
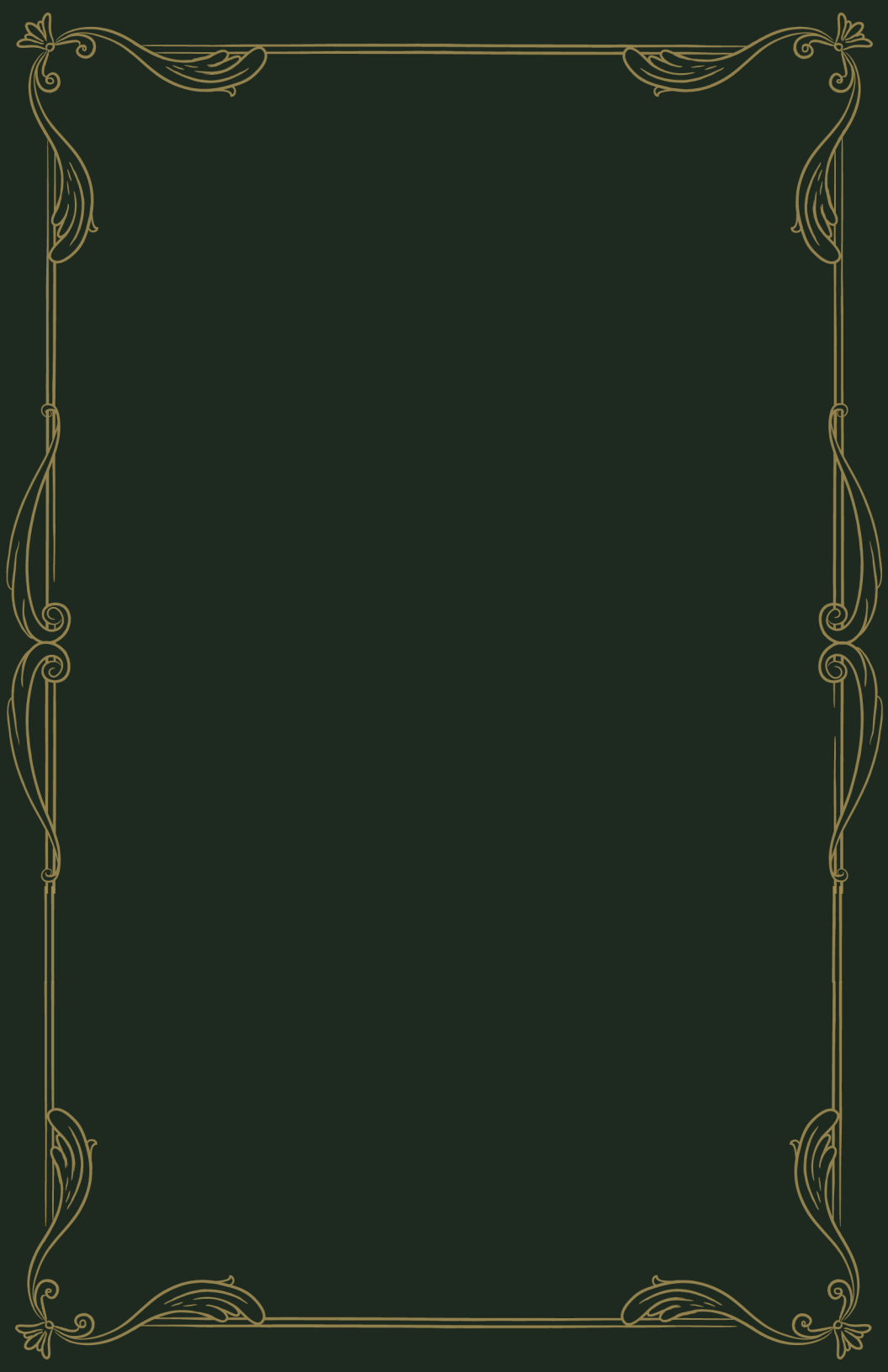


BU Arvind & Chandan Nandlal Kilachand Honors College
13th Annual Symposium

Tapestry.
the fabric of inquiry

Saturday, April 25, 2026
9 AM - 5 PM

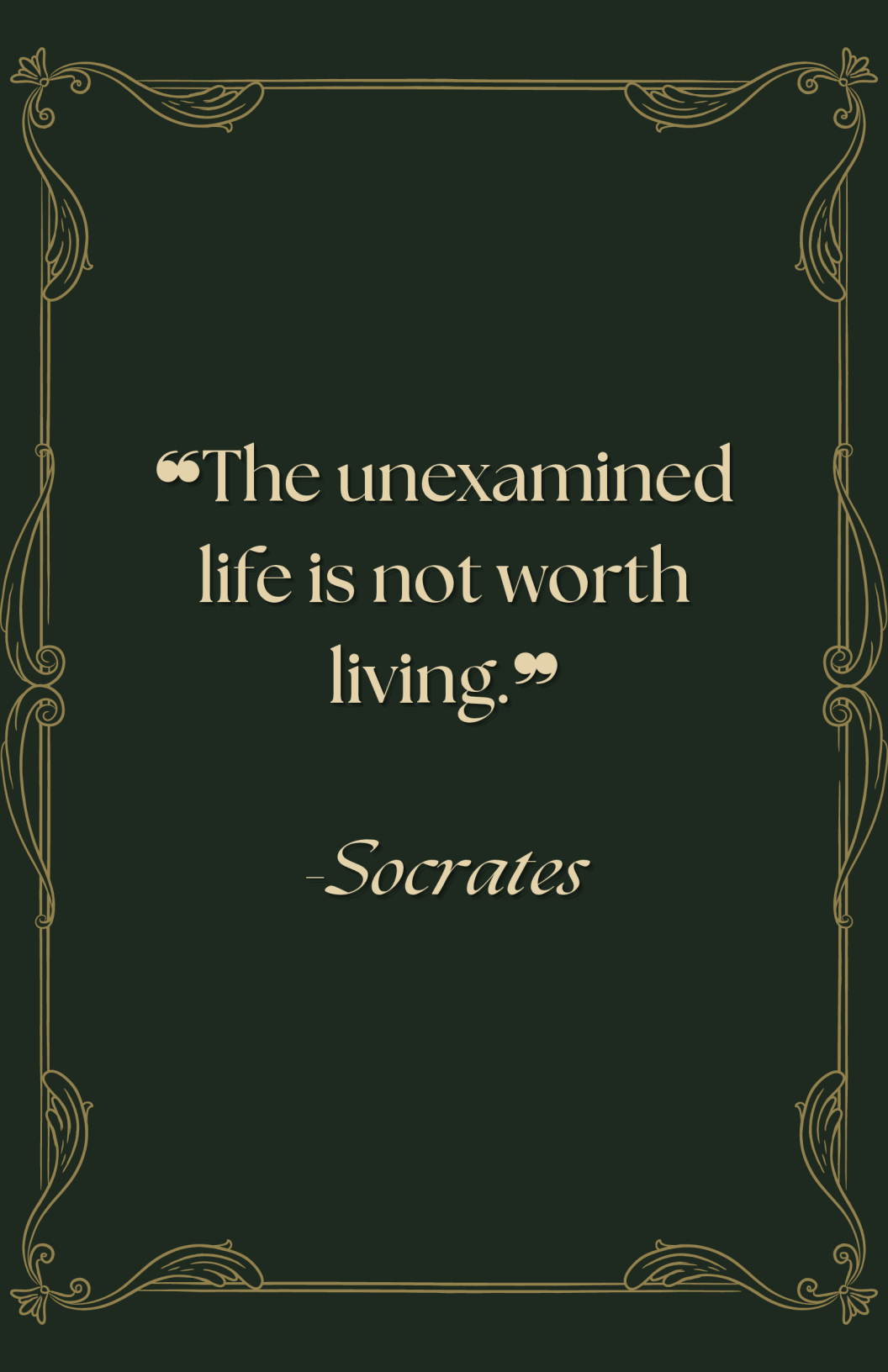






WELCOME!

Welcome to the 13th Annual Kilachand
Honors College Keystone Symposium!
We hope you enjoy today's exploration
of inquiry.



“The unexamined
life is not worth
living.”

-Socrates

MORNING SCHEDULE

9:00 AM **OPENING REMARKS**

9:15 AM **POSTER INTROS (ROOM 613A)**

9:45 AM **POSTER DISCUSSIONS**

5TH FLOOR LOBBY

Xiao Chuan (Ophelia) You

Ayomide Egbejoda

Venessa Odera

Shravya Tathineni

6TH FLOOR LOBBY

Christen Williams

Jueshan Ji

Kylee Liabeuf

Kiara Waller

Nopphavit Pungeng

transition to oral presentations

Room 545A

Room 545B

Room 613A

Room 613B

10:15 AM Isabella Castillo

Dylan Gozdziwski
& Erin Mosier

Ed Driscoll

Sofia Corso

10:30 AM Karim W. Barake

Rebecca Smith

Ethan Wanner

10:45 AM Jude Kotob

Isabella LeBlanc

Caitlyn Bains

Dylan List

11:00 AM Pranjali Kumar

Gabby Church

Tristan Hou

Mikaela Higgs

11:15 AM Sydney Aslan

Julia Tran

Zach Roisman

Liv Scappa

11:30 AM Jessica Laman

Sean Bryant

Alessandra María
Lanz

Claire Sarnowski

11:45 AM Maria Belen
Ordoñez

Sierra Koerber-
Marx

Anjali Byju

Will Stride

12:00 PM **BREAK FOR LUNCH**

AFTERNOON SCHEDULE

Room 545A

Room 545B

Room 613A

Room 613B

1:00 PM	Catherine Knox	Chaney Finkeldei & Jonathan Sim	Katrina McCarthy	Alina Keshodkar
1:15 PM	Thomas Larsen		Lauren Bell	Kyra Karolyn Odoi
1:30 PM	Susan Shobeiri	Oliver Pratt	Autumn Bachofen	Ishtiyaq Shajahan
1:45 PM	Maya Wiisanen	Ryan Lin	Cynthia Lin	Saanvi Thakur
2:00 PM	Cady Stanton Messimer	Alessia Jones	Warishah Qandil	Sarah Cadet
2:15 PM	Rohan Dupaguntla	Rafael Dovarganes	Teresa Popovic Markola	Leila Elayan
2:30 PM	Shreeya Khullar	Emily Hamer	Marty Tumey	Andy Asante
2:45 PM	Ranely Henriquez	Kaylin Torres	Caliana Samer Kanaan	Al Sutherland

3:00 PM

BREAK FOR SNACK

Room 545A

Room 545B

Room 613A

Room 613B

3:30 PM	Perna Shankar	Nikolai Rodrigues	Poppy Livingstone	Joseph Tudisco
3:45 PM	Lucille Meyer	Adriana Carlota Leyba Macedo	Sabrina Wong	Sasha Greenhall
4:00 PM	Jasmine Lee	Zoe Solberg	Berit Schaus	Anna Rubenstein
4:15 PM	Bella Candalaria Moreno Enriquez	Rysen Hirata- Epstein	Anjali Amin	Meghan McGrody
4:30 PM	Cavelle Simpson	Jules Trager		

4:45 PM

CLOSING REMARKS (ROOM 613A)

5:00 PM

COCKTAIL RECEPTION

*Join us for refreshments and a good time on the 9th Floor of Kilachand Hall!
Open to Kilachand Seniors, their families, Advisors, and Kilachand Faculty & Staff*



POSTER ABSTRACTS

(organized alphabetically by last name)



From Early Intervention to School: Exploring Gaps in Healthcare Support for Children with Communication Disabilities

Ayomide Egbejoda

Sargent, Human Physiology

Advised by Michelle Stransky, Assistant Professor, Chobanian & Avedisian SOM

The transition from elementary to middle school is a critical period for children with communication disabilities because they face increased social and academic demands. Communication disabilities affect a person's ability to speak, understand, or use (non)verbal cues like their peers. While healthcare providers often assess communication during early childhood (before age 6), there are no standards for tracking communication once youth enter school. Many children with communication disabilities are also discharged from special education during this transition when they appear to "catch up" to their classmates.

This study explores parental perceptions of the adequacy and continuity of communication-related healthcare services and documentation during the transition from elementary to middle school.

Using a mixed method approach, I recruited parents of children ages 11-13 with documented communication disabilities at Boston Medical Center. Semi-structured interviews were conducted with eight parents of middle school-aged children virtually. Interviews were transcribed and analyzed for themes.

Two themes emerged. First, parents emphasized the importance of healthcare providers maintaining up-to-date records of their child's communication skills to ensure effective care. Second, participants noted clinicians were largely uninvolved in tracking communication progress, leaving teachers as the primary source for updating on developmental milestones.

These findings highlight a gap in care continuity during a vulnerable developmental period. Addressing the disconnect between clinical documentation and school-based support can help healthcare professionals and educators promote a collaborative, longitudinal approach to disability care. Strengthening relationships between families, teachers, and clinicians may ensure children with communication disabilities receive consistent support while navigating middle school.



A Modular Framework for Cell Type Annotation in Spatial Transcriptomics: Early Implementation in Pancreatic Neuroendocrine Tumors

Jueshan Ji

CAS, Computer Science

Advised by Ruben Dries, Assistant Professor, Chobanian & Avedisian SOM: Hematology & Medical Oncology

Spatial transcriptomics provides a powerful approach for studying the tumor microenvironment (TME), enabling the simultaneous profiling of gene expression and spatial organization across diverse cell populations within intact tissue sections. However, achieving robust, reproducible cell type annotations in spatially resolved datasets remains an open challenge. Toward the goal of a fully automated, high-confidence cell type classification framework, this thesis presents the design and early implementation of a modular annotation pipeline for pancreatic neuroendocrine tumor (panNET) Xenium spatial transcriptomics data. The pipeline integrates marker-informed scoring, spatial context-aware filtering, neighborhood-based consistency assessment, and classification within a series of interchangeable components, ultimately configurable to suit different datasets and analytical priorities. Users will be able to select which pipeline components to use and swap classification strategies without altering the broader workflow. The end goal is a generalizable, user-configurable system that leverages state-of-the-art machine learning approaches and reference datasets to produce consistent, robust annotations across samples and experimental conditions. While the implementation presented here represents an early prototype and substantial development lies ahead, the work establishes the conceptual and computational foundation for that goal, demonstrating a principled approach to one of the field's methodological challenges.



City Councils: Size, Electoral System, and Representation Since 1970

Kylee Liabeuf

CAS, Political Science

Advised by Maxwell Palmer, Associate Professor of Political Science, CAS

City and local governments are citizens' first point of contact with government. City government influences the services and amenities residents get, how these services are distributed, where residents are able to live by restricting zoning, and more. However, the way in which city councils are elected varies widely from city to city. Some cities elect councilors at-large, meaning that every resident votes for every city councilor. Research has shown that at-large elections fail to effectively represent the interests of vulnerable minority communities within cities. Other cities use district elections, which may provide better representation to minority communities. While the populations of many cities have grown substantially over the past fifty years, few cities have increased the size of their city councils, and there is wide variation in council size across cities.

This thesis will analyze the 50 most populous cities in 2020's city council sizes data from the 1970s onwards to show how councils are changing at an institutional level. I find that city councils shifted from at-large districts to single-member districts or a hybrid structure with single-member and at-large districts, but few cities substantially changed the size of their city councils. Overall, city government has been shifting to represent its citizens in a more fair and equitable way even if this method is just through institutional change.

The Weight of the Vote

Venessa Odera

CAS, Political Science

Advised by Rachel Meade, Senior Lecturer in Political Science, CAS

This thesis examines how restrictive voting systems shape the emotional experience of political participation among college students in Texas. While youth disengagement is often attributed to apathy, this project argues that participation is structured by institutional conditions that introduce procedural complexity, uncertainty, and risk. Disengagement may therefore reflect responses to repeated interactions with demanding and uncertain administrative systems.

Building on scholarship on institutional inequality and emotional politics, this thesis introduces the concept of artificial electoral stagnation to describe how administrative friction suppresses political development without formally denying access to the ballot. Using a mixed-methods design, the study combines a survey of Texas-eligible college students with semi-structured interviews.

Findings show that administrative complexity shapes not only access but also how participation is experienced and sustained. Emotional responses, including anxiety, confusion, and pride, affect political efficacy, institutional trust, and future participation, suggesting that youth disengagement is an adaptive response to institutional design.



State Ownership and Green Innovation in China

Nopphavit Punpeng

Questrom, Business Administration- *Finance and Information Systems*
Advised by Nalin Kulatilaka, Wing Tat Lee Family Professor of Management and Professor of Finance, Questrom

This project examines how ownership structure shapes green innovation outcomes in China, with a particular focus on the electric vehicle industry. As China continues to dominate global EV production, accounting for roughly 70% of vehicles produced worldwide in 2024, understanding the role of state-owned enterprises (SOEs), private firms, and mixed-ownership structures in driving this success has become increasingly relevant.

Through a comprehensive literature review and applied case study, this project investigates whether state ownership enhances or undermines green innovation. The evidence reveals a nuanced picture: SOEs invest significantly more in R&D and produce a greater quantity and quality of green patents, yet often convert that spending less efficiently than private firms. The most effective outcomes emerge at moderate levels of state involvement, consistent with an inverted-U relationship between ownership and innovation output.

The EV case study applies the Chinese Model of Technology Leapfrogging to show how coordinated government policy — through subsidies, national development plans, and regulatory targets — enabled Chinese firms at all levels of the ownership spectrum to achieve global leadership in battery technology and large-scale manufacturing. By contrast, American private firms like Tesla excel in disruptive innovation but operate with considerably less institutional support.

At the Symposium, this presentation will focus specifically on the EV case study and the China-US comparison, demonstrating how institutional alignment between government goals and firm incentives, rather than ownership type alone, is the primary driver of successful green innovation.

