

NYU ABU DHABI CLASS OF 2019

CAPSTONE PROJECTS



CLASS OF 2019

CAPSTONE

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FOREWORD



The Capstone Project is one of the culminating experiences for all students at NYU Abu Dhabi. This yearlong endeavor engages students first-hand in the discovery and production of knowledge, resulting in a deep intellectual experience. As the final step before graduating from NYU Abu Dhabi, no other project better embodies our conviction that significant research and original creative works are essential elements of the highest quality undergraduate education.

This publication presents an anthology of abstracts from Capstone projects across the university's academic majors, spanning the arts, engineering, humanities, natural sciences, and social sciences. The resulting projects highlight the formidable intellectual insights and creative accomplishments of an extraordinary cohort of international students from more than 75 countries.

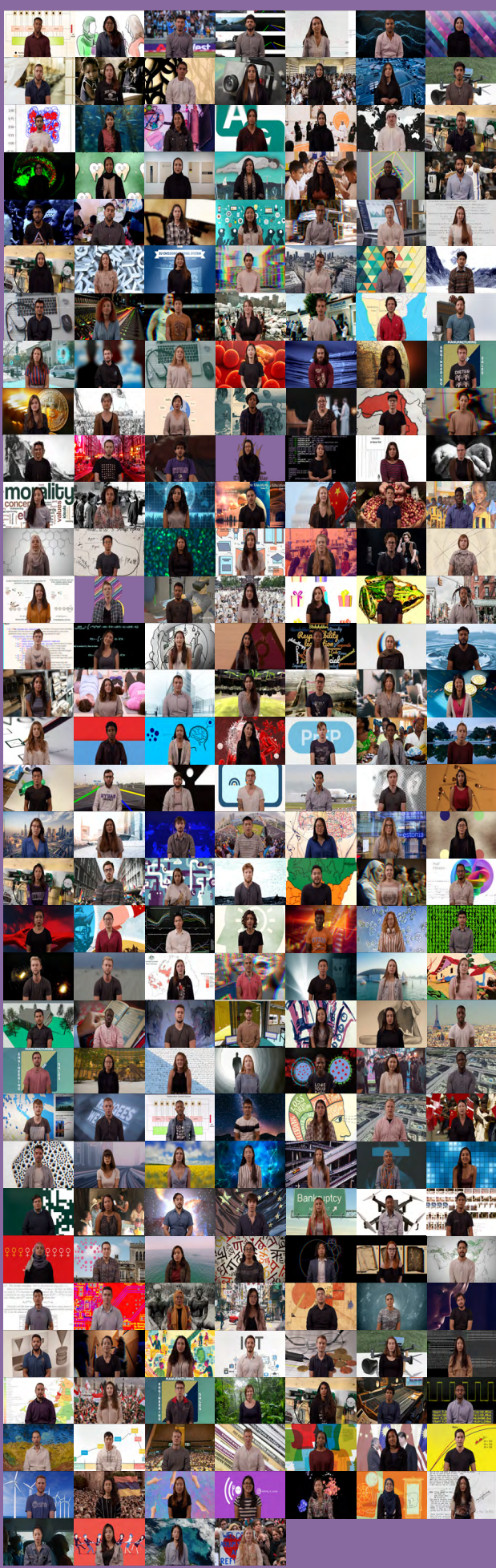
NYUAD students demonstrate a rare combination of global perspective and international diversity in addition to traditional analytical prowess and intellectual fortitude. Through sustained critical inquiry, intensive research and creative activity, they pose novel questions, identify key trends, offer solutions to real-world problems, and grow in ways that will prepare them for the next chapter of their lives. These projects include examples of the finest schol-

arship and creative accomplishments, leading the students that have completed them to obtain great academic distinctions, such as winning prestigious awards and prizes, including the Rhodes Scholarship, as well as opening doors to the finest graduate programs and job opportunities in the world.

As a companion to this anthology, Alexis Gambis — NYUAD professor, filmmaker, and biologist — has produced a short film entitled *The Capstone Project* (2019). The cumulative effect of the film is a striking testament to the prolific talent, extraordinary ingenuity, and powerful creativity that distinguish our students. In the years to come, this anthology and the companion film will serve as an archive of the Capstone project and a reminder of an extraordinary class that has undergone intellectual growth and ethical maturation, and forged lifelong values and friendships during these formative years at NYU Abu Dhabi.

As this undergraduate chapter draws to a close, we take this moment in the academic career of the Class of 2019 to celebrate their pioneering intellectual accomplishments — and to recognize their incredible potential to contribute to Abu Dhabi and the world.

Fabio Piano
Provost, NYU Abu Dhabi



THE FILM

The Capstone Project (2019)

Alexis Gambis

The Capstone Project attempts to distill the essence of a yearlong intellectual endeavor into a mosaic illustrating the rich diversity of ideas and nationalities that make up the fabric of NYU Abu Dhabi.

To celebrate the end of their undergraduate careers, members of the Class of 2019 summarize their creative and intellectual discoveries on camera. Each student explains his or her Capstone project in just 10 seconds while standing in front of a green screen constructed from an image, video, or keyword related to their project. The film is directed by Alexis Gambis, assistant professor of biology, film and new media, and science.



Alexis Gambis

ARTS AND HUMANITIES

ARAB CROSSROADS

Carl Alexander Burlin

"A New Paradigm" for Syrian Refugees?: Development, Displacement Management and (Dis-)Empowerment in Jordan

This paper researches the intersection of security politics, development, and humanitarianism in the context of the Syrian refugee crisis in Jordan. In doing so, it traces how the strategic response to the Syria crisis transformed from a short-term humanitarian mission focusing on emergency relief, to a long-term development enterprise centering macroeconomic interventions, empowerment programs, and refugee integration. Based on fieldwork conducted in Jordan over the summer of 2018, as well as a close reading of NGO reports and policy documents, I argue that the turn to development planning has failed to address the specific challenges of the refugee crisis in Jordan. As a "globalised blueprint" of displacement management, the new policy framework attempts to tackle complex social, political and economic issues with simple, technical and generalizing development interventions. In doing so, it has not only been unable to fulfill its macroeconomic targets of strengthening the Jordanian economy, but also its humanitarian goal of empowering the Syrian refugee community.

David Curcubet

Student Politics in the Cold War Era European Kurdish Diaspora

The project studies the overlap of left-wing and nationalist ideology production by the Kurdish Student Society in Europe from the late 1950s to the early 1980s. While using left-wing politics to advance one's nationalist aspirations was not unique in that time period, the case of the Kurdish diaspora is understudied. The intervention of this project is an analysis of the ideology production of the KSSE in the Kurdish diaspora in conversation with the broader diaspora, Kurds in the homeland, European governments and international organizations, and global leftist movements.

ART AND ART HISTORY

Hajer Al Mansouri

The Breadwinner

My Capstone project is a documentary photography series revolving around artisan work and labor conditions in contemporary Morocco. It features numerous conditions in which women, children, people with special needs, and the elderly live and work. The project highlights complications

of "agency vs choice" in the subjects' stories. The photographic series is printed on fabric and embroidered with traditional Moroccan Akeeka which is a form of embroidery that originates in the city of Marrakech. For my Capstone

I traveled to Morocco and befriended members of the textile workforce. I documented individual interviews through videos and photographs. I connected with a national lawyer who specializes in women and children, and went on visits to numerous women and children organizations where I learned about the issues that most affect them. The organizations work to ensure the safety of the work environments. The artisan masters offered work samples and brochures which I will incorporate in my gallery. My Capstone idea is inspired by the Moroccan labor march which happened in Rabat

Sarah Al Mehairi

Between

memories in the physical
a root to be revived
color is colorless
when there is no mass

Between is an exhibition of mixed media works exploring themes of memory and location, as well as the playfulness and joy of working with color, form, and materiality. Consisting of both narrative and abstract work, a dialogue is created between past and present. From drawing upon childhood memories in Tennessee to experimenting with systems of color, Al Mehairi translates textures, gestures, and fragments across different materials. *Between* is an exploration of personal identity and of being an artist, while seeking to understand the 'betweenness' amidst it all. The exhibition creates connections, plays with language, and draws upon the process.

Maha Al Yousefi

Nafseeeya

The exhibition *Nafseeeya* explores the stigma of mental illness and the effects of this nature in the Arab world. It is dedicated to those who have been misunderstood and have suffered in silence. It is a testament to the bravery, wisdom, and resilience of people who have come forward to share their experiences, despite the social pressure to maintain an "unstained reputation." In this space where we are supported, lifted, and gifted each other's stories, we no longer stand alone.

Don Cho

Unrealized Dreams

I build objects that poetically float and surround a centerpiece, which is incomplete and unrealized. If there is anything I could write to sway the audience with words, it is this: The works convey a feeling embedded in failure, a source of nostalgia and desolation. But audiences are those who see, and few hear the whispers of disquiet. Can someone be blind and alone? A feast of silent gathering, a subliminal space of unrealized dreams, and an agora with figures suspended between the sky and earth—these are a few modes of expression constituting the whole. A multimedia installation where the composites yearn for meaning in what is a rubbish heap.

Shenuka Corea

Manthiram

Manthiram is a series of vignettes of the Mannar pearl fisheries off the coast of Sri Lanka. The graphic novel explores humanity's enchantment with the sea and all its contents, and the enchantments with which we attempt to commune with it.

Reine Defranco

Bravado

The art exhibition *Bravado* studies a series of the ancient Greek statues and recreates them through large-scale charcoal drawings. The pieces deconstruct the ideal of male beauty depicted by the original statues – they emulate the graceful figures while also degrading and complicating their forms using abstraction techniques and artistic interventions.

Joaquín Kunkel

Sobremesas

In Spanish, "sobremesa" refers to the lingering time during which people remain together at the table after a meal has ended. My exhibit contains ephemeral moments spent with people in the UAE, embodied in paintings and prints. It aims to give these temporary moments a chance to linger in permanent visual representations. A main source of stylistic and conceptual inspiration is Impressionist painting, which in part aimed to capture impressions of transient moments of light and color.

María Laura Mirabelli

Espantos

In Costa Rican folklore, espantos are specters whose presence incites terror, doomed for eternity to warn humans about the consequences of defying the laws of good behavior. In a world plagued by conflict, violence, and environmental destruction, Costa Rica often stands out as a peaceful haven of natural beauty and tranquility. Yet espantos roam the country's rolling hills and sandy beaches, evidences of a rottenness that coexists with the idyll, not necessarily hidden but often camouflaged. Locals acknowledge and fear them. Outsiders tend to ignore them until the consequences are too obvious to overlook. My work explores these new ghosts for the contemporary moment through the same lens that would traditionally exploit the paradisiacal image of Costa Rica for the enjoyment of foreigners and the benefit of locals... But for how long can this ideal image last when apparitions lurk in the dark?

Metha Naser

Nathir رثن

Nathir is to scatter; scattering words into letters, and language into art. *Nathir* is poetry; one which breaks rules, and blurs lines between categories of art and poetry. Through visual exploration and experimentation, *Nathir* looks into one's relationship with the past, present, and future by highlighting the abstract qualities of Arabic script and merging language with art. *Nathir's* artwork predominantly falls under the category of mixed media and is a result of a range of processes including research, industrial and technological manufacturing, as well as artisanal crafts using archival photographs and written documents. The representations in the work offer nonlinear, open-ended narratives through which both the artist and viewers can engage as they continually revisit, reinterpret, and reformulate their understanding of the past and their perceptions of the abstract.

Tala Nassar

Idle Contortions

Idle Contortions is a self-portrait exhibition portraying an almost comedic take on how the physical body manifests thoughts and emotions. By recreating versions of myself in deceptively calm contortionist positions, I am reflecting on a wide-range of internal conflicts. I create self-portraits that speak to my personal thoughts, and thus I believe I am speaking to the struggles of many other people across the world, who are just as conflicted and reserved as me.

ARTS AND HUMANITIES

Vuk Vukovic

The Portrayal of Vincent van Gogh's Artworks Through Cinema

Van Gogh lives, just like Elvis. He lives on both in popular culture and high art. The number of films and TV series featuring Vincent van Gogh as a character has long since exceeded one hundred. This thesis questions the effect of seeing reproductions of his paintings on screen rather than the originals in museums or reproductions in books or online. The narrative and accessibility of film medium allows a wider audience to see his paintings in places where his painting have not been exhibited. Since translating painted images to the filmic medium cannot reproduce the experience of seeing the originals, I ask what about van Gogh entices filmmakers from different generations to render different stories about van Gogh and his art on screen. By examining the first major Hollywood film on the artist, *Lust for Life* (1956), *Vincent and Theo* (1990), and a first fully painted animated film *Loving Vincent* (2017), I argue how over time technological advancements allowed filmmakers to shed new light on the van Gogh myth and his artworks by using film as a means of reaching a larger audience.

Lauren (Jung Won) You

Shikgu: Those Who Eat Together

Shikgu: Those Who Eat Together is an experimental project inspired by "mukbang," a cultural phenomenon in Korea where people live-stream themselves eating in front of thousands of viewers. This project explores how the act of eating and eating together promote a sense of family and community, as well as how an online platform can enforce and contribute to this social tradition in today's digital world. With appetizing food and a live chat service offered, *Shikgu* invites students of NYU Abu Dhabi, wherever they may be, to connect and converse over a shared meal online.

FILM AND NEW MEDIA

Layan Adham Ismail

Afaf

The government implements a law to test women at universities to ensure their hymen and – thereby their purity – is still intact. Having only one day until her virginity test, Afaf must do the impossible to pass the exam that threatens to wreck her academic career. At home, a conflict is brewing, as the dynamic between Afaf and her father is on the edge of disintegration if she is found out. Her only hope is to crash an underground women's class that promises her a shot at passing the virginity test.

Arthur De Oliveira

When Grown Wild and Far

Throughout an afternoon, a lonely awkward grandfather attempts to re-establish a relationship with his reluctant grandson through both illegal and nostalgic activities.

Andrew Wani Samuel Modi

The Hafiz

Sultan, a music lover, tries to memorize the entire Quran to honor his late father. However, Sultan's love for music prevents him from memorizing the Quran. How will he honor his father?

Adam Nagy

International Shipping

Put on the virtual reality goggles and get ready to experience the identity of a delivery truck loader. You are standing in front of a conveyor belt and the only thing you can rely on while the packages keep coming and coming is your judgement. Or is it your biases? If you got through the challenge of keeping your job, you can compete to earn a high score. Pressed for time, your boss, and political correctness, you will need to face decades of biases that are ingrained in your subconscious from misrepresentation in the media, your country and your upbringing. In the end you will not only figure out which parcel is shipped to which country, but you will also interact with your unconscious biases. Hopefully in the meantime, you will also figure out whether to ship rice to China, India, the Middle East, Mexico, UAE or Africa.

Yulia Piskuliyska

Practical Dreams

Practical Dreams is a day in the life of a life spent counting the days until leaving the foreign behind and returning home. But what happens when we wake up one morning and realise we've grown roots in a place we never thought we would claim as ours? This film is one person's story of that morning. Antony's wake up call is long overdue; now it's up to him to decide what to make of the choices that lead him to the present moment.

Luis Carlos Soto Ruíz

Every Day, Except Sunday

Enzo, a mischievous little boy, struggles with a morality test: his first confession. Scared by his conservative catechism teacher's threats about hell, Enzo fears the worst after stealing an emblem from a motorcycle. Unable to sleep, guilt-ridden Enzo decides to write a list of all his sins so as to confess them the next morning. However, Enzo must overcome one more challenge: The owner of the motorcycle is the priest Enzo will meet when confessing. Will Enzo be able to face his fears and confess his sins?

Sabrina Zhao

Vicky, I and Herself

Twenty-five-year-old Chinese woman Vicky works in Abu Dhabi as a mural painter for the construction site of Warner Bros. World, but is soon leaving for China. Vicky, her friends and the narrator converge at transient spaces; imagining, dreaming, and hoping to be remembered by the city. While exploring the obscure experiences of Vicky and her friends, the narrator reimagines the invisible tenderness and yearnings of the Southeast Asian female immigrants in Abu Dhabi.

HISTORY

Willem James Cant

Power & Consent: An Analysis of the Proposed Transfer of the Former High Commission Territories into the Union of South Africa.

The history of Southern Africa is as much about space and territory as it is about the impact of colonialism on the creation of segregationist institutions and the development of notions of consent and autonomy. This Capstone seeks to understand the power relations in Southern Africa

that shaped debates about the transfer of the former High Commission Territories (HCT) of Botswana, Lesotho and Swaziland into the Union of South Africa after it was created in 1909. It will attempt to answer the following questions: What were the factors that prevented incorporation and how did the notions of "consent" and "consultation" play an important role in considering the transfer of the HCT? How did local responses from within the HCT and British reluctance towards incorporation shape South African claims to incorporation? Can we attribute the failure of incorporation to the increased intensification of segregationist and racially divisive policies in South Africa?

Ifadha Sifar

Pearl Fishing in the 'Persian Gulf of Mannar': A Reconceptualization of the Gulf of Mannar and the Persian Gulf as Shared Spaces, c.1850-1950

This Capstone attempts to reconceptualize the Gulf of Mannar and the Persian Gulf as shared spaces, specifically focusing on the pearl fisheries in both gulfs. In doing so it hopes to highlight the importance of eschewing national heritage studies of pearling, in favor of histories of pearling outside of the nation. By placing the ecological landscapes, key actors and institutions, and contested ideas of territoriality in both gulfs in conversation with each other, this Capstone emphasizes a history that is at once connective and comparative.

