an attempt to gentrify the area.

This includes the recent negotiation and adaptations that have occurred around the proposed MACBA extension project. The presentation makes substantial use of visual documentation (maps, photographs) to highlight the conflict between the planners' vision, residents needs, and the way others (primarily skateboarders and tourists) appropriate the space for their own use. The presentation argues that the long-term temporal observation of a space provides insights that are often missed when gathering information from texts, planning documents, interviews, and/or short-term field work.

Reeya Shah, Temple University: *Architectural Development and Environmental Intersections in Norris Square, Philadelphia*

This study examines the process and impacts of gentrification on the built environment in a North Philadelphia neighborhood from 2008-2020. Currently, the majority of spatial research on urban gentrification and developments within the natural green environment are calculated at the census tract level. Disparities within and among neighborhoods cannot be identified based on this this coarse spatial scale, and very few studies show granular assessment of changes in the built environment. To assess property changes, we implement Google Street View (GSV) imagery from 2008 to 2023 to engage in manual and machine learning audits to assess and compare urban changes in the Norris Square neighborhood of Philadelphia, Pennsylvania. This novel method allows for a fine-scale perspective on changes to the built environment with gentrification based on clear criteria of decay, maintenance, and contemporary design. The results suggest a varying scale of architectural change based on individual properties, as well as community-based structures whose urban design mimics that of contemporary branding. These alterations demonstrate new property construction's divergence from historical brick-design housing structures. This study contributes to our understanding of housing developments in relation to the natural green environment and its urban density. The residential analysis permits our future consideration for green developments in conjunction to property construction.

Katrinka Somdahl, Rowan University, and **Darren Purcell**, University of Oklahoma: *The Geopolitical Codes of Late Night Comedy*

Late-night comedy, while often humorous and entertaining, can serve as a powerful tool for shaping public understanding of geopolitical issues. By employing stereotypes, caricatures, and real-world events, comedians can craft jokes that resonate with audiences while subtly reinforcing specific geopolitical narratives. While these jokes may seem lighthearted, they can have a profound impact on viewers' perceptions of nations, leaders, and international relations. As research has shown, late-night comedy can influence political campaigns, shape public opinion, and even contribute to the creation of a "us versus them" dichotomy. Therefore, it is essential to critically analyze the geopolitical implications of late-night humor and recognize its potential to both inform and misinform the public. This paper will lay out how the theories of humor interact with the formation of geopolitical codes to produce the kinds of jokes seen in late night monologues.

Kaitlin Stewart, West Virginia University: *The Global Movement to Community Sponsorship: What Does it Mean for the Future of Refugee Resettlement?*

In a period of increased numbers of forcibly displaced people resulting from intensified global conflicts, many nations are referring to the current period as a refugee "crisis". Yet, this crisis is not only one of volume but one of political will. In the face of higher numbers of refugees and asylum seekers, many of the voluntary signatories of the United Nation's 1951 Convention and 1967 Protocol on Refugees have decreased their level of support for refugee resettlement while increasing their border externalization efforts. This has led to disinvestment in refugee services, causing a retrenchment of the welfare state. Following Canada's example, which started in 1979, one global response to the loss of support for state-led refugee resettlement is the community sponsorship of refugees. In these programs, regular citizens apply, raise funds, undergo training, and ultimately facilitate the resettlement of refugees in their city. While each country has a different minimum number of months of support, the United States only requires community sponsorship groups to assist their refugees for three months. Currently, 18 countries have either begun or have pledged to start a community sponsorship program, with the Community

Sponsorship Hub hoping to encourage more. This paper examines the trend towards community sponsorship in the last decade, how national governments write policies for community sponsorship programs, and what the impact of a movement towards the privatization of the refugee resettlement system might be.

Luke Taliaferro Riddick, Poly Prep Country Day School, **Megan Heckert**, West Chester University: *Batter Up: On Equity and Access to Youth Baseball in New York City*

Baseball is known as America's pastime because of all the great history and the little effort it took to play. But today, baseball has become one of the hardest and most expensive sports to play. 100 years ago, it was very common to see kids in the street playing stickball or playing baseball in the park. These occurrences have decreased dramatically in part because of the rising cost of baseball but also because of the lack of playing spaces for many kids. This paper will discuss a research project to explore questions of equity in access to baseball fields around New York City. One dimension of access to consider is the ease with which people can access these fields and the overall distance from their homes to these fields. Using the locations of New York's publicly accessible playing fields, this project asks which New York City youth are and are not able to access baseball fields.