Investigating ASD and ADHD Comorbidity: A Score and Imaging Analysis

Shravya Tathineni

CAS, Neuroscience

*Advised by Arash Yazdanbakhsh, Research Assistant Professor,
CAS: Department of Psychological & Brain Sciences*

Autism Spectrum Disorder (ASD) is a developmental disability characterized by significant differences in chemistry and connectivity within the brain. ASD is diagnosed through comprehensive behavioral evaluations, developmental monitoring, and standardized tools, one of the most used and validated tests being the Autism Diagnostic Observation Schedule (ADOS). As of 2022, ASD impacts on average 1 in every 31 8-year-old children in the United States, 3.2% of the 8-year-old population. Over 80% of this population presents with at least one comorbid condition, most notably Attention-Deficit/Hyperactivity Disorder (ADHD). ASD and ADHD frequently co-occur, yet the basis of this double diagnosis remains poorly understood with their overlapping clinical symptoms often masking the underlying neurobiology. The goal of this project is to illustrate the relationship between the ADHD comorbidity, imaging, and diagnostic test scores. My project analyzes the differences between ASD and ASD comorbid with ADHD presentation by using a surface based morphometry model. Structural magnetic resonance imaging (MRI) differences are analyzed and compared with data from ADOS, an ASD diagnostic test, in order to explore possible correlations, causations, and neurobiological bases. It is expected that the subjects with comorbid ADHD and ASD will have brain differences which correlate to higher scores on certain subsections of ADOS and a higher overall ASD severity diagnosis.



Classrooms of Critical Care: An Exploration of Black Teacher Memory Work

Kiara Waller

Wheelock, Education & Human Development

Advised by Mary Battenfeld, Clinical Professor of American Studies, CAS

The impact of Black educators in the U.S. has often been overlooked, especially regarding their historic presence in the field and their expertise in culturally sustaining pedagogical work. In actuality, Black teachers have engaged in anti-racist and social justice-oriented practices before there was terminology to name it as such, and African-American communities have valued educational attainment long before they had a legal right to do so. Carrying forward the memory work of Black scholars such as Jarvis Givens, Imani Perry, and Michele Foster, I aimed to amplify the voices and stories of Black educators across generations through a multi-modal exploration of their experiences not only as classroom leaders but also as students within classrooms. Over the past year, I've conducted semi-structured interviews with current and former educators, policymakers, and system changemakers in the field, explored existing Black teacher archives, and conducted deep dives into books by and about Black educators dating back to the 1800s. It has been fascinating to engage with Black educators and their theoretical work over time. As an aspiring Black teacher descending from a long line of ancestors who engaged in the critical work of educating and pouring into their students and communities, this project seeks to honor their legacy while inspiring and supporting future generations of Black educators by centralizing all the work I've done on an interactive website with archival work, interview recordings, and community resources for Black educators. By documenting these stories and resources, this project transforms historical memory into a living tool for the next generation of Black teachers to lead, resist, and thrive.

Stigma and Help-Seeking Barriers: Mental Health Resource Utilization among Boston University Students

Christen Williams

Sargent, Behavior & Health

Advised by Sophie Godley, Clinical Associate Professor of Public Health, SPH; Associate Director of Kilachand Honors College

Mental health can impact college students' academic performance and social engagement. Although mental health services are becoming increasingly destigmatized, barriers to help-seeking still exist due to social and personal stigma, negative perceptions of healthcare, and limited awareness of available resources. Healthy Minds, a nationwide study assessing the trajectory of college students' mental health, provides insight into these barriers by measuring stigma, resource utilization, and knowledge of campus services. This project uses Healthy Minds to examine trends in mental health resource utilization on Boston University's campus by understanding student satisfaction with current resources, perceptions of those resources, and common barriers to help-seeking, including time, location, and high perceived stigma. Correlational analyses were conducted to evaluate these relationships, which indicate that higher levels of personal and perceived stigma are associated with lower likelihoods of seeking support, finding resources helpful, and reduced satisfaction with the quality of those resources. By analyzing these trends and comparing them with programs implemented at universities similar to Boston University, this project provides recommendations to decrease stigma and improve help-seeking behaviors among college students. These findings aim to improve the overall mental health outcomes of BU students so that mental health challenges do not hinder them from finding a community and thriving in college.



Dirichlet's Theorem on Primes in Arithmetic Progressions by L-Functions

Xiao Chuan (Ophelia) You

CAS, Mathematics and English

Advised by David Rohrlich, Professor of Mathematics and Statistics, CAS; Director of Graduate Studies

Understanding the distribution of primes has been a central problem in number theory since the work of Euler and Gauss. For instance, Dirichlet's Theorem on primes in arithmetic progressions states that for a positive integer N and another positive integer a relatively prime to N , there are infinitely many primes p congruent to a modulo N , i.e. $p \equiv a \pmod{N}$. First proved by Johann Peter Gustav Lejeune Dirichlet in 1837, this result represented a major milestone in number theory. His work is often regarded as the beginning of analytic number theory. This project develops the theory of Dirichlet characters χ , including their group structures and orthogonality relations, and Dirichlet L-functions $L(s, \chi)$, which are constructed as Dirichlet series with Euler product expansions to reflect the multiplicative structure of primes. Their analytic properties are studied in the region $\Re(s) > 1$ for $s \in \mathbb{C}$, addressing issues like convergence and logarithmic expansions. Proving that $L(s, \chi) \neq 0$ for nontrivial characters χ ensures that primes are distributed across all such arithmetic progressions.



PRESENTATION ABSTRACTS

(organized by Room & Time)



Civic (Dis)Engagement: Political Cynicism, Short-Form Media, and Youth Political Participation

Isabella Castillo

CAS, Political Science

Advised by Rachel Meade, Senior Lecturer in Political Science, CAS

Rapid transformations in digital media have fundamentally reshaped how individuals encounter, interpret, and engage with politics. Public discourse consistently frames Generation Z as either politically apathetic or passively susceptible to online influence. This is a characterization that this project argues is empirically insufficient and analytically counterproductive. Drawing on political sociology, platform studies, media effects, and social movement theory, this study reframes Gen Z political cynicism not as a civic deficit but as an affective orientation: a structurally grounded, collective recognition of institutional inequity capable of coexisting with, and in some contexts activating, civic engagement.

This project employs comparative critical discourse analysis across three TikTok accounts representing distinct discursive registers to analyze how young people actively engage with and interpret political content. Ultimately, this paper contends that the relationship between short-form political content and youth civic engagement is conditioned by structural position and emotional framing. Short-form political media can simultaneously reinforce distrust and foster new avenues for civic participation, highlighting the complexity of youth political engagement in the digital age.

Lola



Dylan Gozdziwski & Erin Mosier

COM, Film & Television

Advised by Maura Smith, Master Lecturer in Film, COM

Lola is a short narrative film that follows Carter, a young man who, after discovering remnants of his late uncle Kenny's life as a drag performer, begins to piece together a version of himself he had never thought to explore. Through his relationship with Marco, Kenny's former drag partner, Carter is introduced to a history of drag that is at once vibrant, communal, and deeply marked by loss.

As he uncovers Kenny's legacy, Carter is forced to confront questions of identity, and the ways queer histories are passed down, remembered, or forgotten. His journey ultimately culminates in his decision to perform for the first time on the final night of a historic drag bar.

At its core, Lola explores queer lineage and self-discovery through performance, asking what it means to find yourself in a history that was never fully shared with you. The film is particularly interested in drag not only as an art form, but as a site of memory and transformation.

This film was produced through the Production III course in the Boston University College of Communication, with additional support from the Kilachand Honors College. It was shot over seven production days with a cast and crew of approximately fifty collaborators. As both a creative and academic project, Lola reflects our broader interest in storytelling that bridges personal identity, performance, and queer cultural history.



The Issue of the Patriarchal Power Contract: Masculinity's Relationship to Young Men's Political Behavior in the United States

Ed Driscoll

CAS, Sociology

Advised by Sophie Godley, Clinical Associate Professor of Public Health, SPH; Associate Director of Kilachand Honors College

Political Behavior in the United States has become increasingly polarized. Many young people are feeling disillusioned with the system, and move to radically charged positions. This paper reports on research that explores how young men's conceptions of masculinity, and how it impacts their perceived place in society, result in a marked shift to political apathy and anti-establishment leanings. A combination of qualitative interviews were conducted with five men aged 20-24 over the course of eight months, along with extensive review of literature surrounding gender-theory and the current American neoliberal system in relation to economic power provide a comprehensive analysis of the new crisis of masculinity. Findings in interviews and literary analysis show that young men reported feeling of political apathy, lack of community, and left behind in current society. These feelings combined with increased usage of social media, increased social isolation, and a lack of traditional means of establishing positive male communities leads to reactive toxic behavior such as misogyny and homophobia. In response, both short and long term solutions are discussed to help young men express gender in a way that is healthy. This paper examines alternative frameworks for rebuilding a healthy masculinity to foster a generation of men who are not threatened but empowered by progressive change.

Say It Ain't So: Weezer's Loser Rock and Incel Angst

Sofia Corso

CAS, English

Advised by Tesla Cariani, Lecturer in Women's, Gender, and Sexuality Studies, CAS

My keystone project employs lyrical analysis, music history, and pop-cultural critique to examine the alternative American rock band Weezer and the “loser” masculinity that defines its iconography and discography. The project situates the band against the parallel history of incel subcultures, tracing how Weezer’s art and incel communities emerge from the same emotional starting point: male rejection, frustration, and desire. My research challenges the association between Weezer’s music and this online culture.

While Weezer’s music can be aptly characterized as “loser rock,” it is not incel rock. Rather than reinforcing novel ideology, the band’s lyrics undermine it. My project argues this point through three primary claims. First, Weezer destabilizes hegemonic masculinity by foregrounding emotional vulnerability, insecurity, and self-doubt, in contrast to incel discourse, which often upholds entitlement and rigid gender norms. Second, the band’s lyrics subvert Jane Ward’s “masculinity paradox,” a framework that incel culture epitomizes. Third, Weezer’s speakers exhibit an internal locus of control, confronting rejection introspectively rather than externalizing blame or cultivating resentment.

Although both Weezer’s music and incel culture originate from male loneliness and alienation, they diverge sharply in form and consequence: one produces self-reflective, cathartic art, while the other fosters extremism. This distinction underscores how cultural frameworks shape gendered emotional expression and can either reinforce or challenge harmful models of masculinity.

Alongside the written paper, I am creating a complementary zine that translates these ideas into a visually engaging, pop-cultural format. For my symposium presentation, I will share select close reading examples and zine excerpts, but will primarily articulate my central argument verbally.



School-Based Pediatric Vision Screening Program in Lebanon: A Clustered Cross-Sectional Prevalence and Penetration Study

Karim W. Barake

Sargent, Human Physiology

Advised by Muhammad Zaman, HHMI Professor of Biomedical Engineering, ENG; Director of Center on Forced Displacement

School-based vision screening is a critical strategy for identifying pediatric visual impairment in underserved populations. This study is part of a broader effort to evaluate scalable, digitally enabled screening models for public school children in Lebanon, where no government-led eye health program currently exists and legal restrictions limit optometric access for children under 12. The focus of this project was to estimate the prevalence of suspected vision problems among public school students, assess how successfully the program reached its target population, and evaluate real-world implementation across two crisis-affected schools. It will also discuss the operational constraints encountered during delivery and their implications for national scale-up. The screening program demonstrated strong feasibility across both school sites despite significant logistical challenges. Overall, 21.4% of the 790 students screened met the referral criterion of 20/40 vision or worse in at least one eye, a substantial burden of unmet visual need. These results highlight both the epidemiological case for expanding school eye health screening within Lebanon's public education system and offer a replicable model for other low-resource settings seeking to close the pediatric vision care gap.



Death by a Thousand Cuts: Addressing Inequality in Access to Civilian Bleeding Control Training

Rebecca Smith

CAS, Biology

Advised by Sophie Godley, Clinical Associate Professor of Public Health, SPH; Associate Director of Kilachand Honors College

Stop the Bleed is an official training overseen by the American College of Surgeons to help decrease the number of deaths caused by uncontrolled bleeding, the largest cause of preventable death from trauma in the US. Its intention is to spread life-saving information to bystanders nation-wide so they can intervene in the case of a bleeding emergency. It's been proven that the class increases bystander confidence and improves patient outcomes, but is this life-saving knowledge really being spread equally? The answer is NO, with most classes being held in places (and languages) only accessible to certain populations. But why does this matter? The unfortunate truth is that depending on factors like language proficiencies and community infrastructure, some groups are more vulnerable to preventable bleeding death. The earlier that these patients are treated, the better their outcome.

Given that Stop the Bleed's efficacy has already been proven, I chose to do an outreach project rather than further research. The aim of this project was to take a step, however small, to narrow the equity gap by teaching classes to vulnerable groups in local communities. To do this, I partnered with Roca, a non-profit that works with young people at the center of urban violence. Here I got the opportunity to teach Stop the Bleed classes to groups of participants from Boston and Chelsea. Over the course of my project I trained and was certified as a Stop the Bleed instructor, coordinated with organizations, gained access to materials, and finally taught classes and set goals for the future. Initial results show that participants gained confidence in their ability to intervene in emergency situations. Future plans include expanding the program to additional groups and new locations.



Room 613 A, 10:30 AM




Biomarker Discovery for Acupuncture Response in Gulf War Illness: a Proteomics Approach

Ethan Wanner

CAS, Biology- Cell Biology, Molecular Biology & Genetics

Advised by Trevor Siggers, Associate Professor of Biology, CAS

Gulf War Illness (GWI) affects over 200,000 veterans of the 1990-1991 Persian Gulf War, yet its cause is still unknown and there is no cure or standard treatment. Acupuncture – given its efficacy in treating chronic pain and other symptoms that overlap with GWI – was previously tested in a cohort of GWI patients. The data from this 2012 clinical trial, including patient-reported outcomes and blood-based proteomics, was available for analysis in the present study. Results show that acupuncture effectiveness varied considerably among patients, with symptoms drastically improving in some and worsening in others. This study also investigated whether acupuncture induced biological changes in patients and if these changes correlated with their symptoms. In short, biological underpinnings would help legitimize a 3,000 year old traditional Chinese practice, while the lack thereof would testify to the power of the placebo effect and the ritual of medicine itself. Additionally, this study explored the possibility of a biological signature that could predict a patient's response to acupuncture ahead of time – the definition of personalized medicine. And, as a final aim, the biological data was interrogated for insights on the pathophysiology of GWI, revealing inflammation as a primary driver of disease severity. Future directions for GWI research and treatment are also discussed.



Antimicrobial Resistance and Infection Patterns Across the Darién Gap: A Systematic Review of Migrant Health and Cross-Border Transmission

Jude Kotob

CAS, Biochemistry & Molecular Biology

Advised by Muhammad Zaman, HHMI Professor of Biomedical Engineering, ENG; Director of Center on Forced Displacement

Antimicrobial resistance (AMR) represents a growing global public health threat, disproportionately affecting regions with strained healthcare infrastructure and vulnerable populations. In Latin America, large-scale migration flows, particularly involving displaced Venezuelan populations, may contribute to unique patterns of AMR through disrupted access to healthcare, inconsistent antibiotic use, overcrowded living conditions, and increased exposure to resistant pathogens. Despite the significant public health implications, the extent to which migrant populations are represented in AMR research across the region remains unclear. This systematic review aims to evaluate the current evidence on AMR among migrant populations in Latin America, with a focus on the geographic distribution of studies, pathogens investigated, and the methodological approaches used to characterize migrant status and resistance outcomes. The aim of this review is to study the difference in AMR and infection rates on either side of the Darién Gap. Travel through the Darién has increased by over 400% since 2019, with the route being used not only by Latin American migrants but also by asylum seekers from Asia and Africa. This dramatic rise in transcontinental migration has introduced complex public health challenges, including the potential transmission and dissemination of antimicrobial-resistant pathogens across borders. Conditions associated with migration through the Darién Gap, such as prolonged exposure to unsanitary environments, limited access to medical care, interrupted treatment courses, and overcrowded temporary settlements—may contribute to increased infection risk and selective pressure for resistant organisms. This systematic review examines existing evidence on AMR prevalence and infection patterns among populations on either side of the Darién corridor, aiming to identify differences in resistance trends, key pathogens of concern, and gaps in current surveillance efforts.



Pan-Africanism in Practice and the Future of Alliances: The Alliance of Sahel States, Anti-Colonial Sentiment, and Navigating African Sovereignty

Isabella LeBlanc

Pardee, International Relations; CAS, Political Science

Advised by Zachary Mondesire, Assistant Professor of International Relations, Pardee

The Alliance of Sahel States (AES) represents one of the most significant geopolitical developments in contemporary West Africa. This paper argues that the Alliance of Sahel States is a modern manifestation of Pan-African ideology, a deliberate rejection of Western and particularly French neocolonial influence, and a framework for post-colonial alliance formation in the twenty-first century. Drawing upon primary source treaty documents, academic scholarship, and recent reporting, this paper situates the AES within the broader history of African unification movements and compares its structure to major regional and international political and economic alliances.

The paper examines how the AES has distanced itself from the West, villainized France, and forged a closer relationship with Russia. The paper considers emerging factors that may shape the trajectory of the AES and reflects on the evolving United States foreign policy toward Africa. The paper concludes with policy recommendations urging the United States to maintain diplomatic engagement while exercising strategic restraint, and argues that the AES, regardless of its long-term outcome, reflects a nascent and consequential transformation in how formerly colonized nations are choosing to assert sovereignty and create regional partnerships.