LEGAL STUDIES

Jack Delano

Understanding the Legislative Spectrum of Sex Work: A Brief Case Study of the Netherlands, South Africa, and Sweden

This study aims to push beyond sex work's traditional binary within public discourse as simply 'legal' or 'illegal'. Sex work operates in many different forms, each with unique characteristics depending on the jurisdiction in which the work is operating. While certainly not the only factor at play, legislation still carries an important role in the treatment of sex workers and the forms of sex work that are practiced. This study looks to three legislative frameworks (the Netherlands, South Africa, and Sweden) to understand the operation of sex work along a wider legal spectrum, and to illustrate a need to discuss sex work in a more nuanced manner. By mapping different policies towards sex work, this paper aims to offer a comparative study of how different policies affect the practice of sex work globally.

ARTS AND HUMANITIES

LITERATURE AND CREATIVE WRITING

Larayb Abrar

A Storied Inheritance

A work of creative non-fiction detailing women's narratives of the South Asian diaspora. This Capstone explores themes of alienation, questions of home and stories of history and migration that are generationally passed down.

Josefina Dumay Neder

Caminante en Nueva York

Those Walks could be a Rhapsody of New York and youth. It's the story of a young woman soon to transition into an unknown future that scares her who spends her last summer break walking in New York. Each walk gives her a new story, a new character, a new setting, a new perception of the city, and ultimately a new direction. *Those Walks* is as much the author's memoir as it is an effervescent portrait of New York City.

Lina Elmusa

Resistance in Writing

This project compares the modes of resistance against dominant historical and patriarchal narratives through studying Assia Djebar's *"Fantasia: An Algerian Cavalcade"* and Sahar Khalifeh's *"Wild Thorns"* and *"The Sunflower"* in comparison. Djebar writes with reflection on an oppressive history of French colonization, while Khalifeh writes under an occupation that transgresses people's daily lives. Theories of resistance literature do not often account for the doubled resistance which literature that discusses women exhibits. By studying space, event documentation, and voice in Djebar's and Khalifeh's work, I examine the double resistance in their work. I also put Djebar and Khalifeh in conversation with Frantz Fanon and Ghassan Kanafani, men who come from a tradition of discussing resistance while speaking for women's lives and bodies. Resistance literature needs to be understood among the specifics of the historical situation that it comes in.

Sakurako Naka

in a moment

How do we attempt to define jazz? Or poetry? And what materializes at the intersection of the two languages? My Capstone comprises an artistic/research statement about the 'genre' of jazz poetry, followed by my own creative work.

Ayah Rashid

NOAH

My Capstone is a hybrid work of speculative fiction and a script which explores the struggles of identity through the story of a young African American named Noah, who grows up in an alternate reality where slavery never existed. He ends up being stuck in our current reality where slavery was part of history and he must learn to navigate a different world and define blackness for himself.

Yau King (Diana) Siu

Preserving Hong Kong's Postcolonial Identity: Analysis of Leung Ping Kwan and Louise Ho's Poetry

For ages, Hong Kong was known as a "cultural desert" that merely took on the culture of its British colonizer. It was only when Hong Kong identity faced the "double trauma of signing the Sino-British Joint Declaration of 1984, followed by the Tiananmen Massacre of 1989" did people realize that "the Hong Kong way of life with its mixture of colonialist and democratic trappings was in imminent danger of disappearing." (Abbas 6-7) The 1997 Handover that marked the return of Hong Kong to China, then, became a deadline against which the city's writers utilized different strategies to preserve Hong Kong's postcolonial identity, to resist the imminent threat of decolonization and potentially, recolonization. My thesis specifically will investigate the strategies used by Leung Ping Kwan and Louise Ho in their poetry to preserve Hong Kong's postcolonial identity, looking towards yet another deadline in 2047- when the "One Country, Two Systems" arrangement that currently governs Hong Kong is set to expire.

Yao Zhang

Grotesque Melancholies

Grotesque Melancholies is a long poem inspired by T.S. Eliot's *'The Waste Land!'* The project merges the poet's experience as a Chinese woman writer and the socio-political implications that come alongside this identity with the western literary traditions created by Eliot and his predecessors, therefore updating a waste land for a 21st century audience. Through analysing Eliot's process and reinterpreting his language, the poet offers a multilingual, multivocal poem as her response.

MUSIC

Margarita Bicec

Romanian Folk Music and Dubstep: Recontextualizing Folk Styles in Contemporary Forms

Fusions of music styles are happening all over the world, but not many of them happen in an academically controlled space. Being from a Romanian-speaking country and having been obsessed with electronic music for the most of my life, I decided to explore what happens when a Romanian folklore piece like "*Ca pe luncă*" is combined with the production and elements of a contemporary genre of music: dubstep.

Keira Simmons

Listening to Abu Dhabi

Listening to Abu Dhabi is a creative sound art project drawing on data-driven and theory-driven research to explore how Abu Dhabi AD) residents' relationship to the city will change as sea levels and temperatures rise as a result of anthropogenic climate change. It is a technologically mediated soundwalk along the AD Corniche using the global positioning system (GPS) app Echoes (Kopeček and Fuache) to walk listeners through soundscape compositions that imagine past present and future environments. It utilizes and explores embodied listening in space as a tool for deepening relationship to place. In doing so it aims to facilitate and foster a personal relationship to the data it presents. Asking participants to walk through space while listening to environmental changes layered on their immediate experience creates that personal connection and sense of urgency. The project asks participants to question how we relate to and understand ourselves in relation to the changing climate of Abu Dhabi."

Himag Vaidya

Music Production and Expressive Value

Through this project, I aim to examine how music production can act as a medium to de-contextualize and re-contextualize a piece of music and affect its expressive value by influencing its composition, lyrics, arrangement and sonic characteristics. For the project, I will produce a song that I have written in 4 different styles. 1) Stripped down acoustic version 2) A version using the production approach and sonic elements which draw inspiration from DIY artist Jeremy Zucker 3) A version using the production style and sonic elements which draw inspiration from Techno/Funk legends - Daft Punk and 4) Finally, a version using the production style and sonic elements which draw inspiration from one of the biggest modern day produc-

ers - Benny Blanco. I will then compare and contrast these different versions of the same song to understand how the production style has affected the expressive value (subjective analysis) of my piece.

PHILOSOPHY

May Baho

How We Used Words and How We Use Them Now

There are things in the world we classify into kinds - kinds of trees, kinds of furniture, kinds of food, etc. Some of these kinds are considered to be natural kinds, like species and certain chemical compounds. The identities of these natural kinds often look something like: "humans = homo sapiens" or "water = H₂O". It has been widely accepted that these identities are necessary a posteriori truths. My Capstone, however, will argue that these identities are somewhat stipulated as relevant scientific discoveries are made about them.

Jacob Chagnon

Depersonalization and Losing the "Self"

Bringing together elements from philosophy of mind, psychology, neuroscience, and Buddhist tradition, my Capstone uses depersonalization to address questions of selfhood and normativity behind "losing" our experience of being a self. Depersonalization, a phenomenon which entails feeling estranged from how we normally experience ourselves, is typically understood as a mental disorder; as harmful, disruptive, and negative. However, a central motivation in Buddhist philosophy is to demonstrate the illusory nature of the self, and to rid ourselves of its grip through certain practices. Consequently, my project analyzes the differences between depersonalization and the Buddhist practices, backing each up with neuroscientific data when possible, to explain how each bears on our experience of ourselves as selves. Additionally, I weigh both accounts against philosophical criteria of what constitutes a mental disorder, drawing conclusions which separate depersonalization and Buddhist practices both in terms of the underlying processes, and the normativity behind each experience.

Taj Chapman

Investigating Objectivity in Journalism

My Capstone argues against the idea that objectivity is always the answer to bias in journalism. Utilizing a variety of philosophical ideas and concepts, this paper investigates the deeper philosophical issues that occur even when journalists appeal to objectivity. As the investigation narrows focus, questions arise about the responsibility journalists have and the value of journalism itself.

ARTS AND HUMANITIES

Xiaoxiao Du

Debunking Evaluative Realism

This essay examines various versions of debunking arguments of evaluative realism, and responses to these arguments.

Anita Duskova

Ethics of Zakat

Zakat, as one of the five pillars of Islam, is a mandatory almsgiving for all Muslims. Does that mean Muslims pay just because they have to? But many chose to pay because of zakat's positive consequences or just because it is the virtuous thing to do. So, why should one pay zakat? More so, should the state intervene by making zakat mandatory? But then where is the line between state and religion?

This Capstone presents a comparison of different texts on zakat using three Western normative ethical approaches: deontology, consequentialism, and virtue ethics. Furthermore, it applies these different perspectives to current policies by countries such as Pakistan and the UAE. The Capstone does not answer all of the stated questions - it is not a book - but it does provide new information for an interesting conversation on secularization of zakat (and possibly state) in the Islamic world."

Alice Huang

Gerrymandering 'Structure': On Interpretations of the Structure and Dynamics Argument

The 'structure and dynamics argument' has been used to argue against materialism of consciousness by establishing an explanatory gap between the physical brain and the phenomenal mind. Whether or not the argument succeeds depends on gerrymandering the interpretation of 'structure.' The argument requires at least two things: (1) that all physical facts are structural-dynamical, and (2) that at least some mental facts are non-structural-dynamical. But what are 'structures'? In this project, I evaluate two interpretations of 'structure' considered the most promising by philosophers.

Liam Meier

Mixed Strategy for Normative Uncertainty

Normative theories tell us what we ought to do or believe. But if you're not sure which normative theory is correct, how should you act or believe? Philosophers have proposed various higher order normative theories. I argue that these theories all suffer serious problems. In turn, I propose and defend mixed strategy—following the recommendations of a probability function—as the correct higher order theory for normative uncertainty.

Maya Morsli

Remaining the Second Sex - The "Eternal Feminine's" Stronghold on Female Autonomy Across Cultures

The aim of this Capstone is to explore the extent to which modesty, as an element of the eternal feminine, poses a threat to female autonomy. The eternal feminine is an essential idea of female selfhood that is universally imposed upon women; although the details of that essence look different across cultures and contexts, there are elements that remain consistent throughout and modesty is one of those constants. By looking at feminists from the Anglo tradition, including Mary Wollstonecraft and Simone de Beauvoir, and feminists from the Islamic tradition, including Amina Wadud and Saba Mahmood, I highlight the difference between reformist and revolutionary feminists. Ultimately, the project concludes with an argument that reformist feminism - whether Islamic or Anglo - falls short of liberating women from the eternal feminine and leaves them in a permanent state of ontological secondariness.

Sugandha Shukla

Causal (In)dependence in Counterfactual Analysis

A need for invoking causal independence when evaluating counterfactuals has been discussed by many. It has been argued that several counterexamples such as Morgenbesser's coin, for which David Lewis's standard possible-world semantics fails to give us the correct results, suggest that considerations of causal dependence should be taken into account. This Capstone presents a comprehensive account of the philosophical discussions on causal dependence in counterfactual analysis and sheds light on some problems in the approach of invoking-causal-independence that remain unaddressed in the literature. The Capstone also aims to provide suggestions regarding how the semantics can be altered in order to address these issues.

Mira Al Jallaf

131

131 is an extended performance piece that “begins” there and “ends” here but exists everywhere at all times.

Over the past year in C3 131, collections of two audience members at a time experienced intimately constructed simulations.

In the performance of *131*, one audience member at a time will enter the space of the simulations reinstalled in C3 036. In this space lives the history of C3 131; the people that spoke in the room, that ate in the room, that drank in the room, that created in the room, and that connected in the room. The experiences that manifested through these engineered simulations will be embodied through a 10-minute audio based performance piece that allows the audience member to uncover the inner workings of the NYUAD paradigm.

Victoria Critchlow

Tango Palace

Tango Palace, an abridged adaptation of the play by Cuban-American playwright Maria Irene Fornes, is an intimate exploration of two people and their relationship to one another within a strange and limited world. Leopold, an earnest youth, wakes to find himself locked in a room with Isidore, an androgynous clown, who rules with a sword and magically printed index cards. In my direction of *Tango Palace*, the characters continually attempt to assert their relative power and manipulate each other. Through this, I explore the ways in which we reveal and disguise vulnerability through enacted violence, as a process of combating loneliness and building human connection.

Sarah Daher

Intimate Interiors

My project seeks to explore the relationship between social intimacy and the analog. It does so through a series of one-on-one portrait drawing sessions with approximately 80 students from the NYUAD community, during which participants are invited to take on the role of observer and observed. These sessions produce physical artifacts in the form of drawings which will be taken in conjunction with written reflections on the conversations had during the interaction to produce a study of the components that generate meaning within social interactions. The documentation of these sessions will be accompanied by a book of compiled research and images on the topics of social interaction, intimacy, and their artistic resonances. The book and sessions will form the basis of a gallery exhibition presenting the work and its findings.

Ethan David Lee

On Our Borders

Composed from interviews with students in New York and Abu Dhabi, *On Our Borders* is a verbatim performance about Third Culture Kids and the questions their between-cultures experiences pose. In a world still catching up with the profound shift in quotidian experience globalization has brought, are we defining identities and communities in ways that further the global circulation of ideas? Is it possible to create a world where everyone can be part of a greater whole? What does it mean to be a global citizen, not fully belonging to any one nation? And is it viable to reconcile our desire for cross-border communities with rising nationalist governments, parties, and polices?

Gábor Gellai

Sült

Sült is a 30-minute one-man show that attempts to state the truth about my Hungarian identity through the embodiment of different characters. I am performing a series of short stories that tackle questions regarding socio-political responsibility, personal and inherited memories. The fictive and semi-fictive monologues are triggered through the ritual of frying chicken, a significant activity that reminds me of my mother. As I serve a fresh plate of meat, I confront the traumatic history of my country by providing testimonies that can help me have a conversation about my own identity while contemplating answers to the question of what it means to be patriotic.

Leslie Gray

Stonewall to Mar Mkhayel: A case study of Beirut Pride and the implications of Pride in the Arab World

Over the past 50 years, Pride has grown from a localized celebration of queerness to a global gay phenomenon. Founded in 2017, Beirut Pride has been heralded as the first “Pride” in the Arab World. However, this raises the question what does “Pride” mean for Beirut and how does Beirut perform a “Pride”? In this paper, I argue that Beirut Pride has a dual effect of creating advocacy and safe spaces for Beirut citizens while also reshaping Western narratives of the Middle East and Pride as a whole. By looking at Pride as a performance of queer visibility and community building both locally and in a larger global discourse, Beirut Pride calls into question the ways in which visibility is manifested while creating a physical space for the local community.

ARTS AND HUMANITIES

Marika Niko

memory is a partial victory over death

memory is a partial victory over death is a site-specific dance performance in the A5 Atrium that occurs over the course of sunset. Drawing upon the relationship between memory and materiality, the work invites the audience to witness two performers attempting to pursue, find, and ultimately reimagine each other's images on the window reflections that fade through time. The piece was inspired by how my grandmother, who has frequent memory loss, talks about her childhood memories. While I have an urge to materialize memories as a response to my fear of forgetting, the conversation with her allowed me to consider how memories can be remembered and worked on through immateriality. Facing the inevitable conditions of material disintegration, the two performers pay close attention to the urgency of the present as well as the repeated actions in order to archive memories.

Ankita Sadarjoshi

Civil

Civil is a performative meditation on violence that has occurred through spoken language on the NYUAD campus. In this piece, I spend an April afternoon painting a chair white in the East Plaza lawn, before inscribing on it phrases of violence collected from different injuries I either personally sustained, or witnessed someone else endure. The piece seeks to deal with handwriting as material evidence of endured pain, ritualized inscriptions of repeated language as dually punitive and healing, and with the creation of art objects as consequence of performed labour.

Jagan Narayanan Subramanian

A Semiotic Analysis of the Architecture of La Cartoucherie de Vincennes and its Place within Paris's Cultural Scene

The Cartoucherie, home of renowned theatre company Théâtre du Soleil since 1970, is located in the Bois de Vincennes, on the outskirts of central Paris. This paper argues that the layout and designation of the Cartoucherie as a physical space intersects with and underlays the work of the Théâtre du Soleil to raise consciousness on social issues such as migration - asking how human beings should live together in a culturally diverse and global society. The static view of architecture as the permanent presence of structures is complicated by the utilization of space for theatrical purposes. Events that take place within theatrical

spaces allow the structure, the architecture, to become a laboratory for modelling society and experimenting with creative forms of reality, especially so when these spaces double as contact zones for multicultural communities, who are themselves products of movements through space as is the case with the Cartoucherie.

Orsolya Szantho

nature(.c)ode

Is there a space for nature to tame technology? Is there a way for humans to bridge the gap between the two?

nature(.c)ode invites the audience on a journey to explore the possibility of organic coexistence between nature and technology. By interacting with the installation elements through touch, the audience gain an opportunity to test how their responses to technology change when natural textures replace the synthetic materials that have come to surround us.

Simon Wilkes

Spectra

Adapted from Stan Lee and Jack Kirby's '*Amazing Fantasy #15*,' the origin story of Marvel Comics' '*The Amazing Spider-Man*,' '*Spectra*' is a comic book play that interrogates the ways in which masculinity is portrayed by the archetype of the superhero. '*Spectra*' is currently being developed through a combination of individual writing and rehearsal laboratories, in collaboration with dancers, lighting and sound designers. During the Capstone festival, audiences are invited to witness a weeklong series of open rehearsals that will workshop scenes from the latest draft of the text. Written in the form of a comic book, the play tells the story of Spectra, a young superhero coming to terms with the violence and trauma of their past, while attempting, and failing, to live up to the ideal of the superhero. In doing so, Spectra discovers what it means to be a superhero for themselves and how one might radically pursue justice that is driven by a desire to heal rather than to harm and punish.