Connor R. Walker and **Victoria Moreira**, West Chester University of Pennsylvania: *Using SWAT to model the impacts of a severe weather event in the Brandywine watershed*

The Soil & Water Assessment Tool (SWAT) is a watershed model that has applications in land management, land use impact analysis, and historical flood modeling. QSWAT+ is a version of the SWAT model that runs in QGIS. Using QSWAT+, we have created a SWAT model of the Brandywine watershed during the Hurricane Ida storm event, which impacted Pennsylvania in August and September of 2021. The model can represent variables relating to watershed hydrology and water chemistry. This presentation aims to showcase the capabilities and drawbacks of the SWAT model for flood research, as well as the potential for modeling the impact of severe weather events within watersheds.

Suiyuan Wang, The State University of New York at Buffalo: *Continuous monitoring of impervious surfaces based on PlanetScope time series*

Accurately monitoring impervious surfaces (IS) has an important effect on both environment and human well-being. This study presents an effective two-stage approach for continuous monitoring IS change in high spatial-temporal resolution. The first step is to carry out the mask by detecting areas that are temporally persistent or irrelevant land cover changes with IS, using U-Net CNN. In the second step, we perform a per-pixel time-series analysis-based method, Continuous Change Detection (CCD), for the change areas to detect when IS and non-IS have transferred. The results demonstrate our approach performs well in IS detection (OA = 0.96), locating changing areas (OA = 0.94) and timing (OA= 0.77). Two major conclusions are summarized. First, spatial masking of stable areas can exclude persistent land covers or irrelevant changes, saving computing workload about four times for time series model calculation. Second, CCD with four bands of PlanetScope imagery can monitor IS changes.

Julia L. Williams, West Chester University: *The Emergency Management Solutions Application*

While severe weather events are becoming increasingly prevalent in the modern day due to climate change, civilians need a way to understand and assess their situation faster than ever. I have built an Emergency Management Solutions Application for Chester County, which would give civilians an opportunity to visualize real-time weather data, see the current resources available,

and access those resources within the county to help with relief. This solution was built as part of the Brandywine Watershed student collaboration at West Chester University. From the conception of the project to building a Hub, Dashboard, and Storymap, this presentation demonstrates the Solutions application, how it was created, and how it can help civilians during a disaster.

Julia Williams, and **Ariel S. Whaley**, West Chester University: *Brandywine Hub*

The Brandywine Hub is a class project created by the undergraduate and graduate students of the class Environmental Applications in GIS at West Chester University. Students were tasked with creating various resources using ArcGIS Online applications and solutions to further local organization the Brandywine Conservancy's public outreach efforts during their Brandywine Flood Study. In September 2021, Chester County and Delaware residents were devastated by Hurricane Ida. The Brandywine Conservancy led the study as a response to the major flooding seen during this event. The resources in this hub pool together ideas linked to this study and bring them together in one place for easy access. Join this presentation to explore the data and understand how the Geography and Planning Department of West Chester University furthers the conservation efforts in the region.

Richard L. Wolfel, **Amy R. Richmond**, and **Christiana Fairfield**, US Military Academy West Point, **Rick Grannis**, Dept of Sociology University of California Irvine, and **Peter J. Grazaitis**, US Army Combat Capabilities Development Command Analysis Center: *Fragile Stability: The Impact of Geopolitical Interests and Environmental Security on Burkina Faso's Political Landscape*

The Sahel region continues to experience political instability. This instability is occurring alongside a growing geopolitical interest in the area, as well as worsening conflicts often compounded by climate change and the overuse and misuse of the land. The rise of geopolitics and environmental insecurity has significantly influenced the political development of the Sahel region's countries.

This paper uses the Modeling Dense Urban Networks (MDUN) analytical model to identify the critical economic, geographical, and political influences on the local population's sentiment in Burkina Faso. Burkina Faso is a region that faces significant societal vulnerability due to economic inequalities, regional instability resulting from the ongoing conflict in the Sahel, substantial environmental challenges, and a long-standing lack of trust in the government and the former colonial power, France. Climate change acts as a threat multiplier, exacerbating the existing issues. The internal factors of instability had a significant impact on the two military coups that took place in Burkina Faso in 2022. In addition to the internal factors of instability, Burkina Faso is an area of intense competition between several global powers. These powers try to manipulate societal opinion around the local vulnerability issues to promote their influence in Burkina Faso while undermining their rivals. This paper concludes with a discussion of how the Political Ecology framework helps explain the complex interrelationship between environmental security, geopolitics, and local political development.