The Moment of Decoloniality: The Effectiveness and Scalability of The Royal Museum of Central Africa Closure and Renovation

Caitlyn Bains

CAS, Art History

Advised by Sophie Godley, Clinical Associate Professor of Public Health, SPH; Associate Director of Kilachand Honors College

Many museums and institutions are grappling with their long colonial histories. Some institutions are facing local and international calls for change, for the institute to decolonize through whatever means necessary. Studies of museums, as a whole, show a long history of coloniality in the sense that the institution is a result of European colonization and the imposing of Western thought onto other nations. The popular form of museums, with the intent of gathering items to be displayed to the public, originated in Europe and spread to the rest of the world through European colonization. These institutions and their purpose have changed in the past hundreds of years and even now still change with the times. In recent years, many museums and institutions have grappled with ways of acknowledging their colonial histories.

The Royal Museum of Central Africa (RMCA) opened to the public in 1898 on the Parc De Teruvan where the International Exhibitions of Belgium were once held. The museum was commissioned by King Leopold II to showcase his private property of the Free State of Congo. He owned the colony from 1885 to 1908 when international attention to his violent and deadly management of the State forced the Belgian Parliament to annex the state renamed into the Belgian Congo. For many decades, the collection of the RMCA did not critically engage with their history until the early 2000s. In 2013 the RMCA closed for a five year renovation project to decolonize the museum. This Keystone Project uses the RMCA's attempt to decolonize to explore the issues of decoloniality in museum spaces. For this project I have simplified six key concepts provided in *Practicing Decoloniality in Museums: A Guide With Global Examples* by Magdalena Wroblewska and Csilla Ariese into two relational concepts: building and displacing.




The Potential for an Urban Wind Turbine on Boston University's Campus

Dylan List

ENG, Mechanical Engineering

*Advised by Enrique S. Gutierrez Wing, Master Lecturer, ENG:
Department of Mechanical Engineering*

Typical weather conditions in Boston, combined with Boston University's campus architecture, create a unique wind environment where already fast moving air gets funneled into tight corridors, noticeably amplifying its speed. This increased speed provides potential for free electrical power generation via a wind turbine, though the applicability of this to BU's campus was untested. Through measuring wind speeds and directions at various wind tunnels around campus, the wind conditions at these locations have become better understood, providing initial parameters to design a turbine around. This allowed for the creation of a prototype turbine which demonstrated the ability to transform wind energy into measurable electrical power, as well as provided further information about the interaction between the wind and the turbine itself. Multiple additional turbine configurations were designed and deployed using the prototype results to explore the design space of possible turbine sizes, blade profiles, generator options, and manufacturing methods. Based on these tests, this project will determine if BU's campus is well-suited for an urban wind turbine, and if so, how this turbine should be designed for maximum power production and efficiency.



The Lives that Labored and Lost: India's Covid-19 Lockdown and the Internal Displacement of Migrant Workers

Pranjal Kumar

CAS, Political Science & Philosophy

Advised by Muhammad Zaman, HHMI Professor of Biomedical Engineering, ENG; Director of Center on Forced Displacement

Under Section 6(2) (i) of the Disaster Management Act of 2005, the Indian government imposed a nationwide lockdown on March 24th of 2020 in response to the Covid-19 pandemic. With only four hours' notice given to the people of the country, the lockdown would shut down all non-essential economic activity, criminalized movement outside residences under Section 51 of the Act, and provided no relief or provisions for the millions of migrant laborers who represented the backbone of India's ever-growing economy. What followed was the largest internal displacement in India's post-independence history, widely referred to as the Covid-Migration Crisis. This thesis examines the legal and policy failures that produced that displacement, with an emphasis on Bihar, India's largest source state for outward employment-driven migration. This thesis will argue that India's existing legal doctrine possessed identifiable statutory mechanisms that, had they been implemented, could have prevented or substantially reduced the crisis. This thesis will explore three areas of failure through an interpretation of the legal statutes and policy that drove the displacement. The paper will analyze the criminalization of mobility without proper relief responses under the Disaster Management Act, the four-decade non-implementation of the 1979 Inter-State Migrant Workmen Act, and the structural exclusion of migrant laborers through residence-based welfare architecture. From this analysis, this paper will demonstrate that displacement was not an aberration of laws absent but rather the culmination of legal neglect.



Race or Results? An Empirical Analysis of Differential Employer-Driven Dismissal Likelihoods and Responsiveness to Performance Change Between Black and Non-Black Managers in English Football

Gabby Church

CAS, Economics

*Advised by Todd Idson, Master Lecturer in Economics, CAS;
Director of Undergraduate Studies*

This paper examines whether dismissal decisions in professional football reflect employer discrimination by analyzing performance-conditional and performance-interacted dismissal likelihood among Black and non-Black managers in the top five divisions of English football from the 2000/01 to 2021/22 seasons. I distinguish dismissal types, focusing on sackings and mutual consent departures as forms of involuntary job exit. Using a multi-season panel of game-level observations, I estimate linear probability models controlling for recent performance, manager characteristics, season timing, and fixed effects for division and season. I find a statistically significant higher likelihood of involuntary dismissal for Black managers relative to non-Black managers. Interaction-based analyses reveal that decision-makers respond more strongly to performance changes among Black managers. These results are robust to alternative specifications and contribute to the literature by jointly examining discrimination, disaggregated classification of exit types, and differential performance responses to examine disparities in dismissal decisions.



Hypothermic Oxygenated Machine Perfusion (HOPE) Device for Advanced Preservation of Human Pancreas

Tristan Hou

ENG, Biomedical Engineering

Advised by Matthias Stangl, Assistant Professor: BME, Psychological & Brain Sciences, and Neurosurgery, ENG

Type 1 diabetes affects over 9.5 million people worldwide, with projections rising to 14.7 million by 2040. A pancreas transplant is the only curative treatment, however, 23–30% of recovered donor pancreases are discarded before implantation. This is largely due to ischemic injury, or tissue damage caused by reduced blood flow, during static cold storage and the absence of objective viability assessment. This project addresses that gap through the design and validation of PancreasVault, a hypothermic oxygenated machine perfusion (HOPE) system aimed at improving preservation quality and expanding transplantable organ supply.

PancreasVault maintains controlled hypothermic conditions (4–8°C) while delivering oxygenated perfusate, a blood-like fluid that supplies oxygen and nutrients, at specific pressures and flow rates to minimize edema, enzymatic injury, and overall damage to the ex vivo pancreas. The system integrates real-time sensors for pressure, temperature, and flow, enabling continuous monitoring. A 3D computational fluid dynamics model informed design optimization, followed by fabrication of our prototype. Using a pig pancreas model, we evaluated performance against defined benchmarks.

In parallel, field interviews with transplant stakeholders guided user-centered refinements emphasizing portability, intuitive user interface design, and operational reliability.

I will present our engineering framework, prototype validation data, and results demonstrating feasibility of controlled HOPE preservation. By combining perfusion with continuous quantitative monitoring of organ viability, PancreasVault advances organ preservation beyond passive storage and offers a pathway toward reducing preventable pancreas discard. This work represents a translational step toward increasing transplant availability for patients with Type 1 diabetes.



A Not-So-Wild Goose Chase: An Assessment of Canada Geese Vigilance in the Greater Boston Area

Mikaela Higgs

CAS, Earth & Environmental Sciences

Advised by Fred Wasserman, Associate Professor of Biology, CAS

Drastic urban development has increased vigilance behavior in many species, but Canada geese thrive when foraging in urban environments. Still, many anthropogenic threats exist in cities that can affect the watchfulness of Canada geese, but infrastructure and population densities vary across cityscapes. These characteristics within different neighborhoods can have their own impact on geese behavior. A total of 82 geese were identified as individuals or members of flocks across Boston neighborhood zones Central Boston, Beacon-Bay, Brookline, Allston-Brighton, Fenway Kenmore-Longwood, and Jamaica- Roxbury. Geese were expected to express increased vigilance behavior in areas with greater human activity. However, increased vigilance was exhibited mostly in areas with low to moderate human activity. Individuals located in outer flock positions expressed greater vigilance than geese positioned internally within a flock. The significance of vigilance in response to flock position and size as well as true correlations with human activity will require further study.



Climate Change, Migration, and Community Response: A Case Study of How Religion and Culture Affect Systems of Migration Support in Colombia

Sydney Aslan

CAS, Political Science

Advised by Muhammad Zaman, HHMI Professor of Biomedical Engineering, ENG; Director of Center on Forced Displacement

As climate change increases natural disasters around the world, disadvantaged populations with limited access to resources and permanent housing remain most at risk of harm. Migrants are often at the forefront of these risks. A range of resources from government programs to nonprofits to community responses have emerged to help migrants face the increasing dangers associated with climate change. Colombia is situated in an area particularly at risk to changing climate conditions, facing increasing rates and intensity of natural disasters. Additionally, Colombia houses one of the largest migrant populations in the world with many migrants living in impermanent settlements with little access to clean water, heat protection, and health services. As government resources are often insufficient, non-governmental groups often try to support vulnerable groups. While some groups have been studied, others have not gotten adequate attention in literature focusing on climate change and migration. One example in Colombia, in the face of these challenges, is Liberation Theology, a branch of Catholicism with a focus on the needs and issues facing the poor. Groups associated with Liberation Theology provide support, protection, and resources for Colombia's migrant community. Through this research, we found how the Liberation Theology manifests itself in Colombian culture to aid migrants and provide a substantial benefit to the quality of life of migrant populations. We conducted an in-depth analysis of the current literature on these topics to analyze how other groups with a similar mission can learn from the experiences of local organizations and investigate how these methods of support could be extended to other communities. Our results show that the circumstances of Colombia's climate and migrant population as well as the extensive methods of community support provide a unique case study of innovative ways to address intensifying problems of climate change and human safety in changing conditions.



Understanding International Student–International Faculty Relationships: Comparative Case Studies from Boston University and the University of Sydney

Julia Tran

Questrom, Business Administration & Management

Advised by Michael Medina, Program Director, Assistant Professor of Applied Human Development, Wheelock

International students play a central role in the internationalization of higher education in the US and Australia, yet research on their experiences has often emphasized structural challenges rather than relational dimensions of support. They struggle with multi-dimensional barriers, such as language differences, classroom communication difficulties, social isolation, stereotyping, and complications related to internships, work-hour restrictions, and visa-related bureaucracy. Existing literature highlights faculty mentorship as a success factor for university students, but there remains little focused research on the potential significance of relationships between international students and international faculty, especially as a form of culturally informed mentorship and support.

Framed as a comparative case study of Boston University (US) and the University of Sydney (Australia), this study addresses that gap by investigating how relationships between international undergraduate students and international faculty influence students' academic experiences, student life, and professional development. By comparing two major English-speaking, similar-scaled universities with strong international student populations, this research seeks to illuminate both shared patterns and context-specific differences in how such relationships are formed, experienced, and interpreted.

The project employs a mixed-methods research design with 30-minute interviews focusing on participants' lived experiences and their interactions with international faculty and a survey assessing students' perceptions of international faculty support in academic, social, and professional domains. By centering relational experience, this research contributes to international higher education studies by moving beyond institutional and policy-level understandings of support. Findings will offer a framework for thinking about internationalization in higher education not only as a structural or demographic phenomenon, but also as a relational one.

Onboarding, a Short Film by Zach Roisman

Zach Roisman

COM, Film & Television

Advised by Maura Smith, Master Lecturer in Film, COM

What does it mean to be a fish out of water? My thesis project, *Onboarding*, a 13-minute short film, follows a fish-man — a scaly, amphibious, but otherwise normal guy, navigating the fluorescent-lit absurdity of a corporate office — as he attempts to assimilate into a world that was never built for him. Mocked by colleagues, dismissed by management, and ultimately removed by the Fish and Wildlife Commission, his story is both a literal fish-out-of-water tale and a pointed commentary on contemporary immigration culture and the quiet cruelty of otherness in America.

Bringing this film to life was the most ambitious and humbling undertaking of my creative career. Having worked exclusively as a writer and director, I wrote and directed *Onboarding*, but also stepped into the role of producer for the first time, on the largest production I had ever helmed. The experience was equal parts exhilarating and exposing. Collaborating with a talented team pushed the work further than I could have taken it alone, while the demands of managing a production of this scale surfaced real gaps in my workflow process and production priorities. I came out on the other side a more self-aware and well-rounded filmmaker.

At the symposium, I will be presenting a slideshow documenting the arc of the project from concept and pre-production through the challenges of the shoot and into post-production, accompanied by a sizzle reel offering a first look at the finished film. My hope is that the presentation captures not just what the film is, but what it took to make it, and why it was so worth it that I am ready to do it again.



Micropollutants, Macroconsequences

Liv Scappa

CAS, Biological Anthropology

Advised by Lynette Strickland, Assistant Professor of Biology, CAS

My project, *Micropollutants, Macro Consequences*, investigates the communication gap between biomedical engineering researchers and the greater public, positioning this unique challenge as both a scientific and societal divide. Grounded in my research in infectious disease microbiology which examines antimicrobial resistance and the impact of microplastics on bacterial systems, I explore how plastic pollution influences bacterial response to antibiotic treatments and importantly, the broader public health implications which are often lost in translation to non-specialist audiences.

The title of my project reflects the central tension of my thesis: scientific phenomena even on the microscopic scale carries significant health consequences, yet the communication of these stakes can fail to resonate. This disconnect is worsened by structural barriers to accessibility, and the ongoing discussion on the “politicization of science” which shapes how public health research is interpreted, trusted, or dismissed, particularly in consideration of underserved communities who are most vulnerable to disease exposure.

The foundations of my final project originate from my KHC On Tap Presentation on research conducted through the Center on Forced Displacement at Boston University, where I grappled with feedback to simplify technical aspects for accessibility. While audience understanding is essential, I confronted how scientific simplification risked miscommunication and obscured the urgency of this work.

Ultimately, *Micropollutants, Macro Consequences* demonstrates that a relationship between science and the public must be built on accessibility-centered trust to ensure that scientific knowledge is translated into meaningful public health action, especially among communities navigating systematic inequalities.



The Illusion of Separation: an Illustrated book on Natures Connectivity

Jessica Laman

CAS, Biology- Ecology & Conservation

Advised by Carrie Preston, Professor of English and Women's, Gender, & Sexuality Studies, CAS; Chair: Department of English; Associate Director of Center on Forced Displacement

The natural world is not something that exists only in far off national parks. All living things on our planet are linked in an infinitely complex web of connections. This is the theme of the children's book I've written and illustrated. Flipping through it's pages, you'll see fish latch onto passing humpback whales for a ride. Gulls fly overhead as the humpbacks fish, waiting for an opportunity to snag something to eat themselves, before flying to rest at the watering hole inland created by the elephants. This is just a snippet of my story which follows a chain of events of connection between plants and animals, starting with a little girl in New England and going all around the world before returning to her. These events are illustrated in vivid full color gouache paintings. Children's literature is a genre adept at creating a sense of wonder and vivid worlds that capture the imagination of children and parents alike. In my story the vivid setting is our own Earth, and the wonder is in all the amazing interactions between ourselves and the natural world. From my research into this genre of environmental/nature focused children's books, I found that many had an emphasis on responsibility and action, telling children to recycle and plant trees. But few showed *why* we should care about nature. This book is meant as a celebration of the amazing connections that make up our natural world as well as the message that we are intrinsically linked with animals and people the world over. My hope with this book is not only to inspire future generations of children but also to spark conversations in families and classrooms.



An Oasis in a Box: A Glimpse into the Potential of Native Agriculture Through a Vivarium of the Sonoran Desert

Sean Bryant

CAS, Biology - Ecology and Conservation

Advised by Kathryn Spiliotis, Master Lecturer in Biology, CAS

Modern industrialized agriculture has concentrated crop production to the point where 75% of food production globally can be attributed to just 12 plant species and 5 animal species. The intensive farming of such few species has led to pervasive environmental issues, such as soil degradation, hazardous chemical use, and fertilizer runoff into bodies of water. Increasing biodiversity, as well as refraining from the use of artificial pesticides and fertilizers, has shown promise in improving ecosystem health and long-term crop-yield efficiency. Native agriculture implements both of these aspects by growing crops native to their respective regions, which increases the number of species grown and reduces the need for artificial fertilizers and pesticides. Despite the potential benefits, native agriculture is often overlooked. This study focuses on the Sonoran Desert region due to its rich ecology, commercial use for agriculture, and the environmental issues it is suffering from due to industrial agriculture. A Sonoran Desert terrarium, mimicking the desert climate and seasons, was populated with native plants and invertebrates. Plant growth and water efficiency were measured, analyzed, and compared with online data on known crop species commonly grown in the Sonoran Desert. Invertebrate behavior and interactions were also recorded. The findings of this study highlight the potential viability of native Sonoran Desert plants as crops and how native invertebrates affect their growth and ecology. Thus, suggesting that future wide-scale research on the use of native plant species in different regions can bring about a new era of sustainable farming that works with the environment, not against it.



Under Pressure: Adaptive Isolation for Visual SLAM Perception Workloads on Contested ARM Hardware

Alessandra María Lanz

CAS, Computer Science

Advised by Renato Mancuso, Associate Professor of Computer Science, CAS

Modern autonomous vehicles rely on real-time perception systems, like visual SLAM, to navigate their environments safely. When safety-critical and non-critical software tasks share the same hardware, they compete for limited resources such as CPU cores, cache, and memory bandwidth. This interference can silently degrade the performance of safety-critical systems which are systems whose failure or malfunction could result in death, severe injury, significant damage, or harm, making these systems essential to understand, measure, and control. This project investigates that challenge through the lens of mixed-criticality scheduling: a paradigm in real-time systems research that goes beyond simply bounding worst-case execution times, asking instead how tasks of different importance levels can safely coexist on shared hardware.

Experiments were conducted on a Xilinx ZCU102 embedded board (a four-core ARM Cortex-A53 processor with a 1MB shared L2 cache, representative of automotive-grade hardware) running OV²SLAM, a visual-inertial simultaneous localization and mapping system, against controlled interference benchmarks. The study revealed that cache interference is non-monotonic: a 1MB interference buffer (matching the L2 cache exactly) caused the greatest slowdown (~67%), while smaller buffers caused less, and larger buffers fell in between. It also uncovered a bimodal performance phenomenon caused by thread contention internal to the SLAM pipeline.