ENGINEERING

Raghav Kedia (Mechanical)

Gjorgji Shemov (Electrical)

Jotham Varghese (Mechanical)

A Radio-controlled Car with Dual Power Sources of Solar and Battery

The project aims to design a 1:10 radio-controlled (RC) car powered by 1 Suoaki PV panel and 1 5000mAh Gens Ace Hardcase LiPo battery, using SCX10 IITM 2000 Jeep® Cherokee as a model car. The main goal of the project is to run the car non-stop, that is 24/7, by charging the battery via the PV panel during the day. One of the main challenges is to provide smooth transition between solar and battery powering of the motor to prevent the car from instant stopping. Mini projects have been completed by the student in the field of designing LiPo battery chargers and simulating car performance in the Gazebo Simulation software. A preliminary printed circuit board (PCB) has been designed and is currently being refined to be manufactured and tested. Several PV panel mounting structures are being prototyped and tested for structural competency and practicality. The car must navigate between sets of GPS waypoints with minimal human intervention. This requires the car to be driven to a certain level of autonomy by using obstacle detection and avoidance maneuvers whilst also relaying this information back and forth with the central computer using bidirectional communication over long distances.

Bence Almasi (Electrical)

Amal Badri (Mechanical)

Veronica Lee (Mechanical)

Ushna Usman (Mechanical)

Building a Low Cost Turbidostat

Continuous culture devices can be used for various purposes such as establishing reproducible growth conditions or maintaining cell populations under a constant environment for long periods. To more accurately characterize biological systems, researchers must turn to static environments, which yield lower noise in quantitative phenotyping. A primary tool for culturing cells in a static environment is continuous culture, where inoculated growth medium is continually diluted with fresh medium. Turbidostats are powerful characterization tools that provide static culture environments; however, they are often expensive, especially when purchased in custom configurations, and are difficult to design and construct in a lab. Eight culture chambers are controlled simultaneously with the proposed configuration, and all components are readily avail-

able from various sources. We demonstrate that our continuous culture device can be used under different modes, and can easily be programmed to behave either as a turbidostat or fluorostat. Addition of fresh medium to the culture vessel is to be controlled by a real-time feedback loop or simply calibrated to deliver a defined volume. The project aims to build a device which is less laborious and less costly to make in comparison to the already existing commercial versions.

Pranav Mehta (Electrical)

Cosmic Ray Detector-based Random Number Generator

Muon decay is a natural phenomenon based on the collision of cosmic radiation with Earth's atmospheric particles. A Cosmic Ray Detector can be used to ionize muons striking the surface of the detector, thus conveying information about a given muon's position of hit, angle of hit and time interval between subsequent hits. Muon strikes are nondeterministic and the information they yield can be used as seeds to a True Random Number Detector (TRNG). In this work, a Quantum TRNG is proposed that translates position, angle and time interval of muon strikes into random numbers. Several designs are created and evaluated on the basis of the ability of the output to pass randomness tests and rate of throughput. The most robust design is incorporated as an online service that can be used to generate random numbers in real time.

Omar Gamil (Computer)

Stefan Holter (Electrical)

Data Visualization and Feature Extraction

Advancements in the field of big data have brought on the need for new tools to understand the underlying properties of all this information. Data visualization presents one of the most productive ways of tackling this problem. Our solution focuses on extracting the key features that effectively describe the dataset and visualizing this information on an interactive display. The fundamental aspect of this design is creating a means for high performance dimensionality reduction. Whilst many solutions exist that use PCA or non-parametric algorithms, they struggle with generalizing to more complex manifolds and sparse data. Therefore, our approach instead makes use of a deep learning architecture. By creating a complex neural network hierarchy, we aim to optimize the solution and create a data describing mapping that corresponds to the intrinsic dimensionality of the data itself.

Victor Okoth (Civil)

Raitis Pekuss (Civil)

Ylber Roka (Civil)

Decentralized Control for Mixed Automated/ Manual Vehicle Traffic

Connected and Autonomous Vehicles (CAVs) are widely expected to revolutionize urban transportation. With fully connected and autonomous vehicle traffic, it is hoped that traffic congestion and accidents as well as jam can be greatly reduced, and throughput maximized. However, CAVs can only penetrate the market gradually. This means that there will be a long time period during which there will be constantly changing proportions of connected and human driven vehicles. The objective of our Capstone is to adapt the transportation infrastructure, specifically the intersection control, to mixed traffic that consists of connected and autonomous vehicles as well as human driven vehicles. We use decentralized control techniques to assign priority to travel in specific directions at an intersection. Research has shown that these decentralized controls are better than centralized solutions that account for traffic conditions at multiple intersections. We use the back pressure decentralized control which assigns highest priority to travel in the turning direction that maximizes the difference in the length of the inbound and outbound queues. The connected cars will be able to communicate their state to the intersection control, but the human driven ones will be unable to. We shall therefore use estimation methods to get data about human driven vehicles for more accurate prediction of queue length, on which the intersection control depends. Traffic simulation software VISSIM will be used to test our control process and Kalman filters programmed on Matlab will be used for the estimation of unknown traffic state of human driven vehicles.

Fahad Ahmed (Electrical)

Muhammad Muneeb Afzal (Electrical)

Muhammad Osama Khan (Electrical)

Fathurur Said (Electrical)

Deep Learning Approaches for Self-Driving Cars in an Adversarial Environment

This Capstone project aims to improve the performance of self-driving cars in adversarial conditions. As such there are two main parts of the project – (1) Computer Vision (object detection and localization) and (2) Security (attacking the object detectors). In light of the criteria above, our team worked on two object detection algorithms, namely YOLO (2D) and VoxelNet (3D). Firstly, YOLO, a state-of-the-art 2D object detection algorithm was implemented from scratch. The YOLO algorithm was successfully implemented by using a 24-layer Convolutional Neural Network (CNN). Training of the algorithm took about a week (135 epochs) with the PASCAL VOC dataset and resulted in an eventual loss of 3.427, indicating the relatively high accuracy of the object detector. After having successfully completed implementation of the 2D YOLO object detection algorithm, the next goal for the computer vision side of the project was to implement a 3D object detection algorithm. The algorithm chosen for this task was VoxelNet, which is a state-of-the-art 3D object detection algorithm recently published by Apple. The implementation was successfully completed.

The security aspect of the project was started by executing one-pixel (black-box) attacks. Two categories of one-pixel attacks were implemented – (1) targeted attacks and (2) untargeted attacks. After successfully implementing the two types of one-pixel attacks on standard CNNs like ResNet and DenseNet our team integrated the security attacks with object detection and implemented targeted attacks on the YOLO object detector. However since YOLO is a state-of-the-art object detection algorithm fooling the YOLO detector required perturbing around 10 – 15 pixels in contrast to the one-pixel attacks on ResNet and DenseNet.

In the next part, it was decided to test the security attacks using a well-known car simulator known as Udacity. Firstly, the Udacity car simulator was tested with modified input images (flipped, blurred, varied brightness). The results were successful and were able to affect the autonomous mode of the car and thus the car went off the track. To take a further step, the implementation of Generative Adversarial Network (GAN) was started and are focusing on Deep Convolutional Generative Adversarial Networks (DCGANs). The goal is to generate fake images and test them on Udacity simulator and check if it is possible to fool the simulator.

ENGINEERING

Maha Al-mazrouei (Computer)

Noora Almarri (Electrical)

Henok Guluma (Electrical)

Dental Simulation using Virtual Reality

Our project aims to provide dental students with a practical training to simulate dentist-patient interaction. Through the use of virtual reality (VR) interaction with the three-dimensional model, the dental student is expected to be offered with different scenarios, various facial expressions, and both genders situations that could occur in their dentist career. This extends, to care for the patient's well-being, before, during, and after the treatment. Thus, to not increase the common dental anxiety within patients, it is important to ensure neither pain nor fainting is being inflicted to the patient. However, choking expression was picked due to the many things that are usually in a patient's mouth, making it common for materials to slip. Furthermore, these specific expressions were picked because the variation between them is visibly detectable. Whereas for the scenarios; it includes pre, during, and post treatment experience. During the implementation of these scenarios, we realized that audio communication is crucial to enhance the interaction between dentists and their patients, and make patients feel comfortable. As audio communication pushes to present the dental trainee with the basic knowledge on how to deal with a patient.

Petar Ivanov (Civil)

Chandan Mishra (Civil)

Hurbert Shauri (Civil)

Jagan Subramanian (Civil)

Design of a 3-Story Educational Building with Ultra-Lightweight Cement Composite

In an era where the cost of construction has soared to the highest heights and concern for the environment calls for desperate measures, the need for an approach that addresses these two crucial aspects is inevitable. This project aims to design an educational building that is not only cost-efficient but also environmentally friendly. The design proposed integrates abundant natural resources of light and surrounding environment landscape to ensure that conducive and comfortable study conditions for the occupants are met while boosting the building performance and minimizing its carbon footprint. Furthermore, the material selection process in the house is based on criteria dictated by the Leadership in Energy and Environmental Design (LEED) certification, which usually favors sustainable materials that are biodegradable and overall with net-positive effect for the environment.

Shunsuke Kasahara (Mechanical)

Design of a Bio-inspired Lizard Robot Mimicking Tail Autotomy Process

Bio-inspired by the autotomy process of a lizard, bio-interlock microstructures were hypothesized and fabricated. This was tested and confirmed its effectiveness in a lab setup through experiments for characterization. To demonstrate the operation of interlock mechanism, a lizard robot was designed and fabricated. This robot detects incoming danger (incoming objects) and releases its tail while running away, as a real lizard would do. The robot and its tail shedding mechanism using the actuated bio-interlock was successfully demonstrated.

Janar Jeksen (Mechanical)

Design of a continuous monitoring system for the Mineral Nutrient Uptake by Plants in Fogponic System

Soilless indoor farming practice is a novel technique based on the finding that plants are best able to absorb particulate nutrients in a distance of 1 to 25 micrometers (μm). Therefore, plants that are suspended within enclosed systems rich in nutrient environment can better absorb nutrients for more efficient gardening and less waste of water. This Capstone design project aims at developing a sensor that would measure the particular mineral in the case of potassium that plant can uptake via its roots while being directly exposed to nutrient solution and finding its optimal concentration.

Alemayehu Abebe (Electrical)

Joseph Opey (Computer)

Design of an Implicit Emotion Communication System using Thermal Feedback

In this Capstone project, the design of a thermal actuation jacket is proposed. There have been several thermal jackets on the market most of which focuses on controlling ambient temperature. In this project, an implicit emotion communication thermal actuation jacket design is proposed where different simulation of temperature is possible. An example of such simulation is apparent thermal motion which is important for emotion communication for example. Several research work experiments have been conducted leading to the proposed design described.

Hani Alhasni (Mechanical)

Ikenna Anigbogou (Computer)

Pearl Rwauya (Computer)

Ona Thornquist (Mechanical)

Drone Capturing Aerial Netting System

Aerial drone capturing systems have various methods by which aerial drones are brought down. The need for this system has come to light with the rising breaches of commercial or restricted airspace caused by remotely controlled drones. The design of this project is dedicated to producing an autonomous aerial drone netting system that will detect, pursue, and capture invasive drones. To achieve this, a detection and tracking algorithm will be implemented in an Nvidia Jetson TX1 on a pursuer drone. The algorithm will output 2-D coordinates of the evader drone through the use of fiducial markers. Subsequently, the coordinates will be used as inputs for the control of the pursuing drone to direct its flight maneuvers. Once the pursuer is within range of the evader, the pursuing drone will fire a net via its propulsion mechanism and capture the evader. This method can introduce a hands-free solution to the drone problem where the traditional level of skill of the capturer is eliminated from the loop in favor of a quantifiably reliable autonomous system.

Raghav Kumar (Mechanical)

Fluidic Injection Thrust Reverser System for High Bypass Ratio Turbofan Engines

Conventional thrust reversers involve the usage of mechanical blockers to block and reverse the flow of air. As they are designed to sustain heavy loads, they are bulky and hence, account for 30% of the nacelle weight (excluding the engine core). This added engine weight results in a 0.5%-1% increase in the specific fuel consumption of the aircraft. The total estimated costs of operating thrust reversers including their maintenance, sums up to approximately \$125,000. The goal of this project is to design a thrust reverser system for high bypass ratio jet engines that uses fluidic injection to reverse the flow of air, eliminating mechanical blockers completely. The project begins by validating the concepts of Blockerless Engine Thrust Reversers (BETR) proposed by NASA Langley and culminates with the construction of a working model demonstrating the applicability of an optimized solution. The following report summarizes all the concepts that were thought of before reaching the final design for the Fluidic Injection Thrust Reverser (FITR) and supports the claims with relevant models, simulations, calculations and methodical charts.

Alexander Mackay (Mechanical)

Aldhaferi Sara (Mechanical)

GLiDAR: Design Optimization and Active Stabilization of LiDAR Sensor Payload for Surveying

The GLiDAR is a hardware attachment for the Lockheed Martin INDAGO UAS that will enable the creation of computational three-dimensional modeling of significant geographical features. Our payload uses the LeddarTechM-16 LiDAR sensor to obtain distance measurements along the flight path of the drone that can be coupled with GPS coordinates and IMU orientation data to create a digital elevation map of the studied surface. The generation of this high resolution spatial data can be used to support many research outcomes within the scientific community.

Mariam AlHarmoodi (Computer)

Memory and Neural Networks

In the field of neuroscience, there has been recent research on the reconstruction of visual working memory during the representation of items from the activity of neuronal populations, particularly focusing on oscillatory activity in the alpha band (8-12 Hz). The objective of this project is a real time (i.e., less than 500ms) functional hardware implementation of memory reconstruction by feeding signals from Magnetoencephalography (MEG) of neural oscillations to a Nexys 4 Artix-7 Field Programmable Gate Array (FPGA) Trainer Board. This is first realized by converting the time-series to frequencies in the alpha region. In this proposal, a Hilbert transform with an iterative-pipelined hybrid architecture is chosen to achieve the most optimal results in terms of speed, complexity, and available hardware resources amongst various other solutions.

ENGINEERING

Abdur Rehman (Civil)

Waqar Younas Khan (Civil)

Obstruction Design for Effective Evacuation Under Escape Panic

In today's day and age, to find that we have still not optimized our building structures for the safety of pedestrians and occupants of the building itself is a shame. The standards of evacuation design have not changed much in the past half a century. Any progress that is being made being so insignificant in value that adoption of the ideas globally is not a priority. The standard checklist system of meeting the bare minimum requirements of building codes is a fossil of an approach that frankly does not belong to the 21st century. The 21st century is about minute detail optimization to achieve maximum efficiency and results possible. It is this search that is explained in the following paper where we try and understand the details and try to morph them so as to help us achieve designs that lead to the goals we have set as aforementioned.

In order to do this inspiration from Dirk Helbing's work from 2001 was taken to discuss the possibility of improving evacuation rates by introducing obstacles in the pathway of an exit. The project delves further into this concept and by trying to employ one or all of the following; optimized Lagrangian equations deep neural networks machine learning and VISSIM. Based on the results obtained by Helbing

Mubasher Iqbal (Mechanical)

Saad Sultan (Mechanical)

Paper Based Filter for Water Purification

Problems such as the inaccessibility of clean drinking water and the non-recycling of paper are very common in today's world. Even though steps have been taken to rectify these problems, most of the solutions that exist are either expensive, technical or inaccessible in a lot of regions around the world. This project hopes to solve the problem of the inaccessibility of clean drinking water by designing a device that uses a stack of compressed paper while also making an effort to resolve problems related to paper recycling. The aim is to make the device cheap, easy to handle and readily available. So far, we have conducted several tests and carried out troubleshooting mechanism to solve leakage issues. Data is being collected to test the filtration-efficiency and steps are being taken to improve the flow-rate of the device.

Alberto Castillo (Mechanical)

Pratik Maisuria (Mechanical)

Mahmoud Soliman (Mechanical)

Reconstructing the Horologium of Harun al-Rashid

The project focuses on the reconstruction of the horologium of Harun al-Rashid from an engineering perspective. The purpose of the project is to rebuild the water clock in the closest resemblance possible to the original based on existing literature. Furthermore, the project aims to capture the essence of the clock as a landmark in human achievement. For this purpose, the clock is to be reproduced with the same aesthetic artistry as the original, as well as the entirety of the operational mechanism. In the interest of practicality, the clock will first be built at scale, maintaining only the water regulation mechanisms at full size. A marvel of the ancient world, the engineered replica will stand a testament to the achievement and technicality of muslim engineers of the ancient world, namely Al-Jazari. In the long term, this Capstone serves to mark the start of a project into tourism with a focus on the forgotten engineering marvels of the ancient muslim world.

Daniel Chirita (Electrical)

Phillip Niehaus (Electrical)

Halil Utku Unlu (Electrical)

Visual Tracking System for Unmanned Aerial Vehicles

The goal of this Capstone is to create a visual processing routine that detects and tracks airborne drones for security applications in airports, air bases, and other drone frequented locations. The produced platform will realize this function with a pan-tilt-zoom mounted Full HD camera for data acquisition and a computer with a discrete graphical processing unit (GPU) for image processing. Such camera systems have use in automatic surveillance in both indoor and outdoor locations. By embedding the zoom into the tracking routine, this project aims to extend functionality to over 100 m. The system is broken down into dynamic object detection, object identification, and camera controller components, and the project aims to provide an integration of existing algorithms in each category to realize the outlined goal.