Poster Abstracts

Shibbir Ahammad, Binghamton University: *Exploring Urban Greenery and its' Impact on Heat*

Over the last ten years, Rochester, the fourth-largest city in New York State, has faced notable changes in its green spaces and urban heat patterns, a challenge exacerbated by its large industrial and commercial presence. This poster investigates the spatial distribution of greenspace within Rochester, with a focus on the Center City District (CCD), residential and industrial areas. This study further examines greenness distribution around the city, as measured by high spatial resolution imagery and the Normalized Difference Vegetation Index (NDVI), based on demographic factors such as income group, age, education and race at a U.S. Census block group scale. Landsat-based Land Surface Temperature (LST) reveals that the spatial distribution of greenspace influences urban heat patterns and that intersects with sociodemographic characteristics. Greenness helps to lower LST, but industrial, commercial, and CDD have less vegetation and higher LSTs than residential and undeveloped areas, with the results also emphasizing the need for more greenery in minority and low-income communities. Such detailed understandings are essential for supporting evidence-based urban planning in Rochester, helping policymakers to formulate targeted solutions that optimize the distribution of green spaces, promoting environmental sustainability and social equity.

Sharmin Akter, Binghamton University: *Accessibility And Functionality of Cooling Centers to Vulnerable Communities Across Binghamton*

Cooling Centers (CCs) are increasingly vital due to the rise in extreme heat events driven by global climate change. However, most recent studies adopt a non-critical approach overlooking key factors, treating all CCs as equally effective despite significant variations in accessibility and functionality. This study develops a methodology to assess CC effectiveness using publicly available data and reexamines Binghamton, NY's vulnerability to extreme heat. Primary data was collected via phone calls to gather information on CC capacity, cooling efficiency, and inclusiveness, while secondary data was used to evaluate transport accessibility and operating hours. The analysis considered both socially and temperature-vulnerable communities. Results reveal that 10 out of 24 listed CCs are parks and pools, which lack key features of ideal CCs, such as cooling efficiency, public amenities (restrooms, seating), and access to emergency services. While indoor CCs are spatially located near vulnerable areas, they only serve an estimated 27.23% of the population within a 10-minute walk radius. Only four CCs have satisfactory capacity and amenities, but they remain far from core vulnerable areas and are largely inaccessible on foot. Additionally, most of the CCs in the county are closed on weekends, creating temporal gaps in service. The absence of air conditioning or backup power in some centers further limits their functionality. To address these challenges, immediate steps should focus on establishing new CCs in underserved areas and improving the efficiency of existing centers. Public-private partnerships could be an effective strategy to expand CC capacity and meet community needs.

Md Awual Baksh, Binghamton University: *Environmental Valuation of Land Cover Changes in Rajshahi Metropolitan Area : Integrated approach of GIS, Remote Sensing and CVM*

Urban growth is a global phenomenon, but its pace is particularly rapid in developing countries, often leading to unplanned expansion. Land, a critical asset, undergoes significant transformation due to urbanization, resulting in environmental changes. This shift, largely driven by human activity, alters the physical and biological characteristics of the land. Bangladesh, one of the world's most densely populated countries, exemplifies this trend. In the Rajshahi Metropolitan Area (RMA), rapid urban growth has led to substantial land use changes over recent decades, impacting natural resources such as water bodies, vegetation, and agricultural land. This study

analyzes land use changes in RMA between 1995 and 2015, using multi-temporal Landsat Thematic Mapper data and Remote Sensing techniques within a Geographic Information Systems (GIS) framework. It also assesses the environmental cost of these changes through the Contingent Valuation Method (CVM). Households in RMA were surveyed to determine their willingness to pay (WTP) for preserving threatened natural resources, particularly water bodies. Results show that water bodies are the most affected land resource, with approximately 60% of households willing to contribute financially to their conservation. Factors such as income, literacy, and direct involvement with water bodies significantly influence this willingness to pay. The study provides valuable insights for urban planners, offering essential data on urbanization patterns in Rajshahi. It highlights the need for sustainable urban management and informs decision-makers about potential public support for future conservation projects aimed at protecting natural resources in the RMA.

Renata Blumberg, Montclair State University, **Cara Cuite**, Rutgers University, **Jaclyn Didonato**, NJFDC, **Sara Elnakib**, Rutgers University, and **Ricardo Kairios**, Rutgers University: *Cultivating Place-Based Research in Food Systems at the Science-Policy Interface*

As the climate crisis continues to worsen, scholars, activists and policy-makers have called for stronger engagement mechanisms to shape the science-policy interface. Given the significance of the food system's impact on climate change, food and nutrition-related policies are often considered vital to mitigating the effects of climate change and achieving sustainable development more broadly. In the United States, food policy councils have been created to foster collaborative engagement in policy-making from across diverse sectors of the food system. Although food policy councils have been the focus of research studies attempting to ascertain their strengths and achievements, as well as their weaknesses, less research has focused on how food policy councils are creating spaces to shape the science-policy interface. This poster will present the on-going activities and processes of the Research Working Group of New Jersey's food policy council, the NJ Food Democracy Collaborative, as it works to systematically gather and integrate research related to sustainable food systems and community food security in NJ. Given this example, we show how food policy councils could provide the space for a science-policy interface that could foster dynamic relationships within and beyond the academy.