At the Symposium, this presentation will focus on the experimental methodology, key findings around cache interference and SLAM performance variability, the design of a dynamic performance isolation controller built to enforce real-time scheduling guarantees, and my plans for future work. Together, these contributions demonstrate that system profiling is crucial for deploying safe perception systems on shared hardware.



Room 613 A, 11:30 AM



Beyond the Screen: Telehealth, Equity, and the Future of United States Health Care

Claire Sarnowski

Sargent, Health Science

*Advised by Eileen B. O'Keefe, Clinical Professor and Chair:
Department of Health Sciences, Sargent*

Since the COVID-19 pandemic, telehealth has emerged as a critical tool for expanding health care access, particularly for Medicare beneficiaries, including older adults, individuals with disabilities, and those living in rural, underserved areas and health care provider deserts. However, as pandemic-era telehealth provisions have been extended only through short-term policies, uncertainty remains about whether telehealth will continue to serve as an equitable and sustainable model of care. This project examines how federal telehealth policy shapes access to care for Medicare populations and explores how telehealth can improve equity within the U.S. health care system.

Using a qualitative research approach, this study combines semi-structured interviews with key stakeholders including lawmakers and their offices, health care providers, and leaders from national advocacy organizations along with analysis of federal legislation and Centers for Medicare and Medicaid Services (CMS) regulations. Interviews were conducted across geographically and politically diverse regions to capture a range of perspectives on telehealth implementation, successes, challenges, and future policy priorities.

Findings suggest that telehealth has significantly improved access to care by reducing barriers such as transportation, cost, and provider shortages. At the same time, challenges remain, including disparities in broadband access, digital literacy, access to devices, and inconsistent insurance coverage. Stakeholders emphasized the need for clearer, long-term federal policy to ensure continuity and trust in telehealth services. These results highlight that while telehealth has the potential to expand access, without thoughtful policy design it may reinforce existing health inequities.

Ultimately, this research contributes to ongoing policy discussions by proposing strategies to strengthen telehealth infrastructure and ensure that its benefits are accessible to the populations who need them most.



Teacher Perspectives on Utilizing Culturally Responsive Teaching to Support Social Emotional Learning in Early Childhood Classrooms

Maria Belen Ordoñez

CAS, Psychology

Advised by Dina Castro, Director of the Institute for Early Childhood Well-Being; Bahamdan Professor in Early Childhood Well-Being, Wheelock

Culturally responsive teaching and social-emotional learning (SEL) are two separate frameworks that have existed in the realm of education for years now. Both on their own have afforded great results for young children's self-efficacy, academics, and peer relationships building. However, little research has examined the impact that these two conceptual frameworks could have on one another. This study aimed to understand early childhood teachers' perspectives on utilizing culturally responsive teaching to support SEL competencies such as self-awareness, social awareness, and relationship skills. Through a series of semi-structured interviews with a community partner school, six participants shared their experience with culturally responsive practice, administration's support and shortcomings, and the impact that culture has had on their students' SEL skills. These findings yielded a new understanding of the ways teachers are already utilizing family and classroom culture to enhance SEL learning. Simultaneously, these interviews provided new insights about what support early childhood educators need to continue to sustain students' culture and empower social-emotional learning in their classrooms.



Investigating patterns of kelp population dynamics and thermal tolerance across New England in *Saccharina latissima*

Sierra Koerber-Marx

CAS, Biology and Marine Science

Advised by Karina Scavo Lord, Lecturer in Biology and Marine Biology, CAS

Kelp beds are some of New England's most important coastal ecosystems. They provide habitat for marine life, support fisheries, improve water quality, and reduce wave energy along the coast. However, these underwater forests are facing decline due to numerous stressors such as warming temperatures, invasive species, and overfishing. With climate change driving much of the current collapse of the foundational sugar kelp, *Saccharina latissima*, it is crucial to understand the population dynamics and thermal tolerance of this species across the region.

Here we seek to assess *S. latissima* population dynamics at two contrasting New England sites: Nubble Lighthouse, Maine, a cooler and more exposed site, and Folly Cove, Massachusetts, a warmer and more sheltered site. SCUBA-based field surveys were conducted in spring and late summer to measure kelp size, abundance, herbivory, invasive epibiont cover, and holdfast attachment. In addition, a controlled laboratory heat-stress experiment was used to test whether kelp from the warmer site showed greater tolerance to elevated temperatures.

Kelp at Nubble was generally larger than kelp at Folly, but also experienced greater herbivory and a stronger decline in surface area over the summer. In contrast, kelp at Folly was smaller and more often attached to turf algae rather than rock, which may make it more vulnerable to dislodgement. The invasive bryozoan *Membranipora membranacea* did not differ greatly between sites. In the heat-stress experiment, kelp exposed to high temperatures lost significantly more mass than controls. Samples from Folly showed a trend toward more variable responses, suggesting that some individuals may be more resilient than others. Together, these results indicate that local habitat conditions strongly influence kelp health and population structure. This work highlights the importance of assessing kelp resilience at local scales to better inform conservation and emerging aquaculture practices in the Gulf of Maine.

Beyond Entertainment: A Thematic Analysis of True Crime Podcasts

Anjali Byju

COM, Journalism

Advised by Brooke Williams, Associate Professor of the Practice of Computational Journalism, COM

The true crime podcast genre exploded in the early 2010s after the first season release of *Serial*, a *This American Life* podcast investigating the 1999 murder of high school student, Hae Min Lee. The podcast amassed over 300 million downloads and received nationwide acclaim. Since then, true crime podcasts have continued to grow in popularity and now exist as a top genre across platforms like Spotify and Apple Podcasts. My research examines how true crime podcasts function not only as entertainment but also as public education on forensic science, justice systems, and victim experiences.

Using the qualitative data analysis software, NVivo, I evaluated the transcripts of 20 of the top ranked true crime podcasts on Spotify to reveal recurring thematic. This involved conducting topic modeling to identify and explore three themes within the transcripts: Forensic Methodology, Government Critique, and Victim Humanization. The qualitative data identified within each of these three categories speaks to the importance of true crime podcasts as a public education speaks to the importance of true crime podcasts as a public education tool. My analysis showed these podcasts explicitly expose our justice system failures, outline law enforcement misconduct and incompetence, and recenter victims' stories away from sensationalism.



Expansion shapes competition in growing microbial colonies

Will Stride

CAS, Mathematics & Physics

Advised by Kirill Korolev, Associate Professor of Physics, CAS

Both the shape and competitive dynamics of microbial populations have effects on the evolutionary outcomes of colony expansion. These effects can be seen in tumor growth and viral spread, where spatial structure can influence which strains dominate and the rate at which they do so. In order to predict and control these systems, it is important to understand how morphology and competition are coupled to one another.

My project extends an established framework for analyzing how morphology and competition interact with one another on the microbial level, the KPZ-FKPP framework. This framework utilizes a pair of coupled partial differential equations, one which accounts for the growth of the microbial frontier and the other for the expansion of the mutant fraction. My work contributes to this model by introducing a term which encodes interactions between a mutant microbe and the incident colony. To analyze the effects of this term, I ran Python-based simulations for various sets of parameters, accounting for interaction type and strength, selection, and mutant-incident population velocity differences.

These results are then analyzed for morphological behavior and for expansion velocity patterns. For some interactions, microbial colonies experience ‘velocity reversal’ which can be understood as a point where mutations no longer attempt to overtake an initial population and instead retreat. Additionally, I find that certain interactions can lead to triangular morphologies, as opposed to the more traditional, expected circular morphologies. This work has potential applications in the analysis of how viruses and cancer tumors evolve relative to the microbial communities they make up.

19th Century Fiction Revisited: Crafting an Original Novel

Catherine Knox

CAS, Neuroscience

Advised by Chase Culler, Lecturer in the Writing Program, CAS

Fictional narratives set in historical time periods have long provided writers with a way to explore modern concerns through the lens of the past. Recent popular works, such as *Bridgerton*, illustrate how 19th century settings can be reimagined to prioritize social critique, emotional depth, and accessibility rather than strict historical accuracy. This project contains the culmination of my 19th century based original novel *The Heartbeats We Cannot Hear*, set in Rye, East Sussex during the Romantic Era. The novel follows lifelong friends, Cecily and Marie, as they raise their children and navigate social expectations, motherhood, and friendship. Their lives begin to unravel when a mysterious man from Canterbury questions their whereabouts, coinciding with the appearance of two brothers who bring their own secrets that will change the course of their lives forever. Drawing on some historical research, personal travel experiences in England, along with advisor and beta reader feedback. I will discuss my place-based observations along with the archival research that influenced the novel's setting, character relationships, and emotional stakes. My project reflects on my revision challenges including balancing historical context with a modern narrative voice and addressing the themes of gender roles and social class that remains engaging for modern readers. Ultimately, this project demonstrates how historical fiction can function as a bridge between past and present, using imaginative storytelling to explore questions of identity, agency, and human connection.



Multi-Component Borehole Well System

Chaney Finkeldei & Jonathan Sim

ENG, Biomedical Engineering

*Advised by James Galagan, Professor: BME, Microbiology, ECE
and Michael Smith, Associate Professor: BME, MSE; ENG*

Access to clean and sustainable water is critical for health, education, and community well-being, yet many rural communities face growing water insecurity due to drought, population growth, and climate change. In Tinet, Kenya, these challenges affect Ogiek Kwanza Secondary School (OKSS), where the Engineers Without Borders–Boston University (EWB–BU) club drilled a borehole well last summer to improve water access. This project developed a low-cost, community-driven borehole well monitoring system to improve water quality oversight and supply reliability in low-resource settings. Building on EWB-BU's ongoing efforts, including the planned implementation of a solar-powered pump and reverse osmosis system this summer, our team developed an integrated in-situ multi-parameter sensor unit with a real-time display and external data transmission to continuously monitor water quality and aquifer health. To achieve this, a sensor package capable of measuring water level, temperature, pH, and fluoride in the OKSS borehole and storage tanks was developed and validated. Sensors were calibrated against laboratory reference methods using synthetic water representative of local conditions and evaluated for accuracy, stability, and reliability, with a target error of $\leq 5\%$. The project also created a microcontroller-based interface using an Arduino Mega and touchscreen display to convert raw sensor data into clear, actionable information for local users. The interface organized readings by water quality, aquifer health, and pump status while flagging measurements outside Kenya's National Environmental Management Authority (NEMA) and World Health Organization (WHO) guidelines. Audio/visual alerts and low-bandwidth telemetry to a website are intended to support local decision-making, long-term system monitoring, and continued borehole viability. Overall, this project has yielded a scalable and affordable platform for continuous borehole well monitoring that advances sustainable water management and supports safer, more reliable water access in low-resource communities.



Room 545 B, 1:00 PM

Functional and Structural Characterization of Enzymes involved in Bacterial Glycoconjugate Production

Katrina McCarthy

CAS, Biology- Cell Biology, Molecular Biology & Genetics

Advised by Karen Allen, Professor of Chemistry, CAS; Professor of Materials Science & Engineering, ENG

Antibiotic resistance is a widescale threat to human health, leading to millions of mortalities around the world. Bacteria use a number of different mechanisms to develop resistance to antibiotics, rendering them useless. In particular, pathogenic bacteria utilize surface-displayed glycoconjugates, which increases bacterial virulence in human hosts. Glycoconjugates, or long sugar chains displayed on the surface of the cell envelope, allow bacteria to evade host immune response and persist despite common therapeutics. This research examined key enzymes involved in bacterial glycoconjugate assembly which are targets for drug development. My keystone focused on the biochemical studies of the enzymes WbaP DUF and WcaF to gain structural and functional information. The Domain of Unknown Function (DUF) from WbaP is a domain of the initiating enzyme of O-antigen biosynthesis in *S. enterica*, and WcaF is involved in *E. coli* colanic acid biosynthesis. This work incorporated protein purification and thermodynamic assays, for both WbaP DUF and WcaF. Crystallization trials were also undertaken for WbaP DUF. My research overall isolated glycoconjugate proteins of interest for structural and functional studies to inform future drug development efforts. Enhancing the development of therapeutics against key enzymes involved in glycoconjugate production will prevent pathogenic bacteria from establishing disease in human hosts.



Clustering the Renewable Energy Transition: A Multi-Decade Study of Policy Stringency, Economic Growth, and the Case of Brazil

Alina Keshodkar

CAS/GRS, Economics and Political Science

Advised by Bahar Erbas, Senior Lecturer in Economics, CAS

In the global shift toward decarbonization, renewable energy has emerged from a climate-mandated necessity into a prospective key player in sustainable development. This study analyzes the global energy transition across 40 countries over a thirty-year period, from 1990 to 2020, and examines variables including environmental policy stringency (EPS), renewable capacity, energy consumption, and GDP to identify trends in policy and infrastructure adoption. I utilize clustering and empirical analyses, primarily agglomerative hierarchical clustering, to categorize nations into distinct archetypes based on the socioeconomic characteristics that drive successful energy transitions.

My results reveal three primary archetypes: Advanced Policy-Led Economies (concentrated in Europe), Industrial-Intensive High-Income Economies, and Emerging Transitioning Economies (largely developing nations). Given these findings and the underlying imbalances between nations, I specifically highlight developing nations and their ability to pursue environmentally conscious economic growth. I focus on Brazil as my main case study, as a representative model for the "Emerging Transitioner" archetype, given its extensive investments in sustainable infrastructure and renewable policy despite complex geopolitical constraints. By supplementing my panel data with qualitative insights from Brazilian policy experts, this research contextualizes the quantitative data trends with real-world implementation. Ultimately, I aim for this study to contribute to the literature on scalable frameworks for an equitable and effective global renewable energy transition, promoting the viability of future energy policy.

Alternative Facts: Understanding how Political Parties have Changed with Misinformation

Thomas Larsen

CAS, Political Science

Advised by Katherine Levine Einstein, Associate Professor of Political Science, CAS; Director of Undergraduate Studies

This project examines how political parties in the United States have come to accept, normalize, and even propagate misinformation. Misinformation has existed in American politics throughout history, but we see a shift in contemporary misinformation in both scale and structure. Misinformation now finds itself at the center of elite political discourse in speeches, social media, and policy, most visibly through the rise of “alternative facts”. This phenomenon is particularly true with the Republican Party. Existing scholarship has demonstrated the prevalence and consequences of misinformation, including its effects on elections, political knowledge, and democratic trust. However, within this scholarship, there is a fundamental gap in the role political parties play. With this project, I discovered how the Republican Party changed to accept and even propagate misinformation, and the similar trends that exist in the Democratic Party. I drew on tweets from prominent politicians in the week around budget votes from 2011 to 2019. This timeframe captures critical developments such as the Obama “birther” movement, the rise of candidate-centered campaigns, and the consolidation of Trump’s influence within the Republican Party. My analysis reveals that misinformation was used only rarely before Trump and remained at low levels among Congresspersons through the end of my analysis. Although there was no major shift in misinformation use, fact-based tweets declined as opinion-based tweets increased in both parties. We also see, especially in the Republican Party, that rates of misdirection increased. It is only at the end of the analysis that rates of misinformation increase and a divergence in information styles between the two parties. This indicates that there was no major shift in how political parties used misinformation before and during the first Trump years. Rather, the current state of our information environment comes from Trump's changes to the party and the effects of the COVID-19 infodemic.



Enhancing Antitumor Immunity through cGAS–STING Agonist Nanostructures

Lauren Bell

ENG, Biomedical Engineering

Advised by Michelle H. Teplensky, Assistant Professor of Biomedical Engineering and Materials Science & Engineering, ENG

Common cancer treatments (e.g., chemotherapy) are limited by off-target toxicity and adverse side effects, motivating more precise therapeutic strategies. Immunotherapy offers a promising alternative by harnessing the immune system to recognize and eliminate cancer cells, but is often hindered by the immunosuppressive tumor microenvironment (TME). Activating the “cyclic GMP-AMP synthase (cGAS)–stimulator of interferon genes (STING)” pathway can overcome TME immunoevasion and promote pro-inflammatory signaling, thus encouraging antitumor responses. Current approaches primarily target the STING protein using cyclic dinucleotides (CDNs), which suffer from poor cellular uptake, rapid degradation, and variable efficacy. Targeting the pathway upstream with cGAS agonist DNA sequences can enable endogenous CDN production, offering improved consistency and potency. Herein, we present a modular DNA platform that incorporates cGAS agonist DNA sequences into a branched structure (termed DNA dendron). This platform enables programmable control over agonist presentation, enhancing stability and cellular uptake. Encoding one of two potent cGAS agonists (i.e., ISD45 and G3YSD) into DNA dendrons, we measured a 3-fold increase in tumor cell death compared to linear agonists and a 5-fold increase compared to a common CDN in a melanoma co-culture model. Our findings illustrate how cGAS agonist DNA dendrons amplify immune activation to drive effective antitumor responses, enabling a more potent and patient-specific cancer immunotherapy.



Investigating How Speech Perception and Production Predict Literacy Development in Preschoolers?