SCIENCE AND MATHS

BIOLOGY

Yazan Al-Ajlouni

Investigating the Association Between Midwakh Smoking Behaviors and Risk Factors of Cardiovascular Disease and Hypertension Among UAE Nationals: Findings from the UAE Healthy Future Study

Emerging research has investigated the role that smoking (i.e., consumption of tobacco substance) plays in causing cardiovascular disease (CVD) among different populations. While previous research demonstrated that smoking cigarettes is linked to an increased risk of CVD, no previous research has compared the association among different types of tobacco consumption, including Shisha and Midwakh smoking. This exploratory study seeks to study the association between smoking cigarettes, shisha, Midwakh, or any combination, and risk factors of CVD. Participants' urine samples will be analyzed for Cotinine, a biomarker for tobacco consumption, while blood samples will be analyzed for several measures for CVD. Multivariate log-binomial regression models will be used to estimate the adjusted risk ratios (aRRs) and 95% confidence intervals to examine the associations between cotinine level in urine and CVD measures in blood samples.

Syeda Ali

Population Genetics of Four Commercially Important Fisheries Species in the Southern Arabian Gulf

The biomass of commercial fishes found in the UAE has dropped by 85% in the last 40 years, adding pressure on the fisheries industry which is the Arabian Gulf's second most important resource after oil. Understanding the connectivity of populations through population genetics would provide much more robust information on how the size and spacing of marine reserves should be structured. A genomics based sampling of the fish population living in the Southern Arabian Gulf will allow us to determine whether they operate as one large interconnected population or as a number of smaller genetically isolated sub-populations. Such information is essential to determining the appropriate size and spacing of marine reserves, but is currently lacking in the Arabian Gulf region.

Sara Almazrouei

Identifying and Analyzing a Subset of Neurons in Drosophila Visual System: TmY Neurons

The question of how neurons and neuronal networks develop is a central issue in many neuroscience research laboratories. New York University Abu Dhabi Desplan Laboratory aims to study neural diversity and development using *Drosophi-*

la melanogaster as the model organism. Most of the studies involving the *Drosophila* concentrates on the visual system that focuses on the central brain and the optic lobe. The optic lobe, the focus of visual information, is further divided into four ganglia: lamina, medulla, lobula and lobula plate. My project will aim to identify and analyze a subset of neurons in the *Drosophila* visual system: the Transmedullary (TmY) neurons, because very little is known about these neurons. The unique feature about TmY neurons is that they project to both the lobula and the lobula plate. Thus, the aim is to identify the origin of the neurons according to spatial localization and temporal patterning of the transcription factors.

Hala Aqel

Jetlag as a Global Stressor: Effect of Shifting Light on Depressive-like Behavior and Stress Susceptibility

Major depressive disorder (MDD) is a disease rising exponentially across the globe, but there is gaping lack in effective pharmaceuticals or therapeutics. One of the principal factors contributing to the prevalence of depression throughout the population is extended exposure to light. Humans had evolved in the natural solar-light cycle, but we are now inundated with artificial light well into the evening. My Capstone project would use shifting light-cycles in a controlled setting to induce different simulations of jet lag in a mouse model. The purpose of my research would be to experimentally test a realistic example of the current human condition in which light affects natural rhythms which subsequently correlates with mood disorders. Tracing neural circuits in baseline and experimental mice provides a neurobiological basis for the observed differences and contributes to the discovery of treatments for mood disorders by identifying environmental triggers.

Yoonhoo Chang

"Investigating IgM Response to Plasmodium Falciparum Infection"

One of the key factors that can cause variations in the severity of the symptoms of malaria-infected patients is the host immune system. The efficient response to clear parasites is the activation of the adaptive immunity, which involves the production of B cells and antigen-specific immunoglobulins. Several studies have investigated the specific aspects of B-cell biology by identifying genes and pathways implicated in the B cell response to malaria but largely focused on mice models. This study, on the other hand, takes advantage of an established pediatric cohort in Burkina Faso, consisting of 150 children samples before and during infection and after treatment. The aim is to test the hypothesis that 1) specific genes and pathways in B cells are modulated during the course of infection 2) Immunoglobulin M levels change significantly during the course of infection and 3) host genotype affects one's ability to produce Immunoglobulin M.

Sannia Farrukh

DNA Damage Dependent Regulation of p53 Pathway by Nuclear Myosin I

Nuclear myosin 1 (NM1) is an emerging key regulator of transcription and chromatin organization. It has been implicated in several nuclear processes involving chromatin remodeling, histone modifications and transcription by RNA polymerase I and II. Recent studies have highlighted the role of myosins in DNA repair, however how NM1 regulates that pathway is still unknown. Using NM1 knockout (KO) mouse cells, we show that NM1 gene deletion leads to differential expression of genes involved in DNA damage response and cell cycle. Remarkably we found that genes that are downstream p53 signaling are downregulated and that cells lacking NM1 display constitutive DNA damage foci. Based on these observations, we silenced NM1 by siRNA and studied its suggested function in response to DNA damage. Chromatin immunoprecipitation (ChIP) and qPCR analyses on cells subjected to NM1 knockdown revealed that NM1 binding to the p21 gene is enhanced upon DNA damage and is independent from p53 binding. Results from ChIP/qPCR experiments also showed that NM1 facilitates the binding of HAT PCAF and HMT Set1 to the p21 promoter region, leading to a more open chromatin state and active expression of the p21 gene. Thus, we propose that NM1 plays a regulatory role in the p53 signaling pathway and is recruited across the p21 gene to facilitate recruitment of the HAT PCAF and HMT Set1 that induces histone acetylation and methylation, facilitating p53-dependent p21 gene activation.

Tamara Gjorgjieva

The Role of β -actin in the Direct Reprogramming of Mouse Embryonic Fibroblasts (MEFs) to Osteoblast-like Cells

Accumulating evidence highlights novel functions of actin in the nucleus, such as transcription control, chromatin and epigenetic regulation, nuclear reprogramming and DNA damage response. Our lab recently showed that the loss of β -actin in mouse embryonic fibroblasts (MEF) obtained from an embryonic lethal β -actin knockout mouse leads to differential expression of gene programs related to development and differentiation, including neurogenesis. In this study, we performed direct reprogramming of MEFs to osteoblast-like cells to find out the role of nuclear actin in osteogenesis and bone morphogenesis. Firstly, we developed a protocol for direct reprogramming of MEF to chemically-induced osteoblast-like cells (CiOsteo). Using this protocol, we showed that mineralization of the extracellular matrix is correlated with β -actin levels: β -actin^{-/-} KO cells show mineralization after 4 days, whereas β -actin^{+/-}HET and β -actin^{+/+} WT cells require 8 and 14 days, respectively. Using Scanning Electron Microscopy, we also observed hydroxyapatite-like polycrystalline structures secreted exclusively by KO cells on day 4. We also performed RNA-seq analysis on all the CiOsteo cells, and

found that certain genes related to osteogenesis and bone morphogenesis were dysregulated between WT and KO CiOsteo cells. Lastly, we identified increased heterochromatinization at the loci of key regulatory genes that are downregulated in KO CiOsteo (compared to WT CiOsteo). In summary, we propose that β -actin is required for regulating the chromatin accessibility during direct reprogramming: in the absence of β -actin, key regulatory genes such as Msx1 and Mmp13 remain heterochromatinized and thus not transcribed, resulting in a hypermineralization phenotype.

Imtiyaz Enayatali Hariyani

Speciation and Transposable Element Amplification in the Ethiopian Frog Species Complex *Ptychadena Neumanni*"

Transposable elements (TEs) are DNA sequences that can change their position in the genome and widely differ in terms of their type and abundance in the genome of closely related organisms. TEs are thought to be associated with speciation, an evolutionary process by which populations evolve into new species. The CASP (carrier subpopulation) hypothesis proposes that subdivisions of a population may allow these transposable elements to incorporate into the genome with 100% frequency. These subpopulations may then develop into a new species with a new set of transposable elements, which differ in terms of their abundance and diversity in the genome compared to their ancestors. We propose to test this hypothesis using frog species (*Ptychadena neumanni*) from the Ethiopian highlands. This will help examine whether the speciation process leads to an accumulation of TEs or if the TEs are responsible for speciation.

Erna Kapetančić

Targeted Delivery of Therapeutics for Chronic Myeloid Leukemia

Chronic Myeloid Leukemia is a form of cancer with ability to spread from bone marrow to blood and invade other parts of the body, such as the spleen. In order to effectively treat such a widely spread disease, novel cancer therapeutics need to concentrate within the cancer cells, which would also serve to protect healthy tissues from the adverse effects of cancer therapeutics. The aim of the project is to specifically target CML cells and to induce their death. The approach taken toward achieving this aim would be to identify a unique CML cellular membrane marker and to anchor its agonist onto the surface of a nanoparticle carrying a combination of cancer therapeutics. Thus, the hypothesis is that the designed drug-delivery platform will exclusively recognize and bind to CML cells, delivering Hexokinase 2 Derived Cell Penetrating Peptide, Interferon Alpha and Arsenic Trioxide as a combination of cancer therapeutics.

SCIENCE AND MATHS

Priyanka Lakhiani

Atf6-mediated Transcriptomic Signatures in Cellular Environments of Unfolded Protein Response Activation

Fatty liver disease (FLD) is currently the most common diagnosis of abnormal liver function affecting the population of the United States, and is a global epidemic affecting millions in both developed and developing countries. The disease is caused by a variety of complex environmental and physiological factors, including high fat consumption and diabetes. Atf6, a gene regulating a stress pathway, has been shown to be sufficient to cause FLD in zebrafish. Activation of atf6 correlates to widespread increase in gene expression of multiple pathways, including protein folding and metabolism. This Capstone project aims to understand the mechanisms used by atf6 to regulate gene expression, and thus modify metabolism and lipid accumulation in liver cells. The final part of the project will aim to exploit these regulatory mechanisms to develop possible molecular therapies to subdue or reverse the FLD phenotype in zebrafish larvae.

Tayla McHardie

Optimization of Palmitic Acid Production in Chloroidium sp. UTEX 3007

The green algae Chloroidium sp. UTEX 3007 was recently isolated by the Salehi-Ashtiani Laboratory from multiple locations in the United Arab Emirates. In order to survive the conditions of the desert, Chloroidium sp. UTEX 3007 exhibits multiple heat and salinity tolerant characteristics, including the production of palmitic acid. Palmitic acid consists a large portion of palm oil's composition. Therefore, it is proposed that with optimization of palmitic acid production in Chloroidium sp. UTEX 3007, a potential palm oil alternative can be developed. Optimization will be conducted with mutagenesis via exposure to UV light, whereupon cells will be sorted to isolated those with increased palmitic acid production. If the experiment is successful and Chloroidium sp. UTEX 3007 is optimized to a commercially viable standard for palmitic acid production, there is the potential for radical sustainable improvement of historically environmentally destructive palm oil production.

Hayden Mountcastle

Behavioral Responses of Coral Reef Fish From the Thermally Extreme Persian/Arabian Gulf to Temperature and Time of Day.

Tropical coral reef fish are under extreme thermal stress in the Persian/Arabian Gulf (PAG), with annual thermal fluctuations from winter lows of 12°C to summer highs of 36°C. Coral reef

fish are exclusively ectotherms, so their physiological performance is directly tied to environmental temperatures and behavioral modulation is critical for ectotherms to regulate internal body temperatures. This study examined the effects of temperature and time of day on fish behavior in model fish from PAG, *Lutjanus ehrenbergii* and *Scolopsis ghanam*, at 18°C, 27°C, and 35.5°C between morning (07:15), noon (12:55), and evening (18:35) times of day on five ecologically important behaviors: relative swimming speed, activity, exploration, sheltering, and sociability. Results showed significant interactions with temperature and time of day, where notably relative swimming speed, activity, and exploration all increased as temperature increased with peak values in the evening.

Layanne Haniya Nayfeh

Characterizing Genetic and Epigenetic Modifications of an Alga With Increased Lipid Accumulation Phenotype

The Salehi-Ashtiani lab has been optimizing the lipid content of microalgae, specifically the *Chlamydomonas reinhardtii*, to efficiently produce compounds that can serve as substitutes for fossil fuels, however, the mutant cells' activity has started to diminish. My research is to find out why by investigating if new mutations have occurred in the mutant and investigate if DNA methylation or epigenetic modification is sufficient to change the lipid accumulation behavior of *Chlamydomonas*. The generalized objective of this project is to better understand if there are specific epigenetic modifications that can lead to increased lipid accumulation if selected in the unicellular microalgae *Chlamydomonas reinhardtii* as it adapts to its environment. Considering microalgae as an alternative source of fuel is important because it is one that is far less harmful to the environment than fossil fuels.

Daniel Obaji

Development of Strategies to Enhance the Efficacy of Cancer Therapeutics

Cancer is the second leading cause of death worldwide. Chemotherapy causes side effects like hair loss, that are due to cancer drugs affecting normal cells. My Capstone project aims to improve the efficiency of cancer therapeutics by developing methods that will enable more specific targeting of cancer cells. These methods utilize key characteristics exclusive to tumor environment to improve specific targeting of tumors. I will be setting up a system that will allow measurement of the distribution of cancer drugs within tumors. The system will be used to assess the efficiency of the methods used in the project.

Sharon Qiu

Monitoring Variation in Drug Resistance Genes of *Plasmodium falciparum* in Burkina Faso

Malaria is a global public health burden, with 3.2 billion people in 95 countries at risk of infection. The rise of antimalarial drug resistance in the *Plasmodium falciparum* parasite hinders global malaria control. Several studies have identified mutations in *P. falciparum* genes that confer drug resistance. I will use sequencing technologies and paediatric samples from Burkina Faso to characterize variation in drug resistance genes. To test the hypothesis that treatment alters genetic composition of *P. falciparum* in Burkina Faso, a protocol will be developed to sequence up to 10 drug resistance genes. Target genes in paediatric samples will be sequenced using this protocol. Population genetic analysis will be performed to quantify variation i) as a result of treatment and ii) over time. Results will be compared with previous studies to monitor known mutations and to potentially identify novel mutations. Monitoring variation in these genes will have public health implications.

Miraflor Santos

Diversity of Coastal Planktonic and Bacterial Communities in Abu Dhabi

Plankton and their associated bacteria are widely studied because they are the ecological foundation of marine food webs and are key drivers of global carbon and nutrient cycling. Their diversity and community composition have been of intense interest because they provide a bottom-up glimpse on how pelagic food webs are structured and how they might function and respond to change. The structure and stability of marine food webs have been difficult to characterize because they are situated in dynamic seascapes governed by the fluid mechanics and biogeochemistry of a turbulent ocean. As oceans warm and acidify, marine communities worldwide are expected to exhibit shift spatially in a size-dependent manner. Planktonic and bacterial community composition and thus the broader structure of the pelagic food web is expected to change. This thesis examines the biodiversity of microbial populations (prokaryotic and eukaryotic) in Abu Dhabi waters using next-generation sequencing and flow cytometry, state-of-the-art methods that have never been utilized to study marine populations in the Arabian Gulf to date.

CHEMISTRY

Álvaro Yáñez Touzet

The Relation Between Global and State-Dependent Changes in Sleep on the Pathogenesis of Depression

Depression is a chronic mental illness that negatively affects how a person feels. Although depression is treatable, antidepressants are usually ineffective because little is known about the illness. Perhaps the fastest and most unexpected antidepressant is sleep deprivation. Extensive research shows that one night's deprivation of sleep immediately alleviates depression; however, as soon as patients go back to sleep, the symptoms of depression reappear. The pathways that are suspected to be causing this immediate reversal of the illness in the brain are, curiously, the same that can lead to its inception. It is popularly known that depression can cause changes in one's quality of sleep, but it is unprecedented that one's quality of sleep can cause depression. Therefore, this Capstone studied how depression can cause changes in the stages of sleep, and how changes in the stages of sleep can cause depression.

Sandra Emad Boutros

Calix[4]arene-Crown Ether Porous Organic Polymers for Lithium Recovery

By 2025, the lithium demand for batteries will surpass the available natural reserves of the metal, because lithium is the main component of batteries empowering most of today's technology. Only 3% of the amount of lithium produced is recovered because current recovery techniques are not only energy intensive but also rely on hazardous chemicals that result in secondary pollution. In this project, we are developing an environmentally sustainable, low-energy, and efficient method to recover lithium from spent lithium batteries. This method relies on adsorbing lithium from waste before recovering it from the adsorbent. The designed adsorbent is a porous material synthesized from a modified calix[4]arene which is a macrocycle accommodating specific guests in its cavity. The success of this project will benefit the wider community by reducing the environmental impact of the mass production and hence, the expenditure of natural lithium resources to preserve them for future generations.

SCIENCE AND MATHS

Tabinah Faisal

Spectroscopic Study of the Interactions Between Asphaltenes and Prospective Scale Inhibitors in Solution

Asphaltene precipitation, which leads to asphaltene deposition, has proven to be highly catastrophic for the oil industry. Scale inhibitors, chemical inhibitors which can prevent the formation of asphaltene deposits in oil wells and pipelines, are of particular interest. The scale inhibitors currently in use have low efficacy, which increases the need to extend research into novel inhibitors that can overcome the shortcomings of current inhibitors. In this study, we test various aromatic inhibitors with different functional moieties. Fluorescence experiments were carried out to confirm if interactions, particularly the formation of asphaltene-inhibitor complexes, occur between asphaltene and inhibitor molecules. Hill analysis was then applied to this data in order to determine the Michaelis or dissociation constant, k (in mM). Inhibitors X3 and Y3, which were surfactant-like with strongly acidic and electron-withdrawing moieties, showed the lowest k values over time and across different sources of asphaltenes. These surfactant-like inhibitors showed the highest affinity to different types of asphaltene molecules and are, therefore, most likely to form complexes with asphaltenes, preventing them from aggregating. Quartz crystal microbalance with dissipation (QCM-D) analysis was carried out in order to determine if the inhibitors can effectively remove adsorbed asphaltenes from surfaces mimicking the inside of oil wells and pipelines. Inhibitor X3 was found to be most effective, removing roughly 70% of the adsorbed mass of asphaltenes from the carbon steel surface. The results indicate that aromatic inhibitors with acidic and electron-withdrawing moieties can be effective in interacting with asphaltenes and potentially preventing them from aggregating.