Aleyana G Boothe, Hofstra University: *Are outdoor environmental education opportunities a privilege in Long Island?*

Nature-based education has a positive impact on children's understanding of scientific concepts and their relationship with nature. However, socioeconomic factors can act as a barrier to equal access for such opportunities for children. I wanted to develop a greater understanding of the distribution of schools and nature preserves in Long Island to assess whether areas of nonwhite and low-income communities would have less opportunities for environmental education. As schools can facilitate access to nature preserves for environmental education, I observed the location of Long Island schools and nature preserves as they were found in different school districts consisting of potential environmental justice areas (PEJAs). The total area of PEJAs was used to determine school districts that mostly consist of low income and nonwhite communities. The average distance from a school to a nature preserve was similar in schools located in a PEJA compared to those that were not. However, across school districts that mostly consisted of PEJAs there are fewer nature preserves located in these school districts (at most one per district). As a result of this study, I plan to create an interactive map for use by schools or individuals of the different environmental education opportunities available for youth in Long Island.

Jaylin Calistro, Michael Davis, Kutztown University: *Intensification and Evolution of Nor'easters affecting the New England Region, 2000 to 2020*

Understanding what allows Nor'easters to intensify will give weather forecasters and the general population the ability to better predict the intensity of a Nor'easter event. Better forecasts save lives and money. The goal of this research is to better understand exactly how different variables impact and cause Nor'easters to intensify. The variables that will be focused on in this study are maximum and minimum temperature, rainfall and snowfall amount, sea level pressure, and the North Atlantic Oscillation Index. This data is collected from 10 separate Nor'easter events in New England between the years of 2000 and 2020. Five of the events occurred between 2000 and 2010, and then the other five occurred between 2011 and 2020. For each event, data is collected from two days prior, during and then two days after the Nor'easter event. Through the use of various statistical analyses using these variables we hope to better understand what causes Nor'easters to intensify.

James Colella, MacArthur High School*: Students' Perceptions of Digital Place Compared to Their Perceptions of Physical Places*

With the increasing prevalence of social media among the youth in America, coupled with the importance of feeling a strong sense of place to an individual's local community, it is crucial to examine the growing differences between adolescents and their perceptions of the two. By using specific terms that describe the subcomponents of sense of place, this study aims to address and compare the differences in adolescent perceptions of both social media as a digital place and their local town or community as a set of physical places. A 5-point Likert-Scale survey was utilized and modeled after past literature to measure sense of place. After being administered to one high school and 300 students, the results indicated that both females and upperclassmen had a stronger digital sense of place to males and underclassmen who had a stronger physical sense of place. These results fundamentally display the growing divide amongst the youth towards focusing attention on social media as a much more prevalent component to day-to-day life as it directly competes with attention focused on the local community.

Bryan Collins, SUNY Oneonta: *Agent-Based Modeling to Explore Social, Economic, And Environmental Links Within the North Carolina Poultry Industry*

Scholars and educators in agricultural studies face changing paradigms moving toward system-wide studies. Complex issues often involve quantitative and qualitative approaches, and it is difficult to access or acquire user-friendly tools that integrate both approaches. Agent-based modeling offers a unique supplement to more conventional system-wide modeling frameworks. The benefits of using agent-based models include flexibilities of generating micro-level assumptions to approximate macro-level activities and outcomes, and the comprehensive integration between quantitative and qualitative analyses. We are using agent-based models to simulate the North Carolina poultry industry by exploring interactions between relevant actors within the industry, such as the farmers, retailers, and consumers. We are also designing the model to run scenario analysis, by examining how modifying the parameters of the model or introducing new interventions into the model effects the poultry system. Two agent-based modeling programs have been used thus far in this research, NetLogo and Repast, each providing different positive and negative aspects to their use. NetLogo offers simplicity at the expense of modeling complexity and was used as a starting point for model development, while Repast offers complexity at the expense of simplicity and has been selected for running targeted scenario analysis. Once the Repast model is fully developed, the research will focus on how the model can

discover insights into improving the sustainability of the poultry industry, by targeting socio-economic and environmental linkages.