Kyra Karolyn Odoi

Sargent, Speech, Language, & Hearing Sciences

Advised by Jennifer Zuk, Assistant Professor of Speech, Language, & Hearing Sciences, Sargent

The elements of early literacy development include alphabet knowledge, phonological awareness, and the ability to rapidly name categories. In “typical” literacy development, children build these skills as they move through three stages. The first is the pre-reader stage (birth to about age 5). In this “pre-literacy” phase, children begin to learn language fundamentals and show understanding through early behaviors such as correctly holding a book, mimicking reading, and recognizing familiar letters and print. These foundational skills set the stage for later reading success. The next stage is the emergent, or early reader stage (ages 5–7, kindergarten to first grade), where children begin learning to read and develop the basic skills needed to eventually read to learn. This stage is characterized by trial and error in a language-rich environment, where children use pictures, patterns, and repetition to predict and understand words. They are actively experimenting with language and beginning to connect sounds with letters in more systematic ways. Lastly, in the transitional or fluent stage (ages 7–9, second to third grade), children begin to solidify their reading abilities and use those skills to understand broader concepts. At this point, there is less reliance on pictures, more advanced word decoding, and stronger overall comprehension of text. Language-Based Learning Disabilities (LBLDs), including dyslexia, involve difficulties with understanding and using spoken and written language. Dyslexia is one of the most common types and is often diagnosed between ages 5–8, during the shift from emergent to transitional reading. While all stages are important, this transition is especially critical because children move from learning to read to reading to learn. The dyslexia paradox highlights that although early identification would be most beneficial, diagnosis often occurs later. Through error analysis, our goal is to evaluate how well early literacy skills predict dyslexia risk and to provide insight that helps childcare professionals better support language development.



Penny Politics: The Role of the MAPS Program in Oklahoma City's Renaissance

Susan Shobeiri

CAS, Economics and Environmental Analysis & Policy

Advised by Stephanie Byttebier, Chair and Master Lecturer in Rhetoric, CGS and Katherine Levine, Associate Professor of Political Science, CAS; Director of Undergraduate Studies

Oklahoma City has achieved significant and unexpected economic growth in the past three decades through a largely unknown model of local governance. The Metropolitan Area Projects (MAPS) are a series of temporary, voter-approved penny-on-the-dollar sales taxes that finance debt-free public infrastructure projects. The program has leveraged over \$3.1 billion from the public and \$3.9 billion from the private sector to invest in infrastructure improving “quality of life” in Oklahoma City. While initially focusing on tourism and recreation, MAPS has expanded to include funding for social aid initiatives, such as homelessness. Despite its significant role in and claims of revitalizing the city, the program remains underexamined in national and regional policy discussions. Through analysis of political rhetoric, economic data, interviews, and fieldwork in Oklahoma City, the research assesses the program’s origins, relevance, and socioeconomic impacts. Findings are culminated into a visual exploratory essay that incorporates media and data visualizations. My essay offers a deep dive into the program, highlighting its clear transformative effects, while identifying areas where other municipalities could improve upon to result in a more equitable distribution of outcomes. The story examines tensions between powerful stakeholders and a lack of comprehensive, consistent community engagement that contradict the unambiguously successful outcomes promoted by the City. I conclude that if other American cities can replicate this financing model in a way that explicitly considers equitable distribution of outcomes, local governments could be equipped to facilitate lasting change. The project hopes to inspire broader discussions about how local policies can drive change in urban governance. In providing a case study of a seemingly liberal policy in an overwhelmingly conservative city, the research examines the role of effective local governance in the face of increasing national political gridlock and funding freezes.

Eastie Farm: A Documentary

Oliver Pratt

COM, Film & Television

*Advised by Amy Geller, Assistant Professor of Film & Television,
COM*

My project is a documentary on Eastie Farms, an urban farming initiative in the East Boston neighborhood. East Boston is a neighborhood that is typically overlooked in an overview of the city. If known at all, it is known for its proximity to Logan International Airport, with nothing more than an afterthought to the needs and goings on of the area. But, as the subject of my documentary and main organizer of Eastie Farms, Kannan Thiruvengadam says, "East Boston is an immigrant neighborhood, and a working class neighborhood." This documentary explores Kannan and his farm's initiative to aid families in food security, to grow food we can all eat and enjoy, as well as doing the harder logistical and bureaucratic work to ultimately upend the way food is provided to across Boston. The documentary will focus on ideas of identity, culture, and place as it explores how this farm interacts in the neighborhood around it.

Through the ongoing process of documenting this farm and the people who they serve I have learned about how much time it takes to grow, provide and sustain food on a large scale. I have also learned about the bureaucratic measurements that an initiative like Eastie Farms have to take to maintain their status and grow their community.



The Oldest Profession? Kantian Ethics, Feminist Critique, and a Utilitarian Case for Decriminalization of Sex Work

Autumn Bachofen

CAS, Philosophy & Political Science

Advised by Susanne Sreedhar, Director and Professor of Women's, Gender, and Sexuality Studies Program; Professor of Philosophy, CAS

Sex work is often referred to as the oldest profession, but in most places, sex work is too stigmatized to be treated as a “real” profession. Should it be? In this project, I ask whether sex work is inherently morally problematic, whether our judgments are rooted in reason or prejudice, and how laws can minimize harms often involved in this industry. I address these questions through an analysis of Kantian ethics, contemporary feminist philosophy, and Bentham’s utilitarian theory of punishment.

I start by reconstructing and evaluating Immanuel Kant’s claim that non-procreative, extramarital sexual behavior treats persons as mere means, arguing that this condemnation relies on an unsupported assumption that sexuality and humanity are necessarily intertwined. I then put this view in conversation with Martha Nussbaum, Yolanda Estes, and Christine Overall, all of whom differ in what they view as morally salient about sex work. For Nussbaum, sex work is unnecessarily stigmatized bodily labor. For Estes, sex work requires a form of “self-fragmentation” incompatible with mutual consent, desire, and concern. Christine Overall further situates sex work as inextricable from the oppressive capitalist and patriarchal conditions within which it is performed. These varied perspectives, instead of yielding a definitive answer to whether sex work is inherently wrong, inform my application of Bentham’s theory of punishment to the question of whether punishments for sex work are justifiable. Drawing on his criteria for warranted punishment, I show that criminalization is unjustified, and that the legal framework most compatible with his principle of utility is decriminalization.



Room 613 A, 1:30 PM

Community-Led Urban Agriculture & Food Justice in Boston

Ishtiyaq Shajahan

CAS, Political Science

*Advised by Adriana Craciun, Metcalf Chair of Humanities;
Professor of English, CAS*

Food assistance programs are among the many federally provided benefits that have recently been cut by the federal government. With the rising cost of groceries being one of the main factors in the increasing cost of living, this has sent many people into a state of food insecurity. According to the most recent Cost of Hunger Report, more than 1 in 3 households across the state experienced food insecurity. In Suffolk County, it is even more prevalent, with 1 in 2 households experiencing some type of food insecurity. The future of food access in Boston has largely been in the hands of nonprofit organizations such as communal kitchens and fridges, food pantries, churches and other religious organizations, and urban community gardens. Through participatory research and structured interviews with over 10 Boston-area food access initiatives, I gained valuable insights into how grassroots organizations are bringing food to residents. The main challenges these organizations face are fragmentation and stigma. Initiatives are usually tailored to local demographics, suiting the cultural makeup of the local community. However, it is still seen as taboo by many people, even if they are income eligible to receive free or reduced-cost groceries and produce. To better understand what the future of food access and environmental justice are and what these organizations need to remain successful, the Boston University Student Government Environmental Affairs Department has organized a Climate Symposium. The organizations I reached out to over the summer will speak in a panel-style discussion and highlight what has been working well and what needs they have for the future. This project aims to add to the literature regarding mutual aid and food security while highlighting the need for more green public food infrastructure.

Room 613 B, 1:30 PM



Remineralized Enamel: Armoring Our Teeth Against Caries-Producing Bacteria

Maya Wiisanen

Sargent, Human Physiology

Advised by Sarah Barnes, Lecturer in Health Sciences, Sargent

When imagining cavities (caries) forming in our teeth, we often picture sugars from our favorite candies or sodas gnawing holes into our enamel. However, the formation of caries in dental enamel is actually due to acid-producing bacteria lurking in our oral biofilms, such as *Streptococcus mutans* (*S. mutans*). *S. mutans* metabolizes lactic acid in the presence of dietary sugars, and this acid degrades our natural enamel over time to form dental caries. But what if we could proactively armor our teeth against this bacterial attack? In the Fan Biomaterials lab at Boston University School of Dental Medicine, we are testing a biomimetic remineralizing solution (BMS) which forms a strong layer of remineralized hydroxyapatite (HAP) crystal on top of a tooth's enamel surface. This new layer of crystal is promising in terms of reversing early lesions and increasing enamel strength. To determine how well this remineralized crystal can hold up against *S. mutans*, we exposed remineralized enamel to a *S. mutans* + sucrose solution, producing an acidic biofilm layer on the enamel. We analyzed the degree of crystal damage following this exposure using Scanning Electron Microscopy (SEM) and Energy-Dispersive Spectroscopy (EDS) technology and structural analysis. From this data, we are able to measure the resilience of the remineralized enamel to the bacterial conditions and potentially inform emerging dental restorative techniques and products. Our goal is to determine if this biomimetic treatment has the capability to protect our teeth against the harsh caries-forming bacteria that feed off of our favorite sweets!



A Union by Another Name: Uncovering the alter ego of Boston's Chinese Progressive Association as a de-facto union for the displaced garment workers from the 1980s to 2000s.

Ryan Lin

CAS, History; Questrom, Business Administration

Advised by Jilene A.C. Chua, Assistant Professor of History, CAS

On December 5th 1985, the Chinese garment workers of Boston's Chinatown came face to face with their biggest challenge yet: the shutdown of P&L Sportswear Co, INC. The closing of P&L Sportswear, one of the largest garment factories in Boston, resulted in the displacement of over 200 Chinese garment workers. Given that P&L was an union shop, one would expect that the Chinese garment workers would turn to the International Ladies Garment Worker Union (ILGWU) for help. However, in this case, an interesting phenomenon occurred. The Chinese garment workers sought help from the Chinese Progressive Association (CPA), a community organization in the Boston Chinatown area instead. This begs the questions. Why did the Chinese Garment Worker choose to solicit assistance from the CPA over the ILGWU? What did the assistance that the CPA provided them look like? Utilizing primary source accounts from the Northeastern library, I identified distrust between the Chinese American Community in Boston and the union, the decreasing power of the ILGWU, the language barrier between the Union and the Chinese American community, and the strong reputation that the CPA had for activism in the Boston area as the contributing factors to this phenomenon. I also explore how community organizations like the CPA began to take on the role and functions of unions within Boston's Chinatown community during this displacement crisis.



Voices Behind the Wall: A Research-Based Podcast on Incarceration, Education, and Reentry

Cynthia Lin

CAS, Political Science

Advised by Abigail Ballou, Visiting Assistant Professor of Applied Social Sciences, MET; Director of the Prison Education Program

Voices Behind the Wall is a four-part podcast series that examines incarceration in the United States through four interconnected themes: the school-to-prison pipeline, healthcare behind bars, education in prison, and reentry after release. Rather than treating imprisonment as an isolated issue, this project argues that incarceration is part of a broader continuum shaped by structural inequality, limited access to resources, and institutional barriers before, during, and after confinement. The project uses a research-based audio storytelling format to make these issues accessible to a general audience while remaining grounded in academic analysis and lived experience.

Each episode combines narrative structure, interviews, and scholarly research to explore how people are pushed into, impacted by, and forced to navigate the criminal legal system. The first episode focuses on how school discipline, educational inequality, and systemic disadvantage contribute to the school-to-prison pipeline. The second addresses the quality of healthcare available in prisons and the consequences of medical neglect and institutional delay. The third examines prison education, especially secondary and college-level opportunities, as a space of dignity, transformation, and possibility. The fourth centers on reentry, highlighting the challenges of employment, housing, stigma, and rebuilding stability after incarceration. Together, the episodes show that these are not separate issues, but deeply connected parts of the same system.

Ultimately, Voices Behind the Wall argues that incarceration cannot be understood through punishment alone. School exclusion, healthcare access, prison education, and reentry barriers are not separate problems, but interconnected forces that shape life before, during, and after incarceration. The project aims to encourage a more honest conversation about criminal justice, one grounded in research and centered on human experience.



Room 613 A, 1:45 PM



Mosaic of Frontline Engagement: Promoting International Humanitarian Law among Non-State Armed Groups

Saanvi Thakur

Pardee, International Relations

Advised by Alexander de la Paz, Assistant Professor of International Security, Pardee

The application of International Humanitarian Law (IHL) varies by state, however, non-state armed groups (NSAGs) demonstrate a unique example where state enforcement of law is not always the answer to greater legal compliance. At a basic level, IHL acts as the rules of war, which are meant to provide guidance to combatants in order to protect civilian populations caught in the cross fire of a greater armed conflict. One avenue of humanitarian engagement on the grounds of IHL with NSAGs lies with Non-Governmental Organizations (NGOs), however, there are various gaps that NGOs face when entering complex regional conflicts to engage with NSAGs. My Keystone utilizes interviews, literature reviews, and archival research to explore humanitarian engagement conducted by NGOs such as Geneva Call and the International Committee of the Red Cross to understand how political legitimacy, neutrality, accountability, and legal compliance intersect in these processes of humanitarian engagement. Building on this, my research also aims to address how this intersection is navigated by NGOs while considering locality of the NSAG and the NGO's own cultural background. This research synthesizes existing understandings of IHL application and compliance while also noting how large-scale international concepts and strategies may apply at a more local level.



Understanding Success

Cady Stanton Messimer

CAS, Sociology

*Advised by Sarah Miller, Assistant Professor of Sociology, CAS;
Director of Undergraduate Studies in Women's, Gender and
Sexuality Studies*

Understanding Success is a case study focused on understanding how students, educators and policymakers define, understand and enact 'success'. Looking at two elementary schools in a mid-sized city, this project draws conclusions about the actions of the policymakers, educators and students in order to compare between groups. Policy was analyzed to learn more about the perspectives of policy makers, while educators were interviewed about their ideas, perceptions of policy, and goals in the classroom. Students completed a worksheet that asked them to draw and write about what it looks like to be successful in school. By looking at second and third grade classrooms, there is a clear opportunity for comparison between students who test and students who have not yet begun certain standardized testing. This student comparison gives us insight into how students define their own success, and if that is impacted by the rigor of testing they undergo. Through an optional questionnaire on the student assent form, this study was also able to compare students' understandings of success across gender, race, ethnicity, and language spoken at home. The schools selected provide a variety of student backgrounds. This project is based in critical policy analysis and theories of social reproduction. The goal is to trace individuals' perspectives back to policy to determine the extent to which those perspectives are reflected. This process illustrates misconceptions and gaps in state policy when it is compared to the ideals held and practiced by students and educators alike in classrooms. Teachers have individualized conceptions of success that vary by student and the overregulation of teachers, their curriculum, and student standards constrains their abilities as educators. Success is too narrowly defined in policy through rigid standards even prior to testing, which creates pressures felt by students and staff alike.



Room 545 A, 2:00 PM



Green Spaces and Growing Minds: A Qualitative Analysis of Child-Centered Improvements in Central Park

Alessia Jones

Sargent, Health Science

Advised by Keith Spangler, Clinical Assistant Professor of Health Sciences, Sargent

Fifty-five percent of children worldwide live in cities, where access to urban green spaces continues to diminish, and with them the extensive physical, mental, and social benefits of parks on child development. City living is associated with a forty percent higher risk of depression and over twenty percent higher risk of anxiety compared to rural areas, further emphasizing the need for equitable green space access in urban communities to support children's mental health. This article explores a case study of New York City's Central Park, the most prominent urban green space in the United States that has served as a cultural and recreational hub for New York City inhabitants for over a century. Moreover, this study analyzes the ways in which Central Park can be improved to better accommodate child use while preserving the developmental benefits of green spaces. An in-depth literature review, field observations, stakeholder interviews, and qualitative interviews among park goers were conducted to better understand motives behind children's park use, empower the voices of caregivers and children in the design and maintenance of urban green spaces, and emphasize the importance of Central Park to New York City's youth. A thematic analysis of qualitative interview notes found four key areas of improvements needed within Central Park in order to protect the wellbeing of children: 1) public substance use, including drug paraphernalia and marijuana utilization, 2) insufficient bathroom accommodations, 3) fragmented jurisdiction and arbitrary regulations, and 4) ineffective transportation for children traveling within the park. These findings suggest that future interventions regarding the protection of urban green spaces should more directly prioritize child needs to support healthy development. Future research may explore the implementation of accountability systems to ensure key urban green spaces effectively serve child populations.



Psychological Challenges Among Caregivers of Children with Autism Spectrum Disorder in Pakistan: A Systematic Review

Warishah Qandil

CAS, Biology and Spanish

Advised by Maria Coutinho, Clinical Associate Professor, Wheelock: Counseling Psychology & Applied Human Development

This systematic review examines the psychological impact on caregivers of children with Autism Spectrum Disorder (ASD) in Pakistan, with particular attention to the role of cultural and social stigmatization of neurodivergence. This review addresses the question: How do sociocultural factors, including stigma and gender roles, shape the psychological experiences of caregivers of children with ASD in Pakistan? Caregivers, especially mothers, were found to experience significant psychological distress due to limited access to resources and insufficient social support, which is heightened by cultural attitudes toward mental health and developmental disabilities. Drawing on 17 studies conducted in Pakistan, this paper explores how cultural perceptions of neurodiversity influence caregiving practices and contribute to caregiver burden. Key dimensions of distress identified include emotional exhaustion, depersonalization, and reduced personal accomplishment, alongside high levels of stress, anxiety, depression, and diminished overall well-being. An interplay of child-related characteristics, caregiver demographics, and broader sociocultural factors shapes these outcomes. By aligning caregiver experiences with their sociocultural context, this study underscores the need for more inclusive, longitudinal, and culturally responsive research approaches. The findings contribute to a deeper understanding of caregiver mental health in Pakistan and highlight the importance of developing targeted interventions, support systems, and policy initiatives that address both caregiver well-being and the needs of neurodivergent children.