Anastassiya Knyazeva

Design of Self-healing Crystals of Boronic Esters Using the Principles of Dynamic Covalent Chemistry

One of the serious shortcomings of the materials is their predisposition to deteriorate over time, a process that ultimately causes their decomposition. To circumvent this intractable problem, the ability of some materials to recover from mechanical damage is currently a field of active research. Despite that numerous self-healing soft materials have been developed, there are only a few examples of crystals that are capable to repair themselves. The currently active direction in this research is to extend the concept of self-healing materials to crystalline compounds. In this project, we propose the design a series of self-healing crystals. Selected compounds will be synthesized, crystallized and their properties and mechanism of self-healing will be investigated. The results of this project are posed to contribute to the design of novel durable crystalline materials that are resistant to deterioration.

COMPUTER SCIENCE

David Ahmed

Combining Keystroke and Mouse Dynamics for Stronger and More Usable Authentication

Traditional approaches to strengthening authentication systems come in the form such as Multi-Factor Authentication (MFA) schemes, One-Time-Passwords (OTP), new password policies, etc. Even though these measures tend to improve authentication methods in theory, they come at a huge cost in terms of usability and practical security. In this paper, we propose an implementation of keystroke and mouse dynamics for making the current authentication schemes more usable by making authentication systems more intelligent and user-centric. Consequently, instead of blindly posing challenges to authenticators, our approach allows for the authentication system to make real-time decisions as to if there is a necessity for new challenges in the form of MFA or other forms of traditional approaches. Hence, we effectively achieve the same theoretical security that complicated text-based authentication systems have, but at much lower usability cost.

Ali Saif Gharib Salem Al Dhaheri

An Online Application for Testing Arabic Dialect Knowledge

Arabic is a collection of variants, among which Standard Arabic has the special status of being the official and only standardized language. The other variants, known as Arabic dialects, are the actual mother tongues that are primarily spoken and these days quite commonly used in social media. In this project we build an online game to allow Arabic speakers to test their knowledge of different Arabic dialects and learn about them.

Khaled Tareq Al Hosani

Empirical Comparison of Heuristics for the Discrete Disk Cover Problem

The problem of selecting which the fewest number of disk to completely cover a set of points is computationally difficult. My Capstone shows that two algorithms that run with a reasonable time can get almost the exact solution without taking an incredibly long time.

Tomasz Bachosz

Changing Political Opinion by Adjusting Political Content Served

The purpose of this Capstone is to judge whether it is possible to change personal political views by serving appropriate content from opposite political spectrum. To this end, a mobile application will be developed that captures the political sentiment and activity around its users. The application will deliver content to users based on an established profile. A users subsequent activity within the application, and to the extent possible outside of the application, will be measured and correlated against the degree to which the served content aligns with the views. The goal of this work is to measure the extent to which a users psychological position on societal issues can be altered, and the algorithmic techniques required for doing so.

Shantanu Bhatia

Yana Dmytrivna Chala

Inferring Evidence-Based Processes from Outcomes and History

In this paper, we propose a system for analyzing Intensive Care Unit (ICU) visits and thereby supporting the diagnosis and treatment of patients in ICU settings. The goal of the system is to infer recommendations for actions that medical staff should perform on a given patient. To achieve this, we devise a similarity metric for comparing and finding similar patients, and strategies for continuously recommending actions that should improve a patient's medical state. These recommendations are derived from the similarity metric and a patient's most recent test results. Currently, our system is trained on data collected from ICU patients admitted for pneumonia. In the future, it can be extended to accommodate a variety of diseases.

Christine Dah-In Chung

Customizable Gender-Aware Machine Translation

This project addresses the issue of gender bias that occurs for certain gendered languages in modern day machine translation systems such as Google Translate. The larger aim is to design a user customizable identity-aware machine translation system that provides appropriate translations corresponding to the user identity. The target identity for this project is gender, and target language pair is English to Arabic. We built the first-of-its-kind corpus of parallel gender translated sentences based on a collection of movie subtitles. We developed a wrapper that identifies if a sentence is in a particular gender and translates it appropriately to the user-specified gender.

Raluca-Georgia Diugan

Decentralized Forum using Distributed Technologies

In response to more frequent censorship on social media platforms, our team is aiming to provide an open space for online discourse, a forum in which no central authority has decisive power over one's content. However, in order to maintain structure and filter out noise, any user can moderate their own threads of content and gain access to others curated subforums. The content of the forum will be encrypted and then stored in a distributive fashion on users' machines, as well as stored on a blockchain - a ledger in charge of recording all post submissions - in order to prevent malicious users from interfering with the data.

Guyu Fan

Timbre: A Decentralized Forum with Blockchain-based Distributed Data Store

Much of the public discourse today takes place online, especially on social media platforms. However, these platforms are almost always subject to censorship, so we would like to design and implement Timbre, a decentralized forum with Blockchain-based distributed data store. We also recognize that a certain degree of moderation is necessary to provide structure and filter out noise, so in our decentralized forum, any user can become a moderator and curate the content as they see fit, and conversely every user is free to subscribe to any other user's moderation. The underlying forum data will be stored in a distributed fashion, using blockchains to keep track of storage transaction history and main data integrity. Ultimately, we aim to provide a more open and versatile space for online discourse with our decentralized forum.

William B Held

The Effectiveness of Simple Hybrid Systems

Hypernymy modeling has largely been separated according to two paradigms: pattern-based and distributional methods. However, recent works utilizing a mix of these strategies have yielded state-of-the-art results. This paper evaluates the contribution of both paradigms to hybrid success by evaluating the benefits of hybrid treatment of baseline models from each paradigm. Even with a simple methodology for each individual system, utilizing a hybrid approach establishes new state-of-the-art results on two domain-specific hypernym discovery tasks and outperforms all non-hybrid approaches in a general hypernym discovery task.

SCIENCE AND MATHS

Wen di Li

Third-Party Punishment in Human-Bot interactions

As machines become increasingly intelligent, roles that are traditionally taken by humans are supplemented by machines and algorithms. Such roles require various levels of interaction with humans and poses questions when we transition from human-human interaction, which is associated with moral values and notion of fairness, to human-machine interaction. We design experiments to investigate people's expectations of human-machine interaction, particularly when it comes to fairness. We base our experiment on a third-party-punishment game followed by a trust game, and test the following hypotheses: people do not consider fairness as a factor when treating machines; similarly, people do not expect algorithms and machines to behave according to basic moral values; when human conduct moral wrongness, people believe that machines are not entitled to implement punishment.

Sam A Meyers

Algorithmically Generating Effective Music Visuals for EDM Shows

Visuals are one of the most important aspects of a live electronic dance music (EDM) show. While graphics continue to become more complex, music visualizers have not become more effective, resulting in most EDM visuals being created manually. To-date there has not been a single program that automatically generates both graphics and lighting visuals for music. This is due to current music visualizers being unable to accurately extract data such as melody and rhythm from an audio file. Using the latest algorithms in the field of music information retrieval and modifying them for EDM, I attempt to create a program that effectively generates both graphics and lighting visuals for EDM performances.

Brandon Nyamwega Mochama

Greening Datacenters

More than ever, Datacenters are indispensable within the global economy, powering web applications, massive computations, cloud storage amongst other uses. However, this comes with costly increased energy consumption. Given that much of the energy is still being sourced from non-renewable sources, this poses a risk to the environment. One simple solution is to switch Datacenters to green energy sources (solar, wind). Still, there is more that can be done. It turns out, that due to the irregular demands placed on datacenters, operators over-provision servers and communication equipment, yet for much of the time, this equipment remains idle, consuming energy while only a small subset remains operational. Therefore, the goal of this Capstone is to develop predictive methods that anticipate how much resources should be allocated at a given time, turning off the rest in order to limit unnecessary energy consumption.

Ella Noll

Automated Syntactic Post-Editing on Japanese Corpora

Machine Translation research has made impressive improvements in the last two decades; however this success has not spread equally to all language pairs, with some language pairs receiving a lot more attention in terms of research, and resource and system development. Arabic-to-Japanese is a pair that has not received much attention. In this project, we present results from, and detailed linguistic analysis of the output of, an automatic post-editing system for Arabic-Japanese machine translation that exploits a corpus of Arabic-Japanese news articles. Our results improve over a very strong (but domain/genre agnostic) state-of-the-art system.

Munachiso Samuel Nwadike

3D-Image Detection with Neural Networks

The rate of progress in the field of computer vision has been increasing in recent times, as we approach a state where computers are able to simulate human comprehension of their surroundings. The two aims of computer vision are to allow computers an understanding of "what" and "where". That is, assigning unique identity to entities and interactions, and locating them in space relative to some comprehensible coordinate system. This paper focuses on a recent innovation in the field of Computer Vision, with the aim of contributing to that innovation to produce a more efficient outcome in 3D point-cloud detection. Our method builds on recent work from Apple Labs and hopes to reimplement their algorithm with new machine learning tools to this end.

Emil Goldsmith Olesen

GoodLiving: An Amenity-sensitive Cross-city Property Search Tool

We are developing a web application called GoodLiving to fill the need of users to be able to search for desired attributes in a location for living, whether it be a short-term visit, a medium-length subletting or settling down somewhere. Examples of these attributes include distance from different points, distance from public transport, school district, and safety of neighbourhood. We are building it focusing both on creating an easy to use, simple and intuitive user experience, while trying to offer as many searchable attributes as possible.

Arantza I Rodriguez

Emerge: a Content Creation Application

The Emerge Capstone project will focus on developing an Android mobile application that will enable the diffusion of locally produced content in developing regions. In this application, users will be able to register, choose a static template, upload and publish media (text, images, and video), and search through channels for other users' content. By creating a community-driven ecosystem, the goal of this project will be to create a platform that will give people in emerging countries an efficient way of generating and accessing relevant knowledge to better their economic, social, and technological status. Overall, this Capstone will prove important because it will help bridge the communication gap that exists between developed and developing worlds.

Myunggun Seo

Lifting 2D Squares to 3D Half-Spaces

A half-space in 3D is either of the two parts separated by a plane. Because of some helpful properties that exist in half-spaces, it is often useful to map geometries in a plane to half-spaces in 3D. We attempt to prove or disprove the existence of a mapping from a family of squares in a plane to a family of half-spaces in 3D such that all points inside each square are mapped to points inside the corresponding half-space and all points outside each square are mapped to points outside the corresponding half-space. If such a mapping can be shown to exist, we attempt to provide a mathematical description of it or find an algorithm that performs the mapping. If not, we attempt to provide approximations of the mapping.

Himal Shrestha

Efficient Fraud Detection in Bitcoin Network

Bitcoin has gained in popularity in the past few years, with market capitalization of more than 150 billion US dollars. But Bitcoin is not without problems. In the past few years, Bitcoin has been susceptible to theft, ransomware, terror-financing, money laundering, and several criminal activities. These bad guys make use of complicated techniques to mask their activities online, making it harder for law enforcement authorities to carry out their duties. As a result, there has been significant interest in policing bitcoin recently. However, a lot of work still needs to be done, especially in the field of anomaly detection. Currently, researchers focussing in this field make use of "traditional" tools such as clustering to detect fraudulent transactions in the network. However, these tools have several shortcomings. The aim of this research is to find appropriate algorithms that mitigate these shortcomings in the context of Bitcoin network.

Theodore T Tenev

Quantum Lifecycle Management for Connected Home Devices: Advancing Business Intelligence and IoT Interoperability

Quantum Lifecycle Management (QLM) is a product lifecycle management technique, which leverages the ability of devices to connect to the Internet of Things in order to include detailed information not only about each individual product instance, but also its usage in each stage of the product life. This research project explores the emerging technical standards of data collection and communication between connected home devices in the ever-growing Internet of Things to support a wide adoption of QLM techniques by the manufacturers of such devices, with a focus on improving the frameworks and technical specifications developed by The Open Group, bloTope, NIST. This will aid the creation of cross-industry, cross-platform and cross-organizational services by fostering interoperability and openness between manufacturers and within product categories, introducing a new set of capabilities for extracting business knowledge from existing data streams.

Xin Tong

Decentralized Forum Using Distributed Technologies

Much of the public discourse today takes place online, especially on social media platforms. However, these platforms are almost always subject to censorship. In response to this issue, we would like to design and implement a decentralized forum as our Capstone project. Although censorship hinders freedom of speech, we also recognize that a certain degree of moderation is necessary to provide structure and filter out noise. Therefore, in our decentralized forum, any user can become a moderator and curate the content as they see fit, and conversely every user is free to subscribe to any other user's moderation. The underlying forum data will be stored in a distributed fashion, possibly in a blockchain, to prevent any central authority or malicious users from tampering with it. Ultimately, we aim to provide a more open and versatile space for online discourse with our decentralized forum.

SCIENCE AND MATHS

Alejandra Trejo Rodriguez

Digital Forgetting with Audience Awareness

Content uploaded to social networks remains often relevant only for a limited amount of time. As a response to this, Online Social Networks (OSNs) such as Instagram and Snapchat have introduced features that allow users' content to be deleted after a predetermined amount of time. However, this system is inflexible as it only provides users with one option for automated deletion (content typically gets deleted in 24 hours); if users wish to delete their content beforehand, they have to do it manually. Alternative time-based revocation protocols have been proposed to allow for greater flexibility when it comes to automated content deletion. One such protocol, Neuralyzer, allows for data to be deleted automatically based on different heuristics, one of them being drop of interest. None of these models, however, accounts for the fact that users have different audiences in mind when they post content online. The aim of this Capstone project is to create a time-based revocation model based on the drop of interest heuristic presented by Neuralyzer that also factors in the intended audience of the user's content.

Shunya Watanabe

Music Structural Annotation for Electronic Dance Music

Music has become an integral part of our life as technology has progressed, and the way we consume music has also become different. Sound and Music Computing as a field of study has also experienced a drastic change, as it has progressed in the past years. The contribution of this Capstone is on music structural annotation, which detects the sections of a song and annotates each section as an intro, chorus, build up, drop, bridge, or outro. Music structural annotation requires two steps. The first step is to segment a song into sections by looking at the drastic change in musical features of along the song. The second step is to classify each section. This is done using machine learning, which tries to find out the trend in the data and uses it to find out the best possible prediction for a given segment.

Syed Faizan Haider Zaidi

MAML Web Translation

With the increasing popularity and complexity of the Internet, data is being created and consumed unlike ever before. Despite the importance of the web in our lives, most of the world lacks proper access to it. In developing countries, high page load times, complex web pages, lack of local content, lack of infrastructure, and an apathy by content providers to tailor their content for mobile use are serious issues. The MAML Web Translation project aims at tackling these problems at the application level i.e. the web page. MAML is a web

specification language that translates HTML into MAML, while reorganizing the DOM to a flat structure dynamically through our auto-translation engine. To encourage local content creation, the MAML Editing Tool will allow content providers to recreate their content in a way that is simple and quick to render, and caters to the needs and preferences of each user.

MATH

Aleksandra Badowska

Numerical Range and Numerical Shadow

The numerical range $W(A)$ is a set of complex numbers associated with a given n by n matrix A . It is a useful mathematical tool and provides more information about a matrix than its eigenvalues alone. The numerical range can be modified and can serve as a foundation for other notions associated with it, for example the numerical shadow, which is the probability measure defined on the numerical range. While several cases of matrices and their numerical shadows have been described, the general classification of the numerical shadow of 3 by 3 matrices is still missing. Another notion associated with NR is the joint numerical range, in which one studies not one but a few matrices together. Classification of this multidimensional set exists for triples of 3 by 3 Hermitian matrices, so the next step is to describe JNR for triples of 4 by 4 Hermitian matrices.

Titus Geryba

The Necessary and Sufficient Conditions for the numerical range of a 4×4 matrix to be of a certain shape

There is a mapping which takes a square matrix and maps it to the complex plane. The image of this mapping is on the complex plane and is called the Numerical Range. The shape of this image depends on the matrix that we insert into the mapping. This is what I am investigating. The conditions that need to be imposed on a matrix of its Numerical Range to have a certain shape are known for square matrices of size 2 and 3 . I wish to study the conditions that need to be imposed on a 4×4 matrix in order for it to have a certain shape.

Weihang He

Optimization and the Mean Field Game Theory

I will be discussing the mathematical concepts of optimization and its application in a famous economy model: the mean field game theory. By applying the optimization method, I will prove the existence of an optimal equilibrium between the income and the expenditure in a closed economy.

Nischal Mainali

Topological Data Analysis

A collection of data set has a shape (like the regression line) and there are varying techniques to study these shapes individually. Topological Data Analysis acts as a generalization to that by providing techniques to examine the shape of the data. They produce a signature that we call the barcodes. And these barcodes carry important information on data. And as such, our project is on trying to extract this information from the barcodes and apply statistical methods to it.

Touba Marrie

Mathematics of Finance

This project studies the Black-Scholes model which is a Partial Derivative Equation that determines the variations of price over time and was developed using Ito calculus through stochastic process. The equation is named after Myron Scholes, Robert Merton and Fischer Black who published their seminal paper on option pricing in 1973, hence the name Black-Scholes model. The project focuses on the Derivation of the model through Ito Calculus, the history of the model, it's application in finance, and how the pricing model is largely used by option traders who buy options that are priced under the formula calculated value and sell options priced higher than the Black-Scholes calculated value.