Valerie Davidheiser, and **Michael Davis**, Kutztown University: *The Influence of Climate Change on Dew Point Temperatures in Pennsylvania*

Climate change has been a growing concern for many professionals in varying fields, as it has the potential to influence not only temperatures, but also natural disasters, precipitation, the economy, and human health. This research aims to explore the relationships between dew point, temperature, and precipitation within the Northeastern United States, specifically Pennsylvania. Dew point, temperature, and precipitation data for a climate summer (June-August), from 1990-2020, was analyzed from several weather stations located across the state, aiming to identify any potential trends. This research is of considerable importance for Pennsylvania, as it is a state sensitive to flooding and its hazards. Through understanding how climate change is altering dew point, and therefore precipitation, we are better able to prepare for the future risks associated with a warming atmosphere.

Oscar DeGus, MacArthur High School: *High School Adolescents' Perceptions of Gap Years as an Alternative Enrollment Option Post Graduation*

An increase in the number of students taking gap years before postsecondary education has corresponded with research discussing the factors that predict such gap-taking. Studies have established high school as a significant crossroads within adolescents' academic pathways, however, there is a dearth of research directly analyzing high school adolescents' perceptions of gap years based on their school experiences so far. Thus, this study aimed to determine the association between high school students' demographic and academic characteristics and experiences, and their perceptions of taking a gap year as an alternative enrollment option postgraduation. Surveys were distributed to a suburban middle class high school population to collect demographic and academic student data and compare it to their responses to Likert-scale statements regarding schooling and gap years. Various statistical tests measured differences between which factors influence student gap-taking. Certain economic backgrounds differed significantly in their perceptions, and academic expectations, college orientation, and curriculum were shown to be significant influences as well. Data regarding gender, grade level, and parental education differed markedly from previous studies analyzing college students. These findings present implications for student well-being following high school graduation, and for the efforts of college, private, and government gap year organizations.

Maya J. Feinstein, and **Xinfeng Liang**, University of Delaware: *Vertical Motions in the Southern Ocean*

Vertical motions (upwelling and downwelling) play an essential role in the vertical transport of oceanic properties and materials. While past studies have reported intense upwelling and downwelling in the Southern Ocean, a comprehensive analysis dedicated to these vertical motions in the Southern Ocean remains to be accomplished. Here, we analyze vertical velocity estimates in the Southern Ocean from the ocean synthesis product ECCOv4, focusing on its spatial and temporal variability. We find that intense downwelling and significant temporal variations occur around Antarctica due to deep water formation. Other large temporal variations are observed near bathymetric features (e.g., Campbell Plateau). We also find that near the Drake Passage, the abyssal layer exhibits the fastest upwelling compared to shallower layers, indicating topographic-related upwelling. Additionally, in the upwelling region of 60-65°S, 115-120°E, there is an increasing upwelling speed trend between 2000 and 2005. Meanwhile, a nearby downwelling region at 47-

52°S, 115-120°E, shows a decreasing downwelling speed trend during the same period. These results reveal strong interannual variations in oceanic vertical motions in the Southern Ocean. Future work will investigate the possible connections between oceanic vertical motions and interannual variability (e.g., Southern Annular Mode), annual variability (e.g., Antarctic ozone hole), and anthropogenic effects (e.g., climate change).

Ava Fitzgerald, Temple University: *Chasing Cool Air: A walkability assessment of cooling centers in Philadelphia*

As global temperatures continue to rise each year, the occurrence of heat-related illnesses is escalating, emphasizing the need for public policies that guarantee equitable access to cooling resources for vulnerable groups, such as the elderly. This study evaluates the effectiveness of Philadelphia's cooling centers in terms of accessibility and functionality within heat-vulnerable neighborhoods. Central air access reports were analyzed using R coding software and compared to the placement of cooling centers with the Heat Vulnerability Index created by the City of Philadelphia. Following CDC recommendations, a walkability assessment using GIS identified half-mile accessible areas for heat-vulnerable populations. The quality of cooling centers was surveyed to identify barriers to accessibility. Results indicated that 24.4% of the city's elderly population and 29.1% of the elderly population in poverty were within a walkable distance to a cooling center. While cooling centers are typically placed in high-density areas, covering most of the population, some heat-vulnerable neighborhoods remain outside walkable boundaries. Future policy-making should consider a mixed intervention of providing homes with air conditioning units as well as community cooling centers. To improve effectiveness, cities should invest in resources at centers like community pantries, fridges, and water-bottle stations, which would better support heat-vulnerable populations by addressing both cooling and basic needs, ultimately enhancing access and resilience.

Erin H. Foley, and **Michael A. Davis**, Kutztown University of Pennsylvania: *Average Seasonal Trends in Climate in Contiguous USA*

Climate varies spatially and temporally, and both mechanisms of variation develop simultaneously, but there is still an ability to group and categorize similar behavior in the form of regions and regimes. Years of climate data can be used to differentiate different climate regions using Principal Component Analysis on loadings for individual climate divisions across the USA, and these can be assessed with regime shift to indicate when different patterns occur. In the context of acute analysis, agriculture, and climate change, the availability of these seasonal regions and their tendencies is crucial. Variables explored include the PDSI and temperature, and these are sourced from the NOAA Monthly U.S. Climate Divisional Database. Regions are only within the contiguous United States of America and addressed according to separate seasons, differentiated by months. This work is intended to build upon previously published research by processing more recent data.