Ethical Safeguards for Generative AI's Impact on Creativity and Labor

Sarah Cadet

CAS, Computer Science

Advised by Seth Villegas, Lecturer in Computing & Data Sciences, CDS

As Generative AI continues to advance, it is imperative to develop guardrails that protect human creativity from exploitation and creative jobs from rapid extinction. This project aims to explore how policies can be designed to prevent corporations from leveraging publicly accessible internet data to train AI models without consent, which compromises creative work and threatens job security. Grounded in a utilitarian perspective, this project focuses on one grounding question: What regulatory frameworks can ethically protect workers in the art industry from displacement due to Generative AI, while not infringing excessively on the US's free commerce economy?

This project draws from current and proposed AI policies, copyright and technology law literature, and ongoing legal cases concerning generative AI. Additionally, this project incorporates both qualitative and quantitative efforts gathered through interviews with experts in law and the arts and individuals within the art community, alongside survey data collected from members of college art communities regarding perceptions of job security and the motivation to create in the age of AI.

Findings reveal a complex and evolving legal landscape. Courts appear inclined to interpret the use of copyrighted material in AI training as fair use (as AI companies argue), though several pivotal cases remain unresolved, and the court of public opinion within the art community is largely disapproving. This disapproval is largely due to the ethically questionable actions behind the creation of Generative AI and the possibility of artificial art being favored economically over human-made art.

This project culminates in an argumentative paper proposing policy solutions and compiling publicly accessible resources (such as advocacy organizations, unions, and technological tools) to help artists protect their work. Ultimately, it aims to contribute to ongoing discussions about ensuring ethical AI development without undermining creative industries.

Room 613 B, 2:00 PM



Effects of miR-223 on Behavioral and Pathological Progression in Alzheimer's Disease

Rohan Dupaguntla

CAS, Neuroscience

Advised by Tiffany Mellott, Assistant Professor, Chobanian & Avedisian SOM: Pathology & Laboratory Medicine

Alzheimer's Disease (AD) is a progressive neurodegenerative disease and the most common cause of dementia in older adults. The characteristic cognitive decline of AD includes memory loss, worsening moods, and withdrawal from relationships. These occur alongside extensive inflammation in the brain, synaptic loss, and distinctive protein aggregates in the form of amyloid-beta plaques and neurofibrillary tangles. The resulting damage and atrophy caused by these neuropathologies first occur in areas of the brain including the hippocampus and amygdala, which help govern memory and learning. After decades of research, however, few treatments exist, none of which can cure or even reverse AD, and drug development often results in failure.

Recent breakthroughs have been found in the relationship between AD and genetic/epigenetic regulatory mechanisms. MicroRNAs are small molecules that regulate the expression of a broad range of genes, and these effects often become even more pronounced as they cascade into even broader changes in gene expression. This study explores the effects of high and low levels of miR-223, a specific microRNA, on cognition in mice with AD by analyzing changes in spatial memory, associative learning, and anxiety. Additionally, immunological pathology was analyzed in the hippocampus and amygdala to determine whether supplemented miR-223 induces physical changes that correlate with behavioral change.

AD mice treated with miR-223 showed improved associative learning. However, the hypothesized improvements in amygdalar pathology were not observed. These results indicate that microRNAs interact with neurochemical systems through complex, indirect mechanisms which may differ from previously discovered pathways. Delving further into the exact molecular changes caused by miR-223 can provide insight into the role of microRNAs as well as new mitigation strategies for AD.

Epithelial Epiphanies: Comparing Epithelial Cell Signaling in Chronic Inflammatory Diseases in the Lungs and Gut

Rafael Dovarganes

CAS, Biochemistry & Molecular Biology

Advised by John Celenza, Director and Associate Professor of the Program in Biochemistry & Molecular Biology, CAS; Co-Chair: Biology Anti-Racism Committee

Diseases that cause inflammation cause a persistent detrimental effect to a multitude of people all over the world. Despite having similar initial causes, inflammatory diseases can affect multiple organ systems and present with a variety of symptoms. Whether or not these diseases share underlying cellular mechanisms remains unclear. Chronic Obstructive Pulmonary Disease (COPD) and Inflammatory Bowel Disease (IBD) are two such conditions that affect the epithelial cells which are the lining of the lungs and gut, respectively. Both diseases involve persistent inflammation and disruption of epithelial cells but arise in distinct environmental and biological contexts. My project aims to compare epithelial cell responses across these two diseases using single-cell RNA sequencing datasets from lung and intestinal tissues.

Publicly available datasets (GSE227691 for COPD and GSE214695 for IBD) were analyzed using Seurat, a specialized bioinformatics structure, in the RStudio data analysis program. After quality control to and gathering cells together, epithelial cells were identified based on marker genes and subsequently re-grouped to create subpopulations. Differential gene expression and pathway-level analyses were performed to characterize inflammatory and stress-related signaling programs.

Preliminary findings suggest that epithelial cells in both COPD and IBD share activation of core inflammatory pathways. My preliminary results show encouraging similarities. These differences likely reflect the environments of the lung and gut.

Overall, this study highlights conserved and tissue-specific epithelial responses to chronic inflammation, providing insight into how similar disease processes manifest across organs and what targets for pharmacological interferences are viable.



The T Should Not Have To Abide By Traffic

Teresa Popovic Markola

COM, Film & Television

Advised by Deepak Rauniyar, Associate Professor of the Practice in Film & Television, COM

Rather than the typical documentary or cinema verite, this film embraces an installation-based, experimental approach through nonlinear structure and ambient observation to understand the tension between proximity and disconnection, inviting viewers to reconsider what it means to share space in a city built to keep people moving, but not necessarily together. This film seeks to interrogate the absence of connection within spaces designed for collective movement. In environments where proximity and shared purpose might suggest the potential for human connection, commuters instead construct quiet barriers through their averted gazes, headphone/phone usage, and intentional detachment to transform public transit into a space of parallel solitude. The film traces commutes across multiple MBTA lines, assembling a fragmented yet continuous portrait of the Boston commute, situating public transit within Boston's larger transportation hierarchy, juxtaposing the lived realities of train riders against the city's enduring prioritization of private car infrastructure. Highways and car culture emerge as both physical and ideological counterpoints, underscoring systemic inequalities embedded in urban design.



Room 613 A, 2:15 PM



The Write to Return: Embodied Subjectivities in Contemporary Memoirs by Palestinian-American Women

Leila Elayan

CAS, Comparative Literature

Advised by Margaret Litvin, Convener of Arabic; Associate Professor of Arabic & Comparative Literature, CAS

The right of return is the principle of international law under UN Resolution 194 that mandates a person's repatriation in their home country after expulsion or displacement. Denied their right to return, exiled Palestinians and their descendants have had to reimagine and redefine inheritance beyond property. For the second- and third-generations of exiles, Palestinian identity itself has come to constitute their primary inheritance. This project explores the current shape of diasporic identity by studying authorial strategies within three contemporary memoirs by Palestinian-American women: *The Hollow Half: A Memoir of Bodies and Borders* by Sarah Aziza, *I'll Tell You When I'm Home* by Hala Alyan, and *Love is an Ex-Country* by Randa Jarrar. These memoirs narrate a double-displacement wrought by bodily experiences—abuse, addiction, infertility, surrogacy, anorexia—and by the original exile from Palestine. Physical displacements due to the Gulf War, the 2006 Lebanon War, and expatriation compound their metaphysical displacements, destabilizing their sense of belonging within their communities and in their bodies. I argue that the narrative practice of "embodied subjectivity," whereby the autobiographical subject stories their life through their bodily experiences, is a grounding and creative force that heals the rupture between self and body. Cultural codes and references throughout these texts intimate meaning to insider audiences while metaphors, similes, and extensive secondary source engagement communicate meaning to outsiders. These techniques are similarly affirming forces, asserting the authors' authenticity to readers and offering insight into the dynamism of Palestinian identity. Alyan, Aziza, and Jarrar resist the erasure of Palestine by adopting it as a lens and logic that clarify the meaning of their life stories. I conclude that while these writers continue the tradition of narrating exile, the meaning-making techniques and authorial strategies shared by these texts mark a new chapter of diasporic Palestinian literature.



Parasympathetic Reactivity as a Moderator of Attentional Allocation to Fearful Stimuli in Children with Callous-Unemotional Traits

Shreeya Khullar

CAS, Psychology

Advised by Nicholas Wagner, Associate Professor of Psychological and Brain Sciences, CAS; Program Director: Developmental Science

Children with callous-unemotional (CU) traits exhibit limited regard for others, inhibited sense of guilt, and an inability to positively navigate interpersonal interactions. CU traits are strong predictors of long-term risk for psychopathy and antisocial disorders. Thus, understanding developmental processes that contribute to the emergence of CU traits in early childhood is critical for implementing effective treatment programs for those at risk. Research on the physiological and behavioral markers of childhood fearlessness as risk factors for CU traits have focused on the parasympathetic nervous system (PNS), often measured using respiratory sinus arrhythmia (RSA). RSA reflects heart rate variability linked to the respiration cycle and facilitates responses to one's changing environment, such as emotional and social processing. Current research points towards an abnormality in regulation of this processing—or abnormal RSA—in children with high CU traits. However, despite evidence of a “fearless” phenotype in children with CU traits, little research has examined whether and how patterns of attentional allocation may underlie its development. This study examined 3-to-4-year-old children's PNS activity and eye movements while watching a fear-inducing clip from *The Lion King*. While there was no main effect of CU traits on threat-relevant attention, the relationship between the two was significantly moderated by RSA. Children higher on CU traits displayed significantly less attention to threat-relevant stimuli, but only when they also exhibited high RSA during the clip. This finding shows that physiological regulation influences the relationship between CU traits and attention allocation to threat-relevant stimuli. As such, this work holds significant promise for informing early, targeted interventions that could improve emotional processing in children with CU traits and reduce the risk of long-term antisocial outcomes.

The Contribution Score: When Free Speech Fails, Higher Education Falls

Emily Hamer

CAS, Psychology

Advised by Cati Connell, Associate Professor of Sociology, CAS

Academia has always been a place of protest, and recently, colleges have found themselves at the center of sociopolitical contention. To investigate the relationship between the suppression of free speech and higher education, I chose not only to delve into academic analysis but also to complete a creative interpretation of my findings. My project includes an academic introduction that delves into the history of college campuses as sites of protest, the impact of neoliberalism on free speech within higher education, and a critical analysis of contemporary attacks on higher education. My creative deliverable is a first draft of a novella titled *The Contribution Score*, which expands on key themes from my academic research and is written in a dystopian commentary style. My project stems from my personal experience as a college student, watching as the integrity of higher education crumbles due to overarching and fascist tactics from the current Trump Administration. Tangentially, as books are banned and AI takes over creative spaces, I wanted to utilize the rage I felt experiencing current events as a college student and produce a creative deliverable that captures this moment in time that can be read as both an academic output and a social commentary, akin to the works of writers such as George Orwell, Suzanne Collins, N.K. Jemisin, and more. The goal of my combined academic and creative output is to illuminate the authoritarian tactics currently used by our nation's government and provide a piece of consciousness-raising media that forces readers to reflect on the fact that the suppression of free speech on college campuses is only the beginning of the downfall of democracy.



The Brain Behind The Brawn: Inside the Psychology of Bodybuilding

Marty Tumey

Questrom, Business Administration - Finance

Advised by Joseph Harris, Associate Professor of Sociology, CAS

Bodybuilding occupies a distinct niche in the sporting world where success is not determined by acute performance outcomes, but rather a gradual process of refining one's physical appearance through rigorous nutrition and training regimens. Unlike sports that provide objective feedback, bodybuilders rely almost exclusively on visual appraisal. Furthermore, the athlete carries their physique with them at all times, which leaves room for constant evaluation, comparison, and obsessive behaviors.

Constant visibility introduces a unique psychological dimension, blurring the line between performance and one's identity. Even minor fluctuations in appearance can be meaningful in shaping an athlete's self image, reinforcing cycles of self-scrutiny. This raises an empirical challenge: why does a sport so strongly associated with discipline and health consciousness consistently exhibit high rates of psychological distress?

Existing evidence suggests bodybuilding carries an associated risk of multiple mental disturbances: body dysmorphia, obsessive-compulsive behaviors, and anxiety. However, interpretations are not uniform. Some frame bodybuilding as a structured outlet enhancing discipline and mental resilience, while others point to excessive preoccupation and unhealthy coping mechanisms. This divergence highlights the difficulty in distinguishing behaviors that reflect high-level commitment from those that become destructive.

The conflict between bodybuilding as a method of self-improvement and as a potential trigger for mental distress motivates my inquiry. The purpose of my project is to synthesize evidence from existing research, alongside my own qualitative interviews with bodybuilders that delve into the role of social media and substance abuse, to explain how a bodybuilding lifestyle influences mental health outcomes. Together, these sources aim to provide a holistic understanding of how the sport can both support and harm psychological well-being.

Team 132 - Autonomous Sailboat

Andy Asante

ENG, Mechanical Engineering

Advised by Emily Ryan, Associate Professor: ME, MSE; ENG

The project's objective is to develop and construct a 6-foot autonomous sailboat that can navigate a 250–500 meter freshwater course using GPS waypoints. The goal is to create a dependable and energy-efficient system that primarily employs wind power, in addition to demonstrating how mechanical design and control systems may collaborate in a real-world situation.

The structure, mast-step configuration, sail, steering mechanism, keel, and control system represented the six main subsystems of the sailboat. A flat-bottomed structure was utilized to enhance stability and maneuverability at low speeds—crucial for accurate navigation. The sail's fundamental airfoil design (NACA 0012) generates lift while maintaining reliable performance in moderate wind conditions. Materials such as fiberglass, balsa wood, and aluminum were selected to achieve a balance of strength, weight, and affordability.

This project's use of a real prototype compared to only simulations is a crucial component. This enables us to evaluate the system's performance in real-world scenarios, such as shifting water and wind patterns. Assembling the entire system and testing it to assess flotation, stability, sensor performance, and short-range autonomous navigation are current tasks. All things considered, this study demonstrates the difficulties and possibilities of developing small-scale autonomous maritime systems and lays the groundwork for further enhancements in performance and dependability.



Classifying Extracellular Matrix Architecture for Tissue Engineering

Ranely Henriquez

ENG, Biomedical Engineering

Advised by Jeroen E.G. Eyckmans, Research Assistant Professor of Biomedical Engineering, ENG

Healed wounds can generally be categorized within a range of outcomes, from scar-free to impaired. Impaired healing can lead to prolonged open wounds (chronic) or excessive scarring (fibrotic). During repair, the extracellular matrix (ECM), the structural network of proteins that supports tissue, is continuously remodeled as damaged matrix is cleared and new matrix is deposited. However, how changes in ECM architecture relate to healing outcomes remains poorly understood, limiting the ability to predict complications early. Our project aimed to quantify ECM architecture and determine how structural features correlate with wound healing outcomes.

We used a 3D microtissue model of repair in which tissues were created from fibroblasts embedded in a collagen gel that simulated ideal or impaired healing phenotypes. Microtissues were injured using laser ablation, and healing was monitored over several hours tracking ECM clearance and matrix deposition. Microtissues were stained for common ECM proteins including Collagen I, Fibronectin, and Tenascin-C and structural metrics, including fiber length, orientation, alignment, and density were quantified from these images. This was done using 2D analysis in ImageJ/Fiji, with future plans to implement 3D analysis. We employed Principal Component Analysis to identify the most informative ECM metrics. Additionally, we examined relationships between ECM characteristics and healing outcomes using logistic regression, with an ultimate goal of developing a neural network to predict outcomes from ECM images.



Sensory Overload vs. Structured Learning: The Role of Children's TV in Speech Development

Kaylin Torres

Sargent, Linguistics & Speech, Language, & Hearing Sciences

Advised by Jennifer Bentley, Clinical Assistant Professor, Sargent: Department of Speech, Language & Hearing Sciences

Children's television is often debated as either "beneficial" or "harmful" for language development, but this binary perspective overlooks a more meaningful question: what specific features of media shape how children process and produce language? While overall screen time is frequently studied, it remains unclear how variations in sensory load influence expressive language, particularly for children with diverse communication needs. Therefore, this project investigates how elements of children's television, such as pacing, auditory complexity, language structure, and narrative organization, may impact expressive language development. Drawing on research from developmental psychology, language acquisition, and media studies, this thesis introduces a rubric for classifying children's programming across four domains: visual pacing and editing, auditory environment, speech and language structure, and narrative and emotional tone. Using this framework, popular children's programs were analyzed along a spectrum from non-overstimulating and language-supportive to highly stimulating and cognitively demanding. Findings suggest that programs characterized by slower pacing, clear and repetitive language, and predictable narratives, such as Franklin, provide models of speech that are easier for children to process, store, and use. In contrast, fast-paced programs such as Cocomelon feature rapid transitions, dense auditory input, and reduced linguistic clarity, which may overwhelm processing systems and limit opportunities for language learning. In developing this project, I integrated interdisciplinary research to translate complex developmental theories into an accessible framework for educators and caregivers. This work was also informed by my personal experience growing up with a minimally speaking brother on the autism spectrum, which underscored the importance of evaluating media through a neurodiversity-informed lens. Together, these findings demonstrate that the impact of children's media is not inherent, but driven by specific design features that influence cognitive demand. Ultimately, this project shifts the focus from how much children watch to what they watch, offering a practical tool for supporting speech development.



Restitution Beyond Contracts: A Decolonial Approach to the Repatriation of Archaeological Artifacts

Caliana Samer Kanaan

CAS, Philosophy

Advised by Alisa Bokulich, Professor of Philosophy, CAS and Professor Miguel Ohnesorge, Assistant Professor of Philosophy, CAS

This project explores the conditions under which institutions are obligated to repatriate, or return, objects of archaeological significance to their communities of origin. While there are some formal legal agreements already in place, my work acknowledges that these can be lacking, necessitating a universal and ethical approach to this subject. Utilizing political philosophy, I discuss different moral principles and their relevance to repatriation, primarily those of justice, sovereignty, and reciprocity. This paper analyzes global ethics and cosmopolitan thought, which deems the individual as a citizen of the world regardless of their allegiance to a particular nation. In compiling these political and ethical views, I determine that moral obligations extend beyond national boundaries and require institutions to listen to the communities of origin when discussing matters of material culture.