Jin Shang

Computer-aided Study of Double Extensions of Restricted Lie Superalgebras Preserving the Non-degenerate Closed 2-forms in Characteristic 2

A Lie (super)algebra with a non-degenerate invariant symmetric bilinear form is called a nis-(super)algebra. The double extension of a nis-(super)algebra is the result of simultaneous adding to it a central element and an outer derivation. Loop (super)algebras with values in simple complex Lie (super)algebras are most known among the Lie (super)algebras suitable to be doubly extended to Lie (super)algebras with symmetrizable Cartan matrix. In characteristic 2 the notion of double extension acquires specific features. Restricted Lie (super)algebras are among the most interesting modular Lie superalgebras. In characteristic 2, using Grozman's Mathematica-based package SuperLie, we list double extensions of restricted Lie superalgebras preserving the "standard" non-degenerate closed 2-forms. The results are proved for the number of indeterminates ranging from 4 to 7 --- sufficient to conjecture the pattern for larger numbers. Considering multigradings allowed us to accelerate computations up to 100 times.

Alexandra Urbanikova

Mathematical Model of Resilience of Tropical Forest to Selective Cutting

The controversy around the method of selective cutting resides in the fact that its impact has been measured solely in terms of the number of fallen trees and the damage caused by logging operations, such as building the access roads. However, such simplistic measurement does not account for a larger impact the method imposes on the forest's biodiversity. One important aspect, that has been largely neglected so far, is the creation of canopy gaps, or simply discontinuities in the forest cover. This effect can result in an easier access of vines, climbers, and other infested, sun-seeking plant species that negatively affect the healthiness of the forest. This Capstone aims to fill the gap in scientific knowledge about the long-term effects of selective cutting on the ecosystem of the forest.

Nada Wardi

Solving a Well Defined Social Choice Theory Problem

Each single person in a given society will be given a finite set of options and they have to order these options from the most preferred to the least preferred depending on their personal preferences. These agents will be restricted on the ways they can rank their choices, ways that will be imposed by us in order to be able to find a solution. Our aim is to aggregate these individual rankings, through a function, to a final ranking that should rationally represent at best everyone's preferences and choices. This function should meet certain conditions in order for the final aggregation that results from it to make sense and to be compatible with the logical aspect and criteria it should meet.

Lin Zhu

Mathematical Simulation of Sinking Phytoplankton

Phytoplankton species are indispensable in our ecosystem. They reside in the euphotic layer of the ocean and, just like plants, they intake CO₂ and produce oxygen. Since they are slightly heavier than the sea water, in still liquid, they fall and reach a terminal velocity due to the balance between the pull of gravity and the viscosity of the liquid. Sinking under a certain depth would deprive them of sunlight and would arrest photosynthesis. So naturally the question arises: How do the phytoplankton species manage to persist?

SCIENCE AND MATHS

PHYSICS

Liam Meier

Born This Way: How Dark Matter Halos Set Star Formation Rates

Using a large sample of hydrodynamical, cosmological simulations, I study the star formation rates of galaxies throughout their lifetimes. I show that black hole feedback is successful in quenching star formation in the largest galaxies. I construct a new quantity, delta SFR, that relates the star formation rate of individual galaxies to galaxies similar to them in age and mass. I find an inverse correlation between halo formation time, measured through galaxy concentration, and delta SFR. Galaxies with halos that form earlier tend to underproduce stars throughout their lifetimes, while late bloomers tend to be chronic overproducers of stars. This is evidence that dark matter may play more of a role in driving star formation than previously realized.

Michael Rosenthal

Mapping the Warped H₂O Maser Disk in the Dwarf Galaxy IC 750

We present the first map of water masers in the active galactic nucleus (AGN) of the dwarf galaxy IC 750. Water masers at 22 GHz can penetrate the obscuring dust around Type 2 AGNs. Very Long Baseline Interferometry (VLBI) images of the central parsec of IC 750 reveal a nearly edge-on, warped disk of diameter $\sim 0.22 \text{ pc} \times D / 13.8 \text{ Mpc}$. The disk lacks emission around the galaxy recession velocity of 701 km/s, so we fit Keplerian rotation curves for a 0.5×0.5 mass grid of possible dynamical centers. By accepting only centers for which the masses determined separately from each side of the disk agree within 5%, we determine a best-fit BH mass of $8.0 +0.8 / -0.4$ solar masses. This mass constitutes the lowest-ever such measurement for a water maser system or obscured AGN.

Nadine Soliman

Black Holes in NIHAO

The focus of my Capstone includes researching a theoretical framework to implement and fine-tune a self-consistent analytical model for black hole accretion on large galactic scales. The aims of this project are to probe the interaction between black holes and their host galaxies through investigating black hole-host galaxy scaling relations, and to gain insight regarding the underlying physical processes that give rise to the observed co-evolution of galaxies and their black holes. This is to be accomplished through computing numerical simulations of galaxy formation and

utilizing observational datasets to constraint the model's parameter space. Four black hole accretion models were investigated through post-processing to test and predict their behavior and effect on the NIHAO galaxy population. Thus, this will help improve the understanding of the role black holes play in the formation of the Universe, and in characterizing the relevant parameters that determine their effect on the galaxies formed.

PSYCHOLOGY

Muna Al Khezam

The Native Tongue of Modern Generation Emiratis

Language, as a complex system, is a significantly important element that contributes in creating a national identity. However, with globalization, foreign languages can increase in popularity in the regional context. For this reason, the role of the Arabic language will be examined in the context of the United Arab Emirates. To investigate this, data will be collected from 50 young Emirati university students that have had a high school experience in either the private or the public sector in the UAE. The students will participate in two experiments, one involving speech perception and the other involving self-paced reading. It is predicted that the ability for modern day Emiratis to comprehend and read Modern Standard Arabic has in fact been impacted due to bilingual education. The intended paper examines an articulated plan that can be conducted in order to identify the severity of the issue addressed.

Fatma Al-Shuhoomi

Backlash Against Equality: How Threats to the Gender Hierarchy Affect Attitudes Toward Reproductive Freedom and Violence Against Women

In two studies, I test the hypothesis that the desire to preserve the traditional gender hierarchy is linked to beliefs that women ought to be controlled-in ways that are both non-violent (i.e., giving men more control over women's reproductive rights) and violent (endorsement of rape myths and minimization of severity of sexual and physical domestic violence). Study 1 (N=200) used a correlational design and found that hostile sexism (which assesses negative attitudes towards non-traditional women) is positively associated with both non-violent and violent forms of control, above and beyond general attitudes toward abortion. In Study 2 (N=1178), participants read a paragraph that depicted the gender hierarchy as "stable" (men hold more power than women), "changed" (women have already achieved equality), or "changing"

(women are currently in the process of advancement towards bridging the gender gap). Results showed that when the gender hierarchy is perceived to be currently under transition (vs. stable or already changed), people were higher on endorsement of rape myths, especially those high on hostile sexism. Experimental condition did not affect attitudes about reproductive control or domestic violence but data from this study replicated the finding from Study 1 that hostile sexism predicts attitudes, even when adjusting for attitudes toward abortion. Further, results from both studies unexpectedly showed that the biggest predictor of acceptance of rape and domestic violence was people's attitudes about abortion access (i.e., people who thought women should not have the right to an abortion were more likely to minimize violence).

Jude Alhajeri

Examining the Lasting Effects of Daycare on Attachment Security: An 18-Year Prospective Longitudinal Study

Research indicates that experiences with daycare during early childhood can have lasting impacts on development. However, the long term effects of daycare with respect to the development of secure attachment are unknown. Based on a subsample (N = 673) of the NICHD Study of Early Child Care and Youth Development (SECCYD) cohort, this article examines the associations between earlier daycare experiences (quality and quantity) and attachment security (i.e. secure base script knowledge) at the age 18 years SECCYD follow-up. Results indicated a small association between daycare quality and attachment security at age 18 years, but this effect did not hold when accounting for critical demographic and caregiving variables (i.e. maternal and paternal sensitivity). These results suggest that childhood daycare participation does not undermine attachment security in the long-term.

Sandro Andric

Attitudes Toward Non-heterosexual and Transgender Individuals in 23 Countries

In my research, I wanted to see if people who are more sexist will have more negative attitudes towards homosexual men and transwomen. We found that if people have negative attitudes towards homosexual men then they will also have negative attitudes towards transwomen. Women tend to like more homosexual men and transwomen than men. We found out that in Western countries, if a person is very hostile sexist and benevolent sexist they will also have more negative attitudes towards homosexual men and transwomen. However, in non-Western countries, the more a person is hostile sexist the more they like homosexual men and transwomen.

Araz Aslanian

The Effect of Implicit Racial Bias on Recognition of Own- and Other-Race Faces

People associate stereotypes with certain races without conscious knowledge. Those implicit racial biases can affect several things, like face memory and perception. Faces that are processed in a holistic way are remembered more accurately. Evidence supports the claim that a face is processed in a holistic manner if one has a positive implicit bias towards it. Thus, positive implicit biases lead to better facial memory. Eye-tracking technology will be used to track where participants look, to determine whether they look at a face in a holistic or featural manner. One hundred participants will be needed to test out this hypothesis: people with positive racial biases towards a race will have better facial memory.

Milica Gajic

Teacher Stress and the Quality of Teacher-Child Interactions as Mediated by Teachers' Executive Function

The present study explores the relationship between teachers' physiological and subjective stress experience and the quality of teacher-child interactions. More specifically, the goal is to investigate whether the relationship between teacher stress and the quality of teacher-child interactions is mediated by teachers' executive functions (EFs). Data came from 53 preschool teachers (Mage= 39, SD= 10.87) recruited from 14 early childhood education centers in Ukraine. Data was collected using self-report, saliva sampling and computer-based EFs task. Results indicated that there were very limited significant associations between teachers' stress, EFs, and the quality of teacher-child interactions. Significant positive associations were found between teacher subjective stress experience and self-reported EFs and between teaching experience and the quality of teacher-child interactions. The final mediation model was not tested because there was no indication that there was any significant relationship between teachers' stress and the quality of teacher-child interactions.

SCIENCE AND MATHS

Mina Gonokuchi

Achieving Goals Better with Age

This Capstone project is aimed to establish an over-arching relationship between age, sense of autonomy and different levels of intergoal facilitation, in which they act together to enable goal-pursuit. Past researchers have indicated a relationship between age and intergoal facilitation, and age and sense of autonomy, therefore, this project will specifically focus on looking at autonomy and intergoal facilitation. In doing so, a questionnaire will be conducted (N = 300) to measure how these two variables are spread over different age groups. The hypothesis is that a sense of autonomy successfully mediates age and intergoal facilitation, meaning that with higher level of autonomy, higher level of intergoal facilitation will also be observed.

Yufei Gu

The Influence of Early Caregiving Quality on Attachment Development in Chinese Children

Children's attachment security to their caregivers is considered to have a significant influence on their later personality development, yet no longitudinal study has delved into the relationship between caregiving quality during infancy and interpersonal relationships in middle childhood in China. This study aims to explore how infants' caregiving experiences with their parents affects their attachment security later in life within the specific context of China. 14-month-old participants and their mothers were invited to complete a free play task in the lab and their interactions were recorded. After nine years, the participants revisited the lab to tell stories about their parents and teachers guided by word prompts. Data collected from 78 participants was analyzed and the correlation between caregiving and attachment development was statistically significant. Implications for the universality of attachment formation is discussed.

Sneha Gyawali

Mothers' Goals and Strategies for their Toddlers in Gift-Receiving Situations across Three Cultural Communities

The present study examines how mothers from three cultural communities describe goals and strategies for their toddlers, with regards to their autonomy and relatedness, during gift-receiving situations. Mothers of two-year-old children from Germany (n = 36), India (n = 33), and USA (n = 36) participated in the study. The mothers' responses to a semi-structured interview were coded into different types of autonomous goals, autonomous strategies, relatedness goals, and relatedness strategies using a coding manual. It was found that the majority of goals described by mothers were under autonomy, while the majority of strategies were

under relatedness. Mothers from the three samples differed significantly in their autonomy goals for their toddlers ($F(2, 102) = 5.152, p = .007$), and there was a marginal significant difference in their relatedness strategies ($F(2, 102) = 2.621, p = .078$) as well. There was no significant difference between groups for relatedness goals and autonomy strategies.

Supriya Kamath

Does Ensemble Perception Require Conscious Awareness?

Human beings have the remarkable ability to rapidly perceive the average properties (such as the average color or shape) of sets of discrete objects. This ability is called ensemble perception. Despite the wealth of research conducted on ensemble perception, its precise cognitive demands remain unclear. In this study, we investigate whether ensemble perception can occur even when the individual elements in the ensemble set do not reach conscious awareness. We hypothesize that ensemble perception can occur without conscious awareness, predicting that participants will be able to report the average orientation of an ensemble presented for just 16.7 ms, beneath the conscious awareness threshold. If our predictions are supported, the results will suggest that conscious awareness does not necessarily precede ensemble perception, opening up the interesting possibility that ensemble perception may not play a necessary role in our moment-to-moment phenomenal experience of the world.

Seoyoung Lee

The Role of Parahippocampal Cortex in Scene Integration

Humans perceive a coherent visual world across time and space. To update incoming sensory information while maintaining a stable representation of the environment, previous studies have suggested the role of the parahippocampal place area (PPA) in scene processing and ensemble processing. Using functional magnetic resonance imaging, we examined how the PPA might integrate information by relying on continuous spatial-temporal sequence of information flow, or mere shared elements in a scene. We used scene images that were divided into three segments, with 66% overlap between the first and second segments and 33% overlap between the first and the third segments. Participants (N=20) viewed the three scene segments either sequentially or in a displaced order, identical segments for three times, or three completely different scenes. We found that the bilateral PPA not only showed significantly stronger activations for different scenes than identical scenes, but also for different scenes than three segments of the same scenes. Moreover, the presentation sequences of the three segments did not affect the response amplitude. These results suggest that although the PPA may not be sensitive to the sequence of information flow, it appears to integrate segments with shared elements to form a coherent representation.

Chih Yu Lin

Friendship-making and Valued Characteristics in People Differ Between Feminists

This research attempts to comprehend the intricacy of feminist beliefs by measuring their different forms and groupings. Two distinctive dimensions are then proposed in this research paper, one of which is the essentialist dimension. That is, one group of feminists believe that there is a fundamental core difference between women and men while the other believe that both genders, intrinsically, are not distinct from each other. This research hypothesizes that the endorsement of these distinctive types of belief systems will predict different behavioral outcomes. They will differ in the gender of the friends they wish to make and haven already made, as well as the comfortability and hostility towards people of different genders. Besides the difference in friendship patterns, they will also place different values in the "masculine" and "feminine" characteristics in people.

Yin-Ting Lin

Cross-Modal Spatial Mechanisms in the Retro-Cue Effect Under Auditory Interference

The limitations of attention and working memory have been an important topic. It has been shown that spatial retro-cues are effective in enhancing the working memory task performance, but it is not so clear whether this phenomenon, the retro-cue effect, will be interfered by the introduction of a secondary auditory task. This project aims to address two critical issues—retro-cue effect under auditory inference and the spatial constraints in attention across different sensory systems—by examining how one-sided tone discrimination tasks affect visual working memory tasks. We predict that the auditory task will decrease the retro-cue effect, and it will reduce the effect even more when it is on the opposite side of a spatial cue. We hope that the experiment will help us understand the underlying mechanisms of the retro-cue effect and whether spatial attention is shared across modalities.

Nela Noll

Terror Management Theory in Bicultural Individuals

Terror Management Theory poses that inducing death-related thoughts in individuals through a death prime will result in upholding of one's cultural worldview. This worldview can take its shape in various forms either through religion, nationality or other means in which an individual can create a sense of immortality for one's own life. However, if inducing death-related thoughts in individuals that identify with two varying cultural worldviews, as they are bicultural individuals, how will they visually attend to imagery that contains both of their cultures? Through this research, it is hoped to un-

derstand whether one can handle the fear that death-related thoughts induce through upholding one or two cultures if one is a bicultural individual. The predicted results are that bicultural individuals will respond to images faster that contain the culture that has been made salient through the experimental method, in this case, the language in which the experiment is presented.

Safa Salim

The Effect of K-Pop Music Videos on Attitudes about Sexual Violence Against Women

This study examines the impact of certain gendered portrayals in Korean Pop (K-Pop) music videos on attitudes towards sexual violence against women. In particular, the study investigates whether distinctive portrayals of females in K-Pop videos as either sexual, or infantile might engender greater acceptance of sexual violence against women by heightening a tendency to objectify women in general. Participants will be randomly assigned to view K-Pop videos with sexual, infantile, or neutral depictions of women, following which their views on sexual violence and objectification will be assessed. I anticipate that participants in the infantile and sexual conditions will have higher objectification and sexual violence scores than those in the control condition. Implications for media and sexual violence research are discussed.

Ishani Sen

The Processing of Subject-Verb Agreement in Hindi

This Capstone will investigate the processing of subject-verb agreement in Hindi. While this has been studied in other languages, being able to manipulate both gender and number in subject-verb agreements in Hindi will add to our understanding of sentence processing. 100 participants will be presented with sentences, some of which are grammatical and some of which are ungrammatical, in terms of subject-verb agreement. While the grammatical sentences follow the rules of the language, the ungrammatical sentences will sometimes be overlooked by the brain's sentence processor. This perception of incorrect subject-verb agreement as correct is known as agreement attraction. Agreement attraction effects are expected to be found in the processing of these sentences, and the extent to which these effects exist in terms of gender and number, if any, are expected to be established.