John Gross, Jevaughnie Beadle, and **Doug Gallaway**, Farmingdale State College: *Developing Interactive Web Applications For Small Local Cemeteries - A Long Island Case Study*

This project seeks to develop a framework for interactive web applications using ArcGIS Online, Experience Builder, and Survey 123 with a focus on cemeteries that lack traditional GIS infrastructure and databases. Specifically this project used ArcGIS Online and drone technologies to generate a basemap and initial grave locations for a small (<450 grave) local cemetery in Nassau County Long Island. These datasets were populated with initial information and integrated

into an experience builder application and survey 123 survey to allow users to search the dataset and add additional photos and other information.

Md Farhan Ishrak, and **Shibbir Ahammad**, SUNY- Binghamton*: Assessing Public Transit Accessibility and Equity in Johnson City, NY: A Spatial Analysis of Socioeconomic Disparities*

In urban transportation planning, improving accessibility and ensuring equity in transit services are crucial for sustainable development. This study assesses public transit accessibility and equity across 18 block groups in five census tracts (e.g. 138, 139, 140, 141, 142) of Johnson City, Broome County, New York. The accessibility index was developed using two key parameters: access road density and the ratio of bus stop service area to block group area. The service area for each bus stop was defined as a 400-meter walking distance along road networks, representing an approximate 5-minute walk. A composite index combining these metrics provides a comprehensive assessment of transit accessibility. Equity was assessed by comparing composite accessibility indices with block group median household incomes and population densities, utilizing Lorenz curves and Gini coefficients.

The result shows, block groups within Census Tract 142 have poor public transit accessibility, with Block Group 2 having an index of 0, indicating no bus stop in the block group. The equity analysis reveals a Gini coefficient of 0.32 for median income and 0.31 for population density, indicating moderate overall equity. However, it highlights disparities, few block groups with high accessibility have high median incomes and low population densities, while few other block groups with low or moderate accessibility tend to have lower median incomes and higher population densities. This study emphasizes the need for equitable transit planning, recommending future interventions focus on underserved populations to foster a more inclusive and balanced transit system in Johnson City.

Preston T. Long, Binghamton University: *Ar-Raqqa, Syria, a Cradle of Civilization Plagued by Conflict*

Ar-Raqqa, Syria is located on the Euphrates River, more commonly known as one of the cradles of civilization. The Euphrates River still feeds the area's agriculture and water and dams in Syria are located along the Euphrates River. Syria’s neighbor, Turkey, has constructed dams across Turkey, including the Euphrates River. These constructions have led to significant tension between Turkey and Syria as the flows coming from the Euphrates River into Syria are now directly controlled by Turkey. Despite diplomatic agreements, reports show that Syria has not been getting the agreed amounts of water.

Since the advent of the Arab Spring in 2011, Syria has been engaged in internal conflict with Syrian Democratic Forces, Pro-Assad forces, and the Islamic State all fighting within and around Syria's border. The city of Ar-Raqqa itself has found itself in the center of this, being the capital of the Islamic State until its liberation by Syrian Democratic forces in 2017.

Throughout all of this, Raqqa’s agriculture has remained. Farmers have remained in Raqqa, continuously growing and harvesting under ISIS occupation, civil war, and water shortages. The purpose of the study and its corresponding poster will be to look at the existent agriculture in and surrounding Ar-Raqqa and observe the changes over a while to see how the above factors have influenced the area. The poster itself will be a summary of the collected literature which lays out the issue as well as imagery which will assist in giving visual aids to the issue.

Nicholas D. Lucchetto, Hofstra University: *Geographies of Weather, Buses, and the Commutes of New Yorkers in Queens*

New York City experiences many extreme flooding events. One of the worst occurred on September 29, 2023, when 9.8 inches of rain fell in a single day. For the low-elevation borough of Queens, where 52% of people rely on public transit, the burdens of flooding are worsened by sparse subways and stranded cars. Therefore, buses are a critical mobility and safety tool during a weather emergency in Queens. This study looks at how flooding affects New York City bus performance and infrastructure, by incorporating metrics like bus delay data, precipitation records, and 311 reports. This study helps uncover how—and where—a multi-faceted climate event affects the daily life of Queens residents and how NYC buses keep on rolling amid our climate crisis.