Furthermore, the project critiques imperialistic systems of knowledge, as colonial powers have historically justified the extraction and looting of cultural artifacts from countries in the Global South under the guise of preservation. This reasoning has been used by Western institutions for centuries as justification for taking artifacts out of their countries of origin, allowing colonial power structures to maintain control over material culture. By engaging with decolonial scholarship, this paper engages with epistemic disobedience, or the active refusal to accept dominant systems of knowledge and instead move towards those of historically underrepresented groups. This allows us the opportunity to begin reparations towards the communities who have lost access to their material culture and restore their cultural agency. Ultimately, this project offers a decolonial, ethically grounded model to guide institutions in determining when repatriation is morally required, even in the absence of explicit contractual obligations.



Room 613 A, 2:45 PM

Splinters

Al Sutherland

COM, Advertising, Film & Television

*Advised by Scott Thompson, Director: Screenwriting Program;
Assistant Professor, COM*

Splinters is a short film about accountability, bias, and justice. It takes place within a protest camp, where a group of young people are standing up to the faceless corporation Quantanate. Evelyn, one of the protestors, is deeply committed to the cause—but she is hiding something: her father is a low-level employee at Quantanate. When Evelyn acts in a viral video exposing the company, her father's job is threatened and Quantanate orders the camp to be swept. She must decide whether to stand with the cause, or abandon it to protect her father's livelihood. This film is about what happens when two parts of your life that you deeply care about collide, and the reality of fighting for what you believe in. Within capitalism, everyone must work to survive, and it is impossible to maintain crystal clear moral integrity all the time. By nature of living and loving in our society, we unconsciously support institutions and corporations that don't align with our personal values. This doesn't mean that fighting for justice is futile, but that it is more important than ever. Evelyn is meant to be representative of an average young woman in the US. She is flawed and biased, but also compassionate, intelligent, and loyal. She is dedicated to fighting for a better world, but her family still remains close to her heart. The film asks: What would you do in Evelyn's shoes? What should she have done? What are you doing to support the causes you care about?



When the Story Matters: Interest-Driven Attention in Autistic and Typically-Developing Children

Prerna Shankar

CAS, Neuroscience

Advised by Melissa Holt, Director of the Kilachand Honors College, and John Wilson, Doctoral Student in Clinical Psychology

Children naturally pay more attention to things they care about, but how this manifests in autism-spectrum disorder (ASD), especially during everyday activities like storytime, is not well understood. Autistic children often develop strong personal (or restricted) interests, and research has found mixed results on how these interests impact social and language learning— in some cases, distracting from learning, and in other cases, motivating it. In this study, we asked whether embedding a child’s personal interests into a story would shape how they pay attention, and whether this differs between autistic and typically-developing children.

Using eye-tracking, we measured where 25 children (ages 3.5-8 years; 15 autistic, 10 typically-developing) looked while listening to two stories: one featuring a character related to their personal interests and one with a neutral, “non-interesting” character. Across both groups, children showed increased attention to characters when those characters reflected their interests. At the same time, autistic children spent more time looking at the story text in the neutral interest condition, suggesting a shift in attention away from text when interest-related characters are present. Additional analyses revealed that autistic children were more likely to return to and remain focused on interest-related characters once engaged. Importantly, many patterns were broadly similar across autistic and non-autistic groups, with no strong evidence that interests affect attention differently by diagnosis.

Together, these findings suggest that personal interests meaningfully affect children’s attention during learning contexts such as storybook reading. Rather than acting purely as distractions, when used purposefully, these interests may offer a valuable pathway for increasing engagement, with implications for how we design educational and therapeutic materials for all children.



The Greater Game: A Comparative Study of Geopolitical Strategy and Cooperation in the Turkic World

Nikolai Rodrigues

Pardee, International Relations

Advised by Ambassador Vesko Garčević, Professor of the Practice of International Relations, Pardee; Director of the Center for the Study of Europe

This project examines how member states of the Organization of Turkic States (OTS) position themselves within an increasingly contested Eurasian geopolitical landscape shaped by competing external powers. Building on a broader analysis of economic integration, foreign investment, and political alignment across the Turkic world, this presentation focuses specifically on the emergence of the Middle Corridor as a critical site of strategic competition and cooperation.

The Middle Corridor, connecting East Asia to Europe via Central Asia, the Caspian Sea, and the South Caucasus, has gained renewed importance in the aftermath of shifting global supply chains and the war in Ukraine. This presentation analyzes how major powers engage with this corridor through distinct but overlapping strategies. Russia continues to pursue economic integration through frameworks such as the Eurasian Economic Union, while China advances infrastructure development under the Belt and Road Initiative. In contrast, the United States has promoted initiatives such as the Trump Route for International Peace and Prosperity (TRIPP), alongside investment and trade coordination mechanisms, while the European Union emphasizes targeted investment and regional partnerships, including projects in countries such as Kyrgyzstan.

By comparing these approaches, this presentation highlights how economic corridors function not merely as logistical pathways, but as arenas in which geopolitical influence is negotiated and contested. Ultimately, it argues that the Middle Corridor reveals the extent to which commerce, infrastructure, and political strategy are deeply intertwined, offering insight into how OTS states navigate multi-vector pressures in pursuit of economic development and strategic autonomy.



"Siempre Estaremos Aquí": Unmaking History at el Bachillerato Popular Travesti-Tran Mocha Celis

Poppy Livingstone

CAS, Sociocultural Anthropology

Advised by Joanna Davidson, Associate Professor of Anthropology, CAS

In Argentina, travestis — a term roughly translatable as transfeminine, though irreducibly tied to Latin American histories of race, class, and state violence — face the lowest life expectancy and highest school dropout rates in the country. Criminalized for most of the twentieth century and barred from public space through the late 1990s, travestis were among the populations most systematically targeted by Argentina's last military dictatorship (1976–1983). Forty years later, Argentina passed what was internationally recognized as the most progressive gender identity legislation in the world. Between these poles of repression and recognition, travestis generated a luminous politics founded on kinship and mutual care that the institutions arrayed against them failed to extinguish. This paper follows that spirit into one of its most revolutionary expressions: the world's first high school founded by and for travesti and transgender students.

El Bachillerato Popular Travesti-Trans Mocha Celis is a free, cooperatively-managed secondary school in Buenos Aires serving travesti, trans, migrant, and working-class students forced out of conventional education. I spent four months at the Mocha in 2025 as an intern, ethnographer, and ESL teacher, learning in classrooms, cabarets, protests, and community kitchens alongside some of the most generous people I have ever met. Drawing on that experience, as well as interviews and archival research, I argue that travesti experience fundamentally disturbs standard narratives of democratic transition and educational inclusion. For travestis, dictatorship was not a rupture from ordinary life but an intensification of conditions that long preceded it. Rights, when they finally arrived, came faster than the institutions meant to support them could be built. This paper traces that history into the Mocha's classrooms, where its tensions are made available for students to examine and revise — and where history, as one teacher put it, is never "in a glass box."



Room 613 A, 3:30 PM

Community Impact of the Green Line Extension

Joseph Tudisco

CAS, Biology

Advised by David Glick, Professor of Political Science, CAS

The Green Line Extension (GLX) is Greater Boston's newest transit expansion. Serving the cities of Somerville and Medford, the line traverses a densely populated area that previously lacked rapid transit, connecting it to destinations downtown and beyond. Initially intended to ease disruptions in the wake of the Big Dig, the project suffered many setbacks. It finally opened in 2022, scaled back from its original design. Since then, little has been published regarding its efficacy, particularly relating to its impact on the community. To determine this, I conducted semi-structured interviews with people who either live or work in the areas served by the GLX, as well as residents of a neighborhood that was intended to be served by the GLX, but whose station was eliminated from the final plans. Questions about transit usage, opinions of the system, and perceived changes to surrounding neighborhoods were asked. It was found that most people approve of the GLX, largely believing it to be useful, bringing positive changes to community connectivity and accessibility. These results can be used to analyze the broader impact of the GLX and to help predict future impacts of transit projects in the region. In addition, I recommend that the MBTA conduct maintenance and expand service to meet the needs of residents. These findings can be used to inform decisions regarding transportation policy in the region and elsewhere.



Policy for Impact: Comprehensive Sex Education as a Tool for Protecting and Improving Student Wellbeing

Lucille Meyer

Wheelock, Education & Human Development

Advised by Rheanne Farrington, Adjunct Professor, Wheelock: Youth Development and Justice Program

The United States lacks sweeping legislation or policy on sex education, leaving it up to states to decide if and how it is taught in classrooms. Sex education has been highly politicized in the current political landscape of the United States, and as such, widely varies from state to state. This leaves some students at a severe disadvantage, as sex education can provide a wealth of knowledge that aids in promoting student health and wellbeing.

Comprehensive Sex Education (CSE) can cover a wide variety of topics including consent, Sexually Transmitted Infection (STI) prevention, gender and sexuality, anatomy, abstinence, and safe sex practices. It is generally defined as scientifically accurate, age appropriate, informative, and inclusive. This project examines state CSE education policy in Massachusetts, including barriers to implementation, strategy for addressing and overcoming those barriers, and analysis of the work being done. I have primarily conducted my research through an internship with the Massachusetts Department of Elementary and Secondary Education (DESE) in their Comprehensive Health and Physical Education unit. The work that I have done there, and my observations and qualitative data from meetings, interviews, and materials, was the primary source of my learning for my keystone, along with my initial literature review of CSE research on importance, best practices, and implementation. My finding is that the main barriers to CSE are the stigma and misconceptions around it, and the political pressure and pushback that come with that stigma. Key strategies that I observed for combating those barriers were collaboration and support across states and professionals in health education policy, combating stigma with thoughtful reframing and clarity, and shielding and protecting against pushback in order to ensure that the work is still able to be done.



Framing Fandom: How Sports Journalism Shapes Soccer Culture in Argentina and the United States

Adriana Carlota Leyba Macedo

COM, Journalism

Advised by Michael Holley, Associate Professor of the Practice in Journalism, COM

When one refers to sports culture, there is usually a shared understanding of what is being discussed. But what is the true definition of “sports culture”? At its core, it encompasses what people breathe, read, discuss, analyze, compare, and historicize: what they talk about at length before and after games on sports radio, what they debate around the office water cooler, and what fills conversations in bars and pubs. In short, sports culture refers to what people follow and emotionally invest in, rather than what they themselves play. Soccer is agreed upon as the most popular sport in the world;¹ and globalization has just sped up its reach. However, regardless of the United States’ global impact across almost every industry, the country has failed to consolidate itself in the world of soccer... why? Although substantial resources have been poured into establishing soccer in American life, the sport still feels somewhat out of place. In the last few years, big companies, like Apple, and Major League Soccer have attempted to bring more spectators; this has been done mainly through the acquisition of big-name players like Luis Suarez, Jordi Alba, and Lionel Messi, for example. However, the lack of a soccer culture has hindered the league's growth among the general public. Media serves as the connector between untouchable sports entities and the fan. How sports are presented to spectators matters. Journalists shape culture through their publications, language, and decisions on what they deem worthy of coverage. This paper analyzes the differences in sports media narratives and public perceptions of sports culture in the United States and Argentina. Argentina has an established sports journalism industry as well as a strong soccer culture (85% of Argentines are interested in soccer.) The research will directly compare American and Argentine media coverage of soccer in order to better understand its impact on national culture. Using an anthropological approach, the study will draw on literature reviews, analyze media language, and incorporate individual interviews. The primary focus lies at the intersection of journalism and culture, aiming not to produce a definitive conclusion, but rather to develop a theory explaining why the United States’ relationship with the sport differs so significantly from that of other nations.



Room 545 A, 4:15 PM



Bridging the Divide: Culture Among Allopathic and Osteopathic Medicine

Sabrina Wong

Sargent, Human Physiology


Advised by Danuta Charland, Pre-Health Academic Advisor, Sargent

In healthcare, physicians holding a Doctor of Medicine (MD) degree are often perceived as more prestigious than those with a Doctor of Osteopathic Medicine (DO) degree. DOs are currently outnumbered by MDs at an approximate ratio of 9:1.

The purpose of this study is to determine what factors contribute to this disparity and whether a greater prevalence of osteopathy will be beneficial for medicine. Prestige, money, social pressures, and DO stigma are examples of extrinsic factors driving pre-medical students towards the MD path. This study sought to explore whether intrinsic motivators aligned with MD and DO philosophical frameworks influence students' decisions.

Thirteen total participants— six MD medical students, six DO medical students, and one former pre-medical student— participated in semi-structured interviews conducted via Zoom. Participants were asked about their career aspirations, why they chose to pursue their respective medical degree, and the future of MD and DO equality in healthcare.

The findings of this study are consistent with the general perceptions of MDs and DOs. Notably, no participants reported philosophical foundations as a primary influence when deciding between MD and DO programs. This suggests that much of the disparity between MDs and DOs can be attributed to longstanding biases within medical culture. In addition, participants unanimously agreed that an increase in DOs may be beneficial for medicine. Continued expansion of osteopathic programs, along with evolving legislative efforts, such as the FAIR Act, aimed at promoting greater equivalence between MD and DO training pathways and licensing examinations (USMLE and COMLEX), may contribute to reducing existing disparities. Addressing knowledge gaps in allopathic and osteopathic medicine may also enhance DO awareness, so I designed a “pre-medical toolbox” for Boston University’s Pre-Health Advising website to serve as a guide for pre-medical students deciding between MD and DO.



From Sherd to Story at Samaria Sebaste: How Archaeological Pottery Reveals a Wealth of Information

Sasha Greenhall

CAS, Classics and Archaeology

Advised by Andrea Berlin, James R. Wiseman Chair in Classical Archaeology, Professor of Archaeology and Religion, CAS

Pottery is an important archaeological resource. Every aspect—forms, fabrics, decorative styles, production origins, distribution locales—holds clues to otherwise invisible facets of ancient life. The pottery unearthed at Samaria-Sebaste in the occupied West Bank tells the story of an important city and thoroughfare spanning over two millennia. It serves as a witness to the region's complex, layered history, to the rise and fall of empires, and to the evolution of cultures.

Eastern Sigillata A (ESA) is one of the most important types of pottery at Samaria-Sebaste. ESA was the first mass-market tableware made in antiquity and was produced from c.135 BCE-150 CE. Harvard and the Palestine Exploration Fund excavated vast quantities of ESA within a hilltop complex built by Herod the Great in the 1st century BC, that included a temple to Augustus and an adjacent palatial villa. For the first part of my project, I studied ESA vessels now stored at the Harvard Museum of the Ancient Near East (HMANE) to understand how ESA fits into the area's cultural, geographical, and chronological landscape and how archaeologists can deduce important contextual and cultural information from pottery sherds (i.e., broken fragments). The second part of my project entailed photographing every ESA vessel and uploading these images along with details, descriptions, and drawings to the [Levantine Ceramics Project \(LCP\)](#). The purpose of the [LCP](#) is to build an interactive, open-access database for archaeologists worldwide to obtain pottery data previously unavailable. I have now uploaded all HMANE's whole and fragmentary ESA vessels. In September 2026, my work will be published in The LCP Handbook to ESA. The ESA from Samaria will appear alongside ESA from sites across the Mediterranean, allowing archaeologists to understand this ware, as well as benefit from sharing knowledge that can advance progress and inspire future collaborative endeavors.



Room 613 B, 3:45 PM




Refugee Protection Outcomes in Signatory and Non-Signatory States: A Comparative Case Study on Jordan and the U.S.

Jasmine Lee

Pardee, International Relations

Advised by Noora Lori, Associate Professor of International Relations, Pardee; Director of Middle East and North Africa Initiative

Does the ratification of international refugee conventions by states lead to better refugee protection outcomes, as measured by admissions and legal status, or do non-signatory states provide comparable—or greater—protection in practice? This paper examines this question through comparative case studies on the United States, which ratified the 1967 Protocol, and on Jordan, which is not a signatory to either the 1951 Refugee Convention or the 1967 Protocol, but instead has a separate Memorandum of Understanding with the United Nations High Commissioner for Refugees (UNHCR). By measuring how many refugees and asylum seekers these states admit, and evaluating the types of legal status and rights they provide, primarily access to residency versus pathways to citizenship, I will compare the two states' protection of refugees. I argue that in the case of the U.S., accession to the convention may be associated with stronger legal status or rights, but not necessarily higher admissions. Whereas for Jordan, non-signatory status may correspond to hosting larger populations but offering more limited or precarious legal status. What is certain is that both states are moving towards policies that limit protections for refugees. This paper seeks to interrogate the conventional wisdom that signatory states unequivocally provide better protection to refugees than non-signatory states, as refugee protection is multifaceted and encompasses many different dimensions that can contribute to durable solutions to displacement.



Navigating Federal Pressure: Community Health Organizations' Adaptation and Resistance to Policy Shifts

Zoe Solberg

CAS, Sociology

Advised by Joseph Harris, Associate Professor of Sociology, CAS

Since January 2025, executive orders have reduced or eliminated funding for community health organizations (CHOs) that provide gender-affirming care and services considered to support diversity, equity, and inclusion (DEI). CHOs depend on federal grants to provide affordable care to underserved populations and are especially vulnerable to these changes. Drawing on Michel Foucault's concept of biopolitics—the power to govern the health of a population—this study examines how the federal administration exercises power through funding mechanisms to shape which communities are deserving of healthcare access and formalize exclusion for the undeserving. Through 15 semi-structured, in-depth interviews with staff members at Boston-area CHOs, this study explores how organizations manage this biopolitical pressure. After Institutional Review Board approval, participants were recruited through purposive and snowball sampling until data saturation was reached. The four organizations included in this study vary in structure and patient populations: one serves low-income families through primary care, two provide sexual health services for LGBTQ+ youth, and one provides LGBTQ+ services and syringe access programs. Thematic analysis revealed that CHO's responded to recent policy shifts through multiple strategies, including removing targeted language from online materials, downsizing programs, and proactively addressing patient concerns. These themes illustrate both compliance with and resistance to federal pressure, highlighting how health organizations balance state governance and a commitment to their patients. By investigating how CHOs mediate biopolitical influence, this project contributes to a deeper theoretical understanding of governance and political resistance in community-based healthcare and offers practical insights on how institutions adapt, protect, and sustain care in the face of political repression.