SCIENCE AND MATHS

Jaewon Yoo

The Effect of Various Perturbation Frequencies on Reaching Performance

Perturbation of vision is an effective method used to study the visuomotor system. During perturbation, participants are presented with either unperturbed (regular) stimuli or perturbed stimuli and are required to perform certain tasks accordingly. This method has been widely used in the past by major studies, but none of them had studied on the proportion of perturbed trials to unperturbed trials to find out what effect it may have on the performance of the subjects. This will be the main focus of this proposed study. Participants (N=20) will complete five blocks of reaching movements, in which they will be required to move their index fingers towards either the unperturbed target or the perturbed target.

Rida Zafar

Narrative Themes and Language Usage in The Dualistic Model of Passion

Almost everyone has something or someone they feel passionate about. Be it basketball or spending time with our families, we engage in our passions differently. A person is obsessively passionate about something if their passion envelops their entire life and prevents them from meaningfully engaging in other life domains. A person is harmoniously passionate if their passion is only one aspect of their life and they have meaningful interaction elsewhere. According to the scientific literature, obsessively passionate people suffer negative consequences, such as poor health, whereas harmoniously passionate people form deeper relationships. In this research, we asked people to write about their passionate activities so we could study the differences between the two broad extremes of passions. 112 people answered an online survey and we looked at their own narratives to investigate any potential difference between the two types of people.



SOCIAL SCIENCE

ECONOMICS

Alia Amr Ali Mohamed Abboud

Currency Devaluation and The Stock Market An Event Study on the Case of Egypt

This paper studies the effect of the floating and/or devaluation of currency on the stock market in Egypt using an event study methodology. The study uses data for daily stock index returns of the two main indices in Egypt: EGX30 and EGX100 for the period from August until November 2016, while carefully analyzing news and reports surrounding the dates of interest. Results suggest that there was pre-information or anticipation of the devaluation of the Egyptian pound prior to the official announcement. Results also show that the market reacted positively with increased average daily returns during the devaluation and the effect continued for a week after the devaluation announcement.

Nikoloz Adeishvili

Cricket and crime rate: The effects of Cricket game outcomes on the levels of crime rate in the state of Karnataka, India

The relationship between sports and violence has been well documented through multiple different studies, however, crime effects are rarely observed in developing countries as well as in less popular sports. Using vast daily data on more than 40 different crimes from 600 police stations in Karnataka, India between 2011-2016, and more than 500 cricket games of different formats from the same time span, we observe the relationship between cricket game outcomes and effects on crimes. Through our analysis, we have found that violent crime in the state goes up by a significant amount when Indian national team and/or Karnataka state team losses a game. Indian Premier League (IPL) games have bigger effects on property crimes and have not shown significant effects on other grouped crimes. The study also contributes to the general discussion of sports and crimes against women as well as ethnic and religious minorities. In the majority of the observations, except of IPL, no serious effects regarding crimes against women and ethnic minorities were found. The results provide evidence for the non-economic theory of crime, but also in some instances show effects on economic drivers of crime.

Haneen Al Neaimi

Abu Dhabi Business Market: A Descriptive Analysis of Business, Industry and Ownership

This paper conducts a descriptive analysis of the business environment of Abu Dhabi. The research collects data on 248 business firms across eight industries, focusing on ownership structures of public, private, and State-Owned Enterprise (SOE) and their role in the industrial organization and market configuration of Abu Dhabi. The government of Abu Dhabi owns most of the firms in the emirate, with major SOEs owning a collective share of 31.5% of firms in the sample. I show that the ownership structures of firms in Abu Dhabi are mostly private but in fact, fall under subsidiaries of SOEs. The firms in the dataset are predominantly in the financial industry, as they account for 49.6% of the sample. I conclude that given the efforts to diversify the economy of Abu Dhabi away from oil, the business firms of Abu Dhabi mostly fall under the financial industry to create investment opportunities in other emerging sectors in order for them to develop.

Keith Anto

Undoing Racial Discrimination: An Unintended Consequence

This paper explores serial independence of foul calls in the National Basketball Association (NBA). In 2007, Price and Wolfers found evidence for positive own-race bias in NBA referee decisions; they received great attention from the media and prompted wide criticism of referee behavior. Six years later, Pope, Price, and Wolfers (2013) found that raised awareness reduced the racial bias. Building upon this research, our paper suggests that in a conscious effort to seem unbiased and fair, following Price and Wolfers (2007), referees began to alter their foul calls based on the race of the players. They avoided long sequence of fouls on players of the same race. In our research, we find evidence for higher degrees of negative serial correlation or lower degrees of positive serial correlation in referee foul calls post-2007. Hence, in an attempt to undo racial discrimination, referees have failed to achieve color-blind decisions.

Mahd R Asghar

The Effect Of Mobile Phone Diffusion On Sub-Saharan African Health Outcomes

The dramatic increase of mobile phone usage in Sub-Saharan Africa has provided outlets for quick information access, speedy communication, and access to entertainment via social media. This brings to question the importance of preventative healthcare in contrast to the stagnant systemic corrective methods in place. Thus, this paper evaluates the effect of mobile phone access on various adult health knowledge indicators, behaviors, and outcomes of Sub-Saharan African residents. This research constructs panel data using Democratic and Health Survey (DHS) datasets from 20 Sub-Saharan African nations. Examining country specific levels, we find varying degrees of mobile penetration across educational levels and over time in line with analog-digital transition and GDP per-capita. Furthermore, using a fix effects regression model, this study finds that mobile phone ownership increases STD and HIV related knowledge, decreases smoking behaviors amongst men and women, but does not have an effect on contraceptive usage and STD cases. Women are shown to have a greater knowledge gain with mobile phone access than men, and men are shown to have a sharper decrease in smoking habits than women with mobile phone access. We seek to explain these differences by analyzing which mobile phone outlet enables behavioral and informational outcomes.

Aidana Assylbekova

Entrepreneurship Education and Startup Development: The Case of the UAE

There has been an extensive amount of research done on the role of entrepreneurship education and startup development around the world. However, only during the last decade did the Middle Eastern startup ecosystem begin its rapid growth. UAE specifically has been reported as one of the most attractive countries in the world for entrepreneurs and investors. This paper discusses the relationship between entrepreneurship education and startup development in the context of the UAE. The research uses 61 observations collected manually through an online survey and 12 in-depth interviews with UAE founders.

Firas Atwa

The Effect of Foreign Direct Investment Inflow on Entrepreneurial Activity: A Difference-in-differences Analysis of the Case of Egypt

This paper investigates the effect of foreign direct investment on the performance of entrepreneurial firms in Egypt. The study explores the geographical variation in FDI inflows across Egypt, and uses a difference-in-differences estimation to measure the treatment effect from 2013 to 2016. Using firm-level panel data from the World Bank Enterprise Survey, the study uses intensive measures of entrepreneurial activity: firm sales and number of employees. The paper bases its choice of variables on the notion that, like new firms, many incumbent firms display entrepreneurial activity through growth in sales and size (Ahmed & Hoffman, 2008). With approximately 4,000 entries, the paper controls four different sets of regressors, to minimize omitted variable bias. Overall, the results either display negative or insignificant effects of FDI on entrepreneurship. These results are consistent with findings in earlier firm-level papers like Konings (2001), De Backer & Sleuwaegen (2003), and Barbosa & Eiriz (2009), and are in line with the crowding out theory.

Nina Bambysheva

Carbon Trade and Labor Markets in the European Union

Attempts to mitigate the adverse effects of climate change through various carbon pricing mechanisms consistently raise concerns over increased production costs and job displacement. This paper aims to estimate the impact of the largest of such arrangements – the European Union Emissions Trading Scheme (EU ETS) – on labor market dynamics in the region in the third trading period of the ETS. Differently from the previous literature, we test the effect of both primary and secondary ETS market on employment rates across the EU member states. We find a small positive relationship between employment and carbon pricing. Results suggest that there is much room for interpretation of the impact of carbon markets on the economic activity of its respective region.

SOCIAL SCIENCE

Jakub Bartoszewski

Immigration: Opportunity or Threat? Analyzing the Wage Effects of Eastern European Immigration in the Polish Labor Market

After joining the European Union in 2004, Poland experienced a considerable economic growth which was accompanied by a mass emigration of its citizens. By 2017 around 2.5 million Polish citizens emigrated, creating a supply shortage in the labor market. In 2013 this situation started to change with a sudden increase of the number of immigrants from the former USSR, mainly Ukrainians, entering the Polish labor market. Their number reached 1.6 million in 2018. The immigration phenomenon coincided with a period of rapid growth of the Polish economy, leading to a lot of speculation about the role of the immigrants in the economic development of Poland. This Capstone project explore the economic effect of immigration in Poland by approaching the most controversial part of it, namely the wage effect in the labor market. The methodology used in the project leads to a rejection of the hypothesis stating that the presence of immigrants has a negative effect on the level of Polish wages.

Valentin Benoit

Professionalization of UAE-Based Art Galleries and Their Evolving Role as Cultural Entrepreneurs

This qualitative investigation studies the emergence of the UAE art market by focusing on the developments of the primary art galleries. Based on a series of interviews with curators and other art professionals, this paper analyzes the role of curators as cultural entrepreneurs in terms of their professionalization and their ability to legitimize the value of contemporary art. Three stages in the developments of UAE-based galleries have been distinguished from 1979 until today, based on their level of professionalism and their market scope. Additionally, this research finds three driving forces behind the professionalization of the art galleries: the pioneering role of The Third Line gallery, the opening of Christie's in Dubai, and the presence of international galleries during the local art fairs.

Rastraraj Bhandari

Can developing countries pay for Climate Adaptation? Experimental Evidence Through a Contingent Valuation Method (CV) in Nepal

Despite the widespread consensus on the need of climate adaptation finance to support developing countries, funding for climate adaptation projects is limited. There is extensive debate and literature that suggests that adaptation funding will come ultimately from the residents of developed countries via taxation. This paper, however, studies the willingness to pay (WTP) for adaptation from glacial flooding among university students in Nepal as a way to explore if residents of developing countries can fill the funding gap for climate adaptation. By eliciting WTP using a contingent valuation method, I see that university students in Nepal exhibit a positive value for funding climate adaptation. Consistent with other studies, I see that gender and level of income have a significant influence on the WTP value while information treatment does not. While the positive WTP value among students of developing countries can be used to fulfill the funding gap, it also highlights the urgency to which adaptation funding is required in vulnerable communities.

Aldana Bin Jaafar

The Real Cost to Wed in the United Arab Emirates: A Study on the Economic, Educational and Cultural Determinants of Mahr in the UAE

Although it is widely discussed that dowry amounts in the United Arab Emirates have been on the rise, what influences such a change is yet to be understood. To examine the determinants of dowry, I administer an original retrospective survey to create a data set for marriage and dowry statistics. Over 1,500 observations were gathered to test for (1) assortative matching, (2) effects of a bride's characteristics on the size of dowry and (3) effects of a groom's characteristics on the size of dowry. Results reveal that there is a high degree of positive marital sorting by education, social hierarchy and wealth. Moreover, in a marriage market, women can bargain for a higher dowry or a spouse through their mannerisms (i.e. social hierarchy levels and educational attainment). Contrarily, the characteristics of men that are observed to have a significant and positive effect on the size of a dowry are considered to be materialistic (wealth and income levels). The results highlight important influencers of dowry size that will hopefully lend a helping hand to policymakers in impeding further dowry inflation in the UAE.

Daniyar Bolysbayev

Wage inequality in Football Association: the case of English Premier League

This paper tests for the existence of nationality, race and skin tone wage discriminations amongst players in the English Premier League. An OLS regression analysis has been performed on each variable to test for the existence of wage discrimination. The results show that non-white and non-European players earn an economically significant salary premium compared to white and European players of similar productivity. There is no significant evidence of salary discrimination against non-white and non-European players. The OLS models explain more than 65 percent of the observable variance in player salaries. In addition, no significant evidence of wage discrimination based on skin color tone was identified.

Jakub Boros

Predicting the Success of Cryptocurrencies: An Economic Model

The rise of blockchain cryptocurrencies has noted both great successes and spectacular failures that sparked interest of the general public. In order to respond to the uncertainty millions of casual investors' experiences, I outline a predictive model that can provide a consistent way of estimating the prospective outcome reached by a given cryptocurrency (Azgad-Tromer 2018). The paper is chiefly concerned with the determinants affecting the token success defined as an aggregate of measures, including per-currency market capitalization. I propose that the most indicative analysis should be primarily based on a scrupulous examination of the network structure of the cryptocurrency-issuing companies. I believe the presence of the bonds among the employees of the coins, established through various incidents of shared employment noted in their job history, has an impact on the success of the firm. With the data from LinkedIn, a professional career-oriented website, used in the cryptocurrency field as a primary medium of promotion, I show that economic success of firms positively correlates with their centrality measures in the network. The analysis concludes the network structure of a company is a significant factor of success and can be used to predict the outcome of a particular coin.

Flavia Cerededa

Smart and Attractive: Exploring the Relationship Between Smart Cities and Migration

This paper explores the relationship between a city's level of smartness and its net wave of migration. Based on a regional census provided by Eurostat, we use technology-related characteristics to define an index of city smart-

ness. We then propose a model of migration to the city which includes three different methodologies to compute smartness: independent smart variables, Z-Score Standardization, and Principle Component Analysis. For each methodology, we run four OLS regressions with different level of control variables in order to explore changes of behavior in our smart index. The most important result is the positive but weak correlation between migration and smartness using the Principal Component approach.

Gene Cho

Surfing the High Seas: Factors that Influence the Decisions of Internet Users to Download Movies

While global cinema and TV revenues have fallen over the past two decades, downloading online movies for free has become increasingly common among youth in the past two decades. Using survey data from current NYUAD students, this paper investigates how nine factors influence the likelihood and the extent of downloading. Budget constraint has a positive correlation with the number of movies downloaded in the past 6 months. Budget constraint, social norms, and attitudes regarding fairness are statistically significant influence on the frequency of downloading. Budget constraint and swiftness of legal punishment are statistically significant predictors on the last time users downloaded. The only variable that was a consistent statistically significant predictor of the likelihood and the propensity of downloading was budget constraint.

Laura Aleksandra Deryng

Bitcoin and Beyond: Effect of Regulations on Development of Cryptocurrencies

The increasing popularity of Bitcoin attracted the attention of the governments worldwide, which decided to impose various regulations on digital assets. This paper focuses on the previously not investigated topic of the impact of national regulations on the development of Bitcoin all over the world. The research concentrates on finding the answer to the question what is the impact of national regulations on cryptocurrencies on their acceptance as a payment method. In order to answer this question, the paper uses panel data regression with fixed effects with fixed country effect. The regulations categories investigated in the paper are self-designed. According to the results, most of the regulations categories included in the paper are significantly correlated with Bitcoin acceptance as a payment method, modeled through the number of vendors accepting Bitcoin as means of payment for transactions per country.

SOCIAL SCIENCE

Cristobal Esteve

What do farmers get?

When buying agricultural commodities from farmers traders pay a price based on stock exchange commodity futures, but the price paid to the farmer often differs from that international price. This paper investigates the economic passthrough to farmers in Brazil. We analyze this by using purchase data from the world's largest coffee merchant. We use a flexible econometric model that allows us to examine the role of different contract specifications such as coffee quality, contract size, certifications to analyze how economic passthrough are determined. Based on our estimates, we examine how farmers can structure their sales in order to maximize the economic passthrough they get.

Yusupha Fabureh

Income and The Gender Gap in Education: The Case of Gambia

The right to education is one of the most fundamental human rights. By investigating the educational attainment of individuals using the 2015 Gambian Integrated Household Survey (IHS), I evaluate the gender discrepancy in educational attainment of individuals, while also exploring the impact of income, through the lens of rainfall as a proxy, on the gender inequality in education in Gambia. I find that before the Girls' Education Initiative was introduced, girls have more years of education than boys and boys' years of education is positively impacted by rainfall. Moreover, I find that rainfall is negatively associated with years of education for boys during post-reform period and unrelated to females' years of education, which suggests that the gender gap is closing.

Maria Dolores Fernandez Flores

Education and Wealth: An Empirical Study of Household Wealth Levels and Individual Education Choices in Spain

This paper explores the relationship between household wealth and individual education choices of the children in a household. Based on the Survey of Household Finances conducted by the Bank of Spain, we conduct an extensive descriptive analysis of household assets, liabilities and highest education level achieved. Drawing a hypothesis from theory, we believe households with higher levels of net wealth impact positively student status and educational achievement. To test this hypothesis, we use several regressions incorporating household asset holdings and liabilities alongside sociodemographic factors. Our results show that for the sample surveyed, positive net wealth has a significant relationship with the status of the children being active students and achieving higher levels of education; in contrast, negative wealth has no significant impact.

Yuliya Frolova

Airports and City Attractiveness for FDI

The aim of this paper is to empirically investigate whether an airport influences a city's attractiveness, as measured by the number of new greenfield foreign direct investment (FDI) projects received during the period 2003-2014. To do so, we built a unique database in which we gather information, for more than 3,300 cities in the world, on the number of FDI projects, on the presence and extent of airports, on other public transport infrastructure, and on many socio-economic characteristics of cities likely to affect multinational location decisions. We find that a hub airport has a significant impact on the attractiveness of a city for foreign investors. These results are robust to the implementation of a long-term difference which enables to control for potential remaining unobserved factors of the attractiveness of a city. According to our estimates, building an airport leads to 11% more inward FDI in the city.