Genevieve McCormick, Hofstra University*: Subdividing Historic Bergen County*

To see how the historic municipalities within Bergen County, New Jersey, have undergone property subdivision or the lack of subdivision since 1876. The poster is based on the A.H. Walker Atlas of Bergen County from 1876 and the specific maps of three municipalities: Oradell, Westwood, and Demarest. Municipalities were explicitly chosen to see how subdivisions occurred in municipalities with varying average property sale prices. Additionally, to observe how parcels changed through the 148 years since the atlas was published and the physical landscapes of the municipalities. Not only have parcels changed over the 148 years since the atlas was published, but the physical landscapes of the municipalities have changed. It was noted during this research that the atlas was distorted due to the technology available during the creation of the atlas. With advanced technology today, correcting that distortion through georectification perfectly is only partially possible by creating more distortion.

Alana M McKeon, Binghamton University: *The Hidden Cost of Cloud Computing: Mapping the Environmental Footprint of Major U.S. Data Centers*

The rapid expansion of cloud computing has led to the development of large-scale data centers across the United States, primarily operated by companies such as Amazon, Meta, IBM, Google, and Microsoft. These data centers require significant energy output, potentially exacerbating local heating and air quality degradation. This study employs spatial autocorrelation techniques to analyze and map the geographical distribution of these data centers, examining their concentration in key areas. Furthermore, by overlaying air quality and temperature data from the surrounding regions, this study will investigate whether the energy-demanding nature of these facilities intensifies urban heat islands and contributes to poorer air quality in their vicinity. As the demand for data centers continues to grow, understanding their long-term environmental footprint is crucial for shaping policies that mitigate their impact on the local environment and public health. Highlighting the need for innovations in energy efficiency and cooling technologies to minimize the ecological and atmospheric consequences of data center operations is vital in supporting the big data movement that drives innovation in our modern computing systems.

Dakota J Overland, United States Military Academy: *Airborne Surveying Degraded: Using Small Unmanned Aerial Systems (Suas) To Assess Helicopter Landing Zone Suitability In A Gnss Denied Environment*

As a cost-effective way to rapidly acquire accurate spatial data, small unmanned aerial system (sUAS) technology is proliferating across the emergency first response, disaster recovery, and military related industries. Each of these require obstacle-free Helicopter Landing Zones (HLZs) to move critical personnel and equipment to and from sensitive areas. In this study sUAS are used to identify obstacles in HLZs by the capture of airborne imagery in Fort Carson, Colorado using a SkyDio X2D quadcopter with a 12-megapixel RGB camera payload. Two flights were

conducted at approximately 60m and 120m above ground level (AGL) yielding a GSD of 2.0cm and 5.6cm respectively. With this flight data Digital Elevation Models (DEMs) were created, which enabled obstacle height calculations. Obstacle height data is generated twice and compared to terrestrial lidar data to assess accuracy: first using direct georeferencing (geotagging images with onboard GNSS), then rescaling non-geotagged point cloud data using objects of known dimensions in the study area. It is found that rescaling point clouds in lieu of geotagged images is a viable method for assessing obstacle presence in an area; however, the increase in uncertainty raises questions about the precision and accuracy of this method.

Estrella R. Pacheco, Haverford College: *Geographies of (Il)legality and Immigrant Disaster Vulnerability in Sonoma County, CA*

Why do we always have to be resilient? Using Sonoma County wildfires as a case study, this paper examines the socio-ecological implications of disaster planning for the Latine, indigenous, immigrant, and undocumented communities, and explores the bottom-up reactionary response of the community through place-based organizations. I argue that these spaces, often created through processes of placemaking, and commonly understood to be physical manifestations of community imaginaries, also serve the purpose of mitigating the effects of illegality, exploitation, and neo-liberal neglect by creating culturally competent social infrastructure. These infrastructures can then be activated towards culturally competent disaster response and resilience processes, as an expansion of their existing practices. Using Rob Nixon's definition of disaster as a form of slow-violence– not grounded in a singular temporal moment– I position the social vulnerability faced by these communities as part of a broader continuum of structural violence. This vulnerability necessitates the development of remedial social infrastructures which are activated not only in disaster but also in everyday contexts of socio-political marginalization. Through ethnographic research, I explore how place-based, Latine community social infrastructure is activated in disaster and non-disaster contexts by offering alternative pathways toward long-term, transformative resilience. I posit that these grassroots processes operate in parallel to mainstream disaster planning due to fundamental distinctions in definitions of resilience, and thus challenge top-down approaches providing a model for inclusive, community-centered resilience frameworks. By highlighting these alternative processes, this poster contributes to broader discussions on resilience and the socio-political dimensions of disaster preparedness.