Room 545 B, 4:00 PM



MaternalScreen: A Portable Diagnostic Device for Malaria and Trichomoniasis Detection

Berit Schaus

ENG, Biomedical Engineering

Advised by Catherine Klapperich, Professor of Biomedical Engineering, ENG

Plasmodium falciparum (Pf) is the most virulent and deadly malaria-causing parasite in humans, responsible for hundreds of thousands of deaths annually, most of which occur in sub-Saharan Africa. Current diagnostic methods rely on blood smear microscopy, which is often impractical in low-resource settings. During pregnancy, Pf can sequester in the placenta, and co-infections with sexually transmitted infections (STIs) such as *Trichomonas vaginalis* (TV) increase the risk of serious complications for both mother and child. Shortages of trained personnel and a lack of cold chain infrastructure further delay diagnosis and treatment in many resource-limited regions.

This project aims to develop a low-cost, portable diagnostic device capable of detecting both Pf and TV using a simple, non-invasive urine sample. The system combines a novel DNA amplification method, iso-IMRS, with a compact heating element and an inexpensive acrylic enclosure to enable testing without specialized, expensive laboratory equipment. By using freeze-dried reagents, the system eliminates the need for refrigeration, making it suitable for resource-limited healthcare settings.

To date, we have designed a prototype device and heating circuit, and demonstrated successful DNA amplification using freeze dried iso-IMRS reagents, with results detectable via lateral flow strips. Current work focuses on evaluating amplification performance using the integrated heating system and further validating the assay under clinically relevant conditions. This platform represents meaningful progress toward expanding access to rapid, non-invasive diagnostics for malaria and STI co-infections in pregnant, underserved populations.

Finding a narrative at Mass. and Cass

Anna Rubenstein

COM, English

Advised by Steve Greenlee, Professor of the Practice in Journalism, COM

At their best, narratives help us understand each other better — they are opportunities to immerse ourselves in the lives of others and leave with a better sense of different circumstances. This year, I spent time looking for a narrative to report. I found the seeds of stories in Baltimore, and then Maine, but settled on my own backyard.

Most Boston residents know Mass. and Cass, a busy intersection between the South End and upper Roxbury that has long been known as the city's epicenter of the addiction and homelessness crises. I started meeting with experts in November to better understand the moment it finds itself in today. Everyone shared a similar concern: the Wu administration has quietly shifted away from a public health approach, abandoning harm reduction efforts and embracing a crackdown grounded in political gain.

A needle exchange program that provided quick cash to those in need ran out of money. An old hotel at the intersection that was converted into transitional housing shuttered due to a lack of funding. Could the city have kept these programs alive? A better question is, would they? Maybe the most devastating loss has been the closing of the engagement center, a 7,000-square-foot, \$1.2 million building that is now used as office space for the city's street outreach team. Before spring of 2022, the center was a lifeline for people to take a shower, have a warm meal, and even get their teeth cleaned.

I got to know many people pushing to help the city's most vulnerable despite this changing approach. A woman who serves home cooked chicken and rice from her sedan, a security guard who has saved lives, several members of the street outreach team who pile into vans and look for their clients. This Keystone explores what I found and what I learned about constructing narratives.

Room 613 B, 4:00 PM



No One is Safe: The Criminalization of Humanitarianism Across Desert and Sea Borders

Bella Candalaria Moreno Enriquez

Pardee, International Relations

Advised by Noora Lori, Associate Professor of International Relations, Pardee; Director of Middle East and North Africa Initiative

Supplying migrants with food and water became grounds for U.S. prosecutors to put non-profit volunteers on trial for “harbouring migrants”. Reports have shown an increase in criminalization efforts towards migrant rights defenders in U.S. border states since 2018. My research examines why humanitarian actors are being criminalized in the U.S. federal government — and why this has intensified since 2018.

This research is significant because it situates the U.S. case within a broader global pattern, in which other major migration routes have reported attacks on humanitarianism. Over 100 trials have occurred across Europe that have criminalized people for offering food, shelter, transport, and legal aid to migrants. This thesis argues that states intentionally frame human rights defenders' actions as criminal activities to confuse the lines between humanitarianism and illegality, enacting a form of migration deterrence to discourage future humanitarian efforts and solidarity movements with migrants.

I answer my research question by examining 2018-2019 court cases and NGO reports involving accusations of criminal activity for historically acceptable forms of humanitarian activities in Arizona, California, and the Central Mediterranean Sea. These case studies will be analyzed to identify actors, state responses, legal tools, and outcomes of instances of criminalized humanitarianism. Through this close examination of case studies, cross-case patterns will become more apparent, synthesizing common charges, bureaucratic tactics, and security framing, and their impacts on migration and humanitarian work. Through my research, I aim to shed light on the implications of criminalized humanitarianism, given that human rights organizations and defenders are essential to the enforcement of international norms, the protection of migrants' rights, and the maintenance of democratic accountability.



Room 545 A, 4:15 PM

"According to the kind of sex which doth prevail"; Transgender Originalism

Rysen Hirata-Epstein

CAS, Political Science and English

*Advised by James E. Fleming, The Honorable Paul J. Liacos
Professor of Law, LAW; Graduate Faculty of Political Science
Member, CAS*

The question, “Do transgender people have the right to use the bathroom most aligned with their gender identity?” has become the center of a broader culture war in America. As more restrictive anti-trans laws get on the books and lawsuits multiply against bathroom statutes, this query has shifted from a measure of political beliefs to a navigation of the labyrinth of litigation. But in this tangled web of trials and morals, I believe the answer lies not in our current moment, but on the shores of England over six hundred years ago.

British common law, the very bedrock from which American jurisprudence was built, has long contained cases that deal with transgender people throughout history. In reexamining the facts that surround these proceedings, the charges they received, and their actions in court, a clear picture emerges: transgender people for hundreds of years were viewed in the social and legal spheres as the gender they presented as, not as the sex they were born with. By selecting the stories of past figures who found themselves toiling with the courts, we can employ originalism (a tactic used largely by conservative judges and justices, which asks what the founders would have thought of a law) for liberal goals, forming a lineage of transgender legal tolerance beginning as early as the fourteenth century.

Thus, when asking history whether transgender people have the right to use the bathroom most aligned with their gender identity, centuries of evidence point to yes. My project attempts to collect these cases and present them in this way for the first time.



The City of London is Falling Down

Anjali Amin

CAS, Economics and Computer Science

Advised by Andrea Vedolin, Department Chair and Professor of Finance, Questrom

My project investigates the decline of the United Kingdom's financial sector, with a focus on the City of London, historically one of the most important global financial hubs. In recent years, a variety of struggles have raised questions about whether London can maintain its global status, and whether the nature of the decline that the City is experiencing is cyclical or structural. Academic debate on the topic is limited in the range of data it assesses, and many arguments for and against London's decline focus solely on specific industries or historical events. My project aims to reconcile these competing claims and determine the extent and causes of the downturn in London's financial sector. Through a combination of longitudinal and comparative analysis, my project examines financial and economic data on London and other global financial centers in the United States, Europe, and Asia, as well as historical events and policies that contributed to the sector's problems. Using a wide range of data allows me to develop a more concrete conclusion by looking at a holistic picture of the industry's history and situation, something that other studies are missing. In the Symposium presentation, I will lay out the major factors I examined to assess London's decline, and the results of my research, highlighting how they fit into the current academic discussion. I found that London faces structural issues that have created increased pressure from other global competitors. By conducting a comprehensive review of many influential factors, I found that London's issues with international market dynamics, capital markets, and other sectors have created structural cracks in the once mighty City.



Whether the United States fashion industry can be regulated to ensure sustainability through PFAS regulation and a circular economic policy

Meghan McGrody

Questrom, Business Administration - Finance and Law

Advised by Kabrina Chang, Clinical Associate Professor of Business Law and Ethics, Questrom

The United States fashion industry is the largest apparel market in the world, worth more than \$360 billion. The industry is also one of the leading contributors to the environmental and humanitarian crisis plaguing the globe as the United States produces over 17 million tons of textile waste annually. Per- and Polyfluoroalkyl Substances (PFAS) in textile waste are responsible for water and air pollution and dangerous public health problems. A circular economy is the most promising solution to the adverse environmental impacts of textile waste. A “circular economy” is an economic system based on the reuse and regeneration of materials, or in this case, textiles, as a means of continuing production in a sustainable and environmentally friendly way. Few initiatives have been proposed, such as the European Union’s Strategy for Sustainable and Circular Textiles in attempts to regulate the industry. My research focuses on the crises caused by textile waste and PFAS, existing regulations in other countries compared to regulations—or lack thereof—in the United States, and potential solutions via a circular economic policy and an emphasis on sustainability. I presented my research at an event hosted by BU Campus Closet, a sustainable fashion organization, and to several classes to educate my peers about sustainable fashion and how they can combat the textile waste crisis locally.



Rage Bait Marketing in Beauty and Fashion Brands: How Structural Inequality Shapes Backlash, Influencer Culture, and Brand Survival


Cavelle Simpson

CAS, Psychology

Advised by Sandra T. King, Executive Fellow; Director: Health Sector Mentoring Program; Marketing Faculty, Questrom

This project analyzes how consumer backlash operates within the beauty and fashion industry, with particular attention to what is identified as “Black rage bait marketing,” a pattern in which controversies involving Black consumers generate widespread engagement and visibility. This is accomplished through a comparative case study analysis of beauty and fashion brands, including Hanifa and Ami Colé, alongside comparable brands with differing levels of institutional support. The project draws on brand performance data, media coverage, influencer content, and legal frameworks to examine how backlash unfolds and how brands respond to reputational crises. While public discourse often frames consumer outrage as the primary driver of brand success or failure, this research finds that outrage alone is not determinative. Instead, structural factors such as access to capital, institutional backing, supply chain infrastructure, and media amplification shape whether brands can recover from controversy. Current literature on marketing and entrepreneurship suggests that visibility generated through controversy can increase engagement, yet it does not account for the unequal conditions under which brands operate. This project builds on that literature by demonstrating that Black-owned brands often face heightened vulnerability due to systemic barriers in funding and industry support.

In addition, this project evaluates the role of Black beauty influencers within these cycles, analyzing how responsibility is distributed and how legal protections, including FTC guidelines, apply in practice. The symposium presentation will introduce a root cause framework that maps the relationship between backlash and structural inequality. Investigating these dynamics provides a more comprehensive understanding of accountability in the beauty industry and highlights the need for structural change beyond surface-level inclusivity efforts.



Room 545 A, 4:30 PM

Elevating Automation Opportunities for Boston University's School of Theatre

Jules Trager

CFA, Technical Production

Advised by Joel Brandwine, Assistant Professor, CFA; Program Advisor for Technical Production and D&P Theatre Arts

In productions such as music concerts and Broadway shows, scenery moving, known as scenic automation, creates live-entertainment magic. Examples of scenic automation include the lifts that reveal your favorite performer on stage at concerts, Hamilton's turntables, and Hadestown's lift and turntables. Scenic automation is when a machine communicates with sensors, controllers, and computers to move heavy scenery, allowing scenery to have its own choreography.

While these systems are attainable for large commercial productions, automated scenery is challenging for university theatre programs to execute successfully since universities often don't have the time, money, or resources needed to integrate automation in a production. Still, student designers want to use automation as a storytelling device, and student technicians want the educational opportunities to work with the technology they will encounter professionally. Focusing on the use of stage lifts for Boston University's School of Theatre (BU SOT), this project designs and implements a lift system that is accessible for the labor and budgets available to BU SOT. An evaluation of different stage lift systems revealed the scissor lift solution best addresses BU SOT's need for a stable lift system that is easy to maintain and install while being reusable for future productions.

Since this project began in Spring '26, I have been working on the design and engineering of my scissor lift, where I am creating a 3D CAD model of the lift based on my analysis of structures, materials, and dynamics. This model will continue to be revised over the summer so it can be used to build and integrate the lift structure and its automated components in the Fall '26 semester, producing a fully-fabricated and working scissor lift for BU SOT's future use.

Room 545 B, 4:30 PM

ACKNOWLEDGEMENTS

The Keystone Symposium is the culmination of four years of growth and learning within the Kilachand Honors College. We are tremendously grateful to all members of the KHC community for their dedication and support. Without each and every one of you, this event would not be possible.

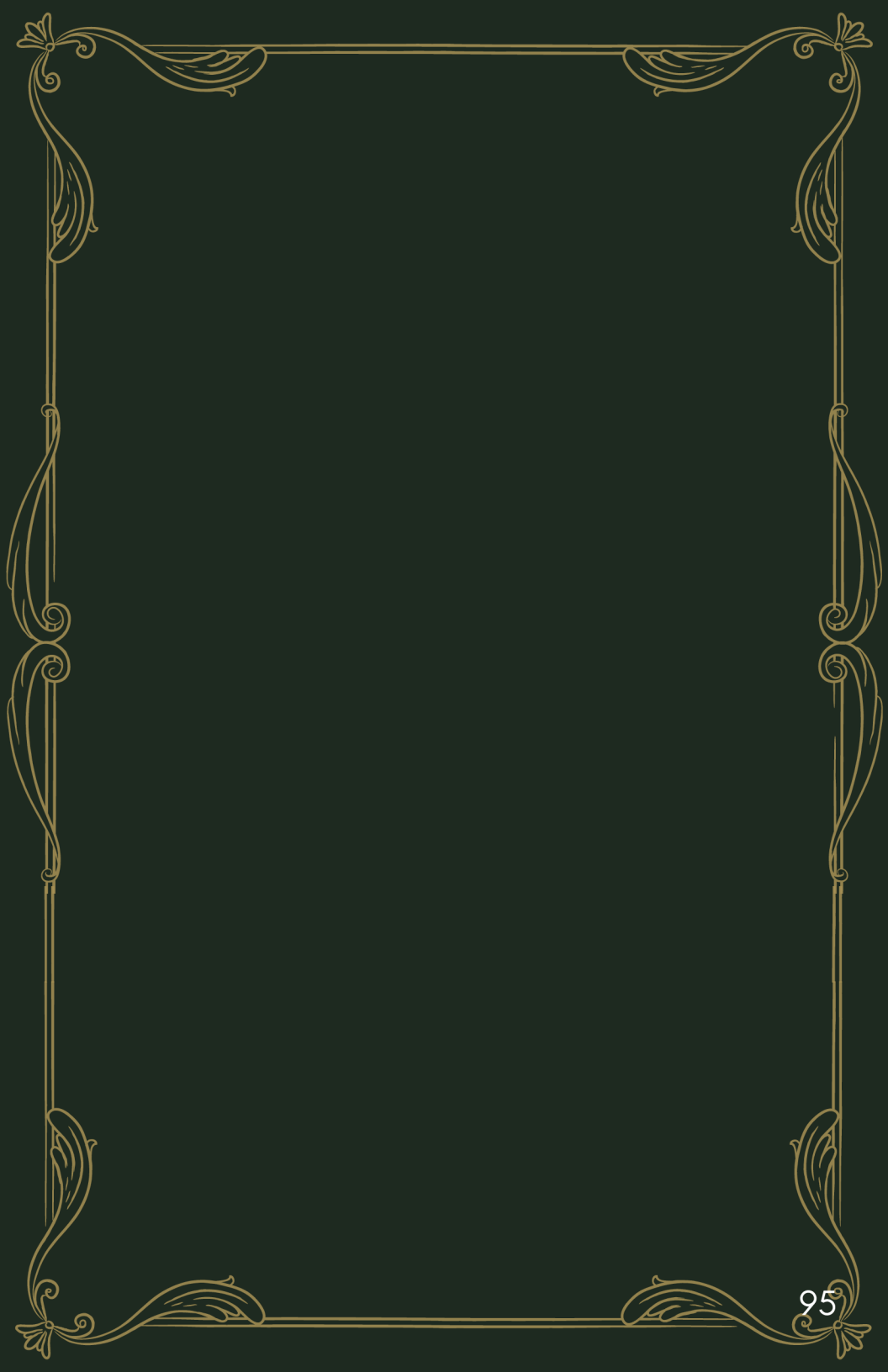
A special thank you to Amy Fish, Matthew Schratz, Megan Kagstrom, and Rick Tonetti for their endless support in bringing the Keystone projects and Symposium to fruition. Thank you to KHC Associate Directors Sophie Godley and Emily Ryan, and our wonderful Director, Melissa Holt. They lead with kindness and brilliance and have truly made KHC feel like home. For that, we are immensely grateful.

To all the Kilachand advisors—Taryn Craig, Dominique' Flagg, Shoronda Matthews, and Elijah Willig—thank you for your guidance throughout our KHC journeys. You have certainly propelled us to where we are now.

Thank you to all the members of the Symposium Committee for their hard work in bringing this event together. Thanks to committee members: Sydney Aslan, Isabella Castillo, Catherine Knox, Thomas Larsen, Perna Shankar, Rebecca Smith, Shravya Tathineni, and Saanvi Thakur.

Finally, thank you to all the presenters, advisors, and guests at today's symposium. We hope this journey has been rewarding. Best of luck in your future endeavors—we cannot wait to see what you accomplish!

Your Keystone Planning Committee





Kilachand Honors College

91 Bay State Road, Suite 115

Boston, MA 02215

bu.edu/khc