Steven Schnell, Kutztown University: *Place as Palimpsest: Building Deep Maps in Comics and Graphic Novels*

The idea of a "deep map," coined by William Least Heat-Moon, refers to an extended engagement with a particular place, rendering a portrait of place far richer than any single two-dimensional map. In graphic novels, a number of creators have made place itself the central subject of their works, creating, in essence, deep maps. This poster examines Richard Here and Chris Ware's "*Building Stories*", and numerous of Will Eisner's works including "*A Contract with God and other Tenement Stories, The Building, A Life Force,* and *Dropsie Avenue*", all of which examine particular places over time as successive waves of people and their experiences wash over them. Unmoored from temporal narrative altogether, or even linear reading in some cases, these works explore the power of place, meaning, and memory.

Thabo I. Sebobi, Binghamton University: *Structures of Power and Health: A Political Ecology of Approach to Understanding HIV Prevalence and Interventions in Botswana*

Twenty years after Botswana's first case of HIV, over 37% of the adult population was living with the disease. Currently, HIV prevalence in Botswana has declined to 20.8%, the third highest of

any country. Through the use of free distribution of Antiretroviral Therapy (ART) and pre-natal care programs that prevent mother-to-child transmission (PMTCT), Botswana has seen a dramatic decline in HIV incidence. Despite this, women in Botswana continue to bear the brunt of the disease. Women and young girls are 4 times more likely to have HIV in Botswana than their male counterparts. This study, therefore, uses a Political Ecology (PE) of health framework to argue that women in Botswana have not been the main beneficiaries of HIV prevention programs. Using data from the Botswana AIDS Impact Survey (BAIS), this research analyzes the spatial- temporal trends in HIV prevalence and incidence in Botswana between 2001 and 2021, looking at changes across districts by gender. Those changes are then explained using discourse analysis and existing literature about the political, economic, and cultural factors at play in each district. Unlike the bulk of previous HIV research in Botswana, this research examines structural forces shaping HIV patterns, rather than seeking to explain the epidemic in terms of the individual characteristics of those infected. Specifically, this research considers the PEPFAR program, sponsored by the US government, as a case study to examine how failure to acknowledge the structural factors impacting the spread of HIV limits the efficacy of an intervention.

Justin A Shade, Cordelia Martin-Ikpe, Molly Moran, and **Titilayo Okoror**, Binghamton University: *Understanding Hospitalizations and Sickle Cell: Demographic Trends*

Sickle cell disease (SCD) is a hereditary disorder in which red blood cells (RBCs) become rigid and sickle-shaped, leading to vaso-occlusive crises, severe pain, and potential health complications such as necrosis. SCD represents a significant global health burden, particularly in regions with high prevalence, such as East Africa, India, and the Middle East. In the United States, SCD affects an estimated 100,000 people, and about 1 in 13 Black or African American babies is born with sickle cell trait (SCT), the inheritance of a sickle cell gene from one parent. SCD is more common in California and the American South, especially in states like Georgia, North Carolina, and Alabama.

Little is known about potential disparities in SCD-related hospitalizations between pediatric and adult patients across different racial groups and baseline health statuses. To address these gaps, this study aims to evaluate differences in hospitalization rates across various demographic and clinical subgroups. Data was sourced from the Medical Expenditure Panel Survey (MEPS) via the Integrated Public Use Microdata Series (IPUMS) Health Survey database. Patients were categorized by race, age (children vs. adults), general health status, and gender, and hospitalization outcomes were compared. Chi-square tests were used to determine whether hospitalization rates varied across the subgroups.

Connor R Walker, West Chester University of Pennsylvania: *Community Centric Urban Planning - An Assessment of West Chester Borough as a 15-Minute City*

The 15-minute city is defined as, “An urban set-up where locals are able to access all of their basic essentials at distances that would not take them more than 15 min by foot or by bicycle” (Moreno et al., 2021). The borough of West Chester has unique qualities that align with principles of the 15-minute city (i.e., density and variety of services). This research takes a pedestrian approach focused on equity and accessibility to assess West Chester borough as a 15-minute city.

The 15-minute city consists of six social functions: living, working, commerce, education, healthcare, and entertainment. The model used in this study breaks down each function into factors where applicable. Four “scenario zones” were then chosen throughout the borough with the scenario based off the town center acting as the control group. Then utilizing these scenario zones, each was assessed as to whether they do or do not fulfill each of the social functions against a 15-minute city rubric. Two out of four assessed zones met the benchmark score, to be

considered 15-minute, all four neighborhoods must reach the benchmark to consider West Chester borough as fitting the parameters of the 15-minute city. West Chester does not fit the model of a 15-minute city. While it is unsurprising a town with ~20,000 residents does not meet the model of a 15-minute city, a deeper dive into the results provides insight on quality-of-life, equity, and accessibility throughout the borough and its communities.