Shinichiro Fujii

Heat and the Ability to Play a Game: Evidence from Professional Tennis Players

There has been no study to show a correlation between heat and human cognitive ability to play a game. We use tennis as a target of study and test if temperature affects serial independence and winning probabilities differently across genders. We find serial independence decreases at higher temperature for men, but no effects are observed for women. We also discover winning probabilities are more frequently equalized when it is hot for women, while winning probabilities are equalized regardless of temperature for men. Our result implies heat impairs human cognitive ability to play a game for men, but not for women. Besides, heat may even facilitate cognitive ability to play a game for women.

Sean Guo

Logistics Performance on Sectoral Specialization

This is a novel and preliminary attempt at studying the impact logistics performance has on patterns of sectoral specialization across countries. The hypothesis is that improvements on logistics performance offers competitive advantage for sectors that employ logistics heavily and therefore causing sectoral specialization trends as logistics intensive sectors grow relative to non-logistics intensive sectors. Generalized-Least-Square analysis is used for the panel data consisted of 63 countries across 2007, 2010, 2012, and 2014. Some statistically significant result supports the hypothesis and shows improvements in logistics performance has expansionary and contractionary effects on the relative size of sectors that use logistics intensively and those that do not use logistics intensively respectively. The results suffer from endogeneity, but instrument variable methods cannot be applied appropriately because of the limited data available.

Fatih Haloglu

Emerging Markets as an Asset Class and Investors Behavior

We assess the factors that investors take into account when reacting to financial shocks across Emerging Markets (EM), covering four key episodes of EM-wide financial stress since the mid-1990s to 2018: i) the Mexican Peso Crisis of 1994, ii) the South American Economic Crisis of 2002, iii) the Argentine Economic Crisis of 2018, and iv) the Turkish Currency and Debt Crisis of 2018. Using a VAR approach and a series of post-regression tests, we conclude that: 1) Investors did not discriminate across EMEs before the Global Financial Crisis (GFC) which led to strong intracontinental contagion; 2) Differentiation among EMEs based on macroeconomic fundamentals after the GFC is much more evident; 3) Specific factors such as trade patterns and currency exposure between the source country and other EMEs influence investors decisions, leading to heterogeneous responses to shocks and country-specific contagion; 4) the role of capital controls in explaining financial contagion is unclear given the limited availability of capital flows and foreign ownership data.

Henry Jiang

Do Industrial Parks Spur Innovation: Evidence From China

With development of industrial parks increasingly favored by developing countries as a strategy to stimulate domestic innovation, the relationship between industrial clustering and technological innovation has been a subject of intense interest and debate. This study presents a big-picture, cross-sectoral view of the effect of industrial clustering on innovation in China. With fixed-effects regression analyses on an original panel dataset covering over 2000 industrial parks in China and spanning 19 years, I found no significant relationship between industrial park development and levels of innovation activities. The study controls for indicators of regional GDP levels and educational attainment and found increases in GDP per capita and proportion of residents with at least college education to be much more strongly associated with innovation capacity regardless of the level of government-initiated industrial clustering.

Nan Jiang

Do Acquisition Attempts Convey Negative Information of Bidders' Existing Projects?

This paper is an extension of Amihud, DeLong and Golubov (2013): updating the sample data to June 2018, we test whether the hypothesis of Jovanovic and Braguinsky (2004) – acquisition attempts convey negative information about the bidder's existing projects – still holds true. We focus on failed bidders' post-bid operation performance, which provides the counterfactual firm outlook held by the management team before the acquisition attempts. We find that after adding observations from the post 2008-2009 financial crisis period, failed bidders no longer exhibit a substantial decline in operating performance following bid announcements. In particular, the Jovanovic and Braguinsky's hypothesis explains sample data prior to the 2008-2009 financial crisis better, suggesting a market-wide change in merger and acquisition sentiments following the crisis.

Maria Caeli Johnston

Political Engagement in Europe: What Groups of Voters are More Interested in Politics and Inclined to Trust Politicians?

This paper looks at groups of voters that are more interested in politics and trusting towards politicians based on their domicile and educational attainment. Precisely, the paper offers literature overview that argued that interest in politics and political trust are important in determining the levels of political participation and, in the context of a current political movement, the effects of populism. The study uses these two variables - interest and trust - along with recent studies of voting behavior, to determine which groups of voters are likely to be participating in elections and effectively targeted by populist leaders. Regression analysis of the survey data from the European Social Survey offers following interpretation: people from rural areas are less likely to be interested in politics, and less likely to report trust in politicians. There is a positive relationship between the level of educational attainment and interest in politics, as well as between education level and trust in politicians. In conclusion, the paper suggests that when discussing determinants behind voting behavior that favors populism, it is important to consider what makes people more interested in politics and trusting towards politicians. Understanding voters' preferences and what political movements resonate with different voting groups, sparking their interest and trust is key to a successful political movement.

SOCIAL SCIENCE

Joseph Kalarickal

Distributive Politics and a Simple Voter Game

People vote for different policies depending on the information they receive. They construct strategies based on how they believe other voters will behave. This paper adds to the literature that investigates policies that are ex-ante preferable but that fail to pass because these policies do not receive the majority vote. By using a simple two-person voting game, we find two equilibria one of which is trivial and one of which is responsive to the specific information provided for a voter. We implement the Fehr-Schmidt utility function which allows voters utilities to be inequity averse by incorporating the "shame" and the "envy" components. Ultimately, we find that this equilibrium is robust to this inequity aversion.

Nadine Laze

The Future of Dubai's Real Estate: The Effect of Airbnb on Long-Term Rental Market

The emerging literature examines whether and how Airbnb, as a short-term rental platform, might be impacting the traditional long-term market. Through empirical research I examine the observed patterns in the performance of the long-term market, and compare it against the growth of Airbnb. Similar to previous studies done in the US, my study on the impact of Airbnb supply growth on the long-term rental property price increase in Dubai indicates an existing positive relationship. In the case of Dubai, I find that a 1 percent increase in the Airbnb supply can be associated with 0.089 percent increase in the long-term rental prices. As I observe a larger impact than the previous researchers, I further discuss the alternative explanations as to why my findings differ.

Alina Lebedeva

Capital Structure Choices in the Middle East: The Case of the UAE Firms

Financial markets of the Middle Eastern Arab countries have long evolved under the influence of the local culture and religion. Among all, the particularities of the tax system in the United Arab Emirates suggest its importance as grounds for examining the capital structure choices of local firms, especially in the context of the economic development in the region since the early 2000's. This research focuses on 54 publicly traded non-financial firms in the UAE in the period of 2011- 2017 to re-evaluate the positive relationships between the leverage ratio and firms' growth opportunities derived by Barakat in the period 1997-2003 and to explore other factors attributing to the leverage, such as tax rate, collateral, dividends, firm size, profitability and volatility.

Aleksandra Markov

An analysis of the level and predictors of Financial Literacy among youth in the United Arab Emirates

Financial literacy is a measure of how adequate a person is to make sound financial decisions. Historically, financial literacy is reported to be on a low level worldwide. The disadvantaged groups, measured to have lower levels of financial literacy are older people and teenagers, women, less educated and lower-income bracket people. This paper estimates the level of financial literacy of Emirati university students and evaluates what indicators drive students' levels of financial literacy by conducting a three-section survey. Results show that there is a statistically significant relationship between financial literacy level and gender, employment status, family income and saving behavior.

Ahmed Meshref

Estimating Labor Market Participation and Employment Transitions for Disadvantaged Single Men in the United States: Evidence from the SIPP

Low-educated, young, single men in the United States are an understudied demographic group with a high poverty incidence and a low labor force participation rate. Moreover, their situation has deteriorated since the onset of the Great Recession. In this paper, I describe the transitions of single men, aged between 25 to 54 years, with a high school degree or less, in and out of the labor force, and in and out employment. I tie their labor market participation and employment behavior to economic conditions. Using the Survey of Income and Program Participation dataset from 1995 to 2015 and employing a dynamic probit model, I show that labor market participation and employment status in the previous period overwhelmingly influence their status in the current period. I also find a that their transitions are substantially affected by changes in the state-level unemployment rate, but not from changes in the minimum wage. I estimate these effects for my whole sample and by race. I also conduct a sensitivity analysis.

Yero Niamadio

Are living standards consistent predictors of communal budgets across time? Case study on Ile-de-France and its banlieues (1999 - 2017)

Alexander Petriv

Comparative Empirical Analysis of Financial Performance of Islamic and Conventional Banks in the UAE

The objective of this research project is to examine the difference in terms of financial performance between Islamic (IB) and conventional (CB) national banks in the United Arab Emirates during the 2000-2017 period. IB and CB performance is assessed using financial ratio analysis through the following 4 categories: profitability, liquidity, solvency and credit risk. Both types of banks offer a wide range of similar banking services. However, a fundamental difference between the nature of their business is likely to result in statistically significant differences between their financial performance. IB business activity is more restricted as compared to CB because the former must comply with the Sharia law. A regression analysis of IB and CB financial performance was used to determine whether there is a significant difference between the two types of banks in terms of their financial performance.

Yi Qin

Diffusion of Information Goods in Networks With Restriction on Resale

We study how network structures affect the diffusion of an information good, when there are limited resale opportunities. Buyers not only are consumers, but also act as intermediaries as they reproduce the good at zero cost and resell it to other buyers they have access to. Sellers indirectly appropriate profits from buyers along intermediation chains, but also enter into competition with buyers who replicate and resell. A network partition captures the effects of monopoly power versus competition. We extend the analysis to investigate the effects of limited resale opportunities on a seller's captive market and profits. By generating a directed network, we find that restricting resale expands sellers' captive markets when a network is sufficiently well-connected. Meanwhile, restricting resale limits diffusion and generates competition between buyers. As a result, a seller may be unable to extract profits from every buyer within his captive market, but he may obtain more than his bilateral monopoly share when the threat of dealing with the next highest-value buyer is credible. We find a formula to compute sellers' profits when there is no uncertainty in diffusion paths and competition between buyers does not interact with competition between sellers.

Veronika Radinovska

The Impact of Infrastructure Development on Economic Growth: Evidence from China

China has demonstrated incredible overall economic growth in the past four decades, yet, regional development of the country has not been balanced: economically developed East drastically contrasts the rural West. By studying China, a country that transformed from an agricultural giant into a global innovation hub in less than 30 years, yet still demonstrates presence of significant regional disparities, this project aims at assessing the relationship between infrastructure development and economic growth in various provinces of China. In this research, the focus is on hard infrastructure and how the presence of paved roads, city bridges, and street lights contribute to economic development. A comprehensive and up-to-date dataset from 1998 to 2017 is used to assess the relationship between fluctuations in infrastructure development and economic growth while accounting for endogeneity.

Nicola Rosso

To What Extent Are Chinese Takeovers in Europe Value-Driven?

A growing number of acquisitions of European companies by Chinese entities in the last few years has fueled a vigorous debate in Europe over the economics of such acquisitions and the long-term geopolitical implications of this phenomenon. The European Parliament has recently passed a regulation to implement a European mechanism to screen inbound cross-border takeovers and various European leaders expressly address the phenomenon as a threat for Europe's independence and stability. This research contributes to this debate by showing that European companies acquired by Chinese ones in the past decade have performed in line with comparable companies in Europe. It therefore advocates a cautious treatment of the geopolitical concerns without nonetheless forgetting the benefits provided to society by a lively market for corporate control and by successful company acquisitions.

SOCIAL SCIENCE

Oleksandra Rovinska

Predicting Corporate Bankruptcy Using Expenditure per Employee

We study the relationship between expenditure per employee and the bankruptcy of corporations. Expenditure per employee captures how a company allocates human and non-human input factors, and input factor misallocation relates to a company's likelihood of going bankrupt. Using data on 12,960 publicly-listed firms operating between January 1996 and December 2015, we find that 349 (or 2.7 percent) go bankrupt. We also find a positive and significant relationship between expenditure per employee and failure. In particular, 16.7 percent of high-spending companies went bankrupt in 2008. Our results suggest that expenditure per employee, a rather simple metric, can be used to predict bankruptcy.

Jean Seok Lee

Experience in Professional Baseball and Salary Premia in South Korea

This project explores the relationship between years of experience and salaries of professional baseball players in Korean Baseball Organization (KBO) and Major League Baseball (MLB). Through a comparative analysis of Korean and American baseball salary data, this study attempts to test whether or not the Korean cultural tendency to respect seniority is reflected in the Korean baseball world. Results suggest that baseball salary is positively correlated with years of experience after controlling for age and statistical performance indicators. Furthermore, an interaction term comprised of the main independent variable and the dummy variable indicates that the Korean Baseball Organization (KBO) League offers higher salary premia for more experienced players.

Keshar Shahi

Long Run Economic Outcomes of Ancient Nomadic Travel Routes in the Highlands of Asia

Works on the impact of transportation infrastructure are primarily comparison studies across periods or location setting (rural vs. urban). These works fail to include how a location's geographic (terrain) characteristics might influence the emergence of economic activities. Similarly, the conventional narrative among these existing works depends on the construction of actual transportation infrastructure which leads to a lack of exogeneity variation in the studies. This paper confines the study to a fixed geographic setting (Asian highland) as it faces its own sets of challenges and barriers to infrastructure development. To overcome the lack of exogeneity in the study, we use simulated travel

routes taken by nomadic pastoralist for hundreds of years in the region as a proxy for the transportation network. We make use of nightlight intensity, population density, locations of road networks, and cities' locations to study how closely contemporary economic activities are established around the ancient travel routes. We find that there are positive economic outcomes in the region where simulated travel routes existed suggesting a long-lasting positive effect of infrastructure development on the economy.

Chhete Sherpa

The effect of New York City's Sky Cloud Cover on Stock Returns: Evidence from 1990-2018

Psychological evidence supports the claim that individuals hold optimistic opinions due to hours of sunshine. Recent scholars on behavioral finance have investigated the occurrence of mispricing in financial markets due to weather variables such as hours of sunshine and sky cloud cover. While some concluded that significant negative relationship exists between sky cloud cover and the stock returns, others find no evidence to claim the existence of such weather effects. This paper studies the effect of sky cloud cover in New York City on the daily changes in stock returns in New York Stock Exchange (NYSE) and Dow Jones Industrial Average (DJIA) from 1990 to 2018 to examine if the weather effect is prevalent in the modern era. We find that while a weak correlation exists between sky cloud cover and stock returns, the results are not significant at 10% significance level.

Candice Shu Zhou

Do we expect women to volunteer more than men? Framing and gender differences in the game of chicken

Recently, Babcock et al. (2017) claims that one cause for gender differences in labor market outcomes may be that women are more likely than men to receive and accept tasks with low promotability. Using a lab coordination game similar to the game of chicken, they argue that women have higher probability of volunteering than men and that such behavior is influenced by subjects' belief that women are more likely to volunteer. The experimental design labelling the volunteering task as "invest in a group account" raises questions on whether framing affects gender differences in the game and whether the conclusion is robust in a more diverse population. We applied three frames to the chicken game and conducted an online experiment. Our results show that framing increases volunteer rates for both genders but does not affect gender gaps. We also find that women indeed volunteer more than men across treatments and that women are more likely than men to expect their female colleagues to volunteer.

Nicolaj Thor

Inequality, Information, and Income Tax Policy Preferences in Germany and Austria

Economic inequality has risen in many European states over the last several decades. Yet, there is little evidence that countries have responded with stronger tax and transfer policies. Possibly, a lack of awareness among voters about the level of inequality has lowered the demand for redistribution. This project analyses the results of conjoint survey experiments in Germany and Austria which expose individuals to various information about income inequality and subsequently measure their support for randomly generated tax plans. Results show that individuals are generally averse towards high taxes on the poor but indifferent regarding taxes on the rich. Exposure to information increases support for higher tax rates on the rich in both countries. Treatment effects are consistent but not significant at $p < 0.05$ and possibly too small to be detected in the conjoint experiment.

Michael Ttappous

A Hedonic Price Analysis on the Impact of Macroeconomic Policies on Residential Rental Listing Prices in the Emirate of Abu Dhabi

This Capstone explores the economic impact that macroeconomic housing policy decisions have had on residential rental listing prices in the Emirate of Abu Dhabi. It is motivated by a desire to address the following questions: What internal and external factors influence the rental listing prices of residential Apartments and Villas in the Emirate of Abu Dhabi? What effects do housing-related government policies have on these prices? By employing hedonic price analysis, this paper confirms the following Hypothesis: Macroeconomic policy changes relating to housing have had substantive impact on residential rental listing prices in the Emirate of Abu Dhabi. This paper presents evidence that, for the Emirate of Abu Dhabi, the implementation of housing fees for non-citizen residents and the introduction of a relocation policy have had statistically significant impacts on rental listing prices for both Apartments and Villas.

Jensen Yang

A Comparative Study on Healthcare Systems around the world

This Capstone aims to find the impact of out-of-pocket percentage of health financing on several key health indicators. With more coverage and decreased out-of-pocket percentage, there is both an increase in appropriate and necessary health services rendered as well as an increase in inappropriate and unnecessary services. Higher out-of-pocket payments also mean people either use medical services fewer times or that people are more incentivized to take better care of their bodies in order to pay less for health services. The methodology of this study is multiple statistical regressions on key health indicators and out-of-pocket percentage with varying control variables. Fixed effects regressions were also used to better eliminate the different intra-country effects on results. The results of this study find that increased out-of-pocket percentage of health financing increases health according to the key health indicators, with 4 of the 6 health indicators being statistically significant. Other findings include more statistical significance in wealthier countries that spend more on health expenditure than less wealthy countries, as well as no statistical significance between geographical locations.

Thomas Yates

Energy Investment in Developing Countries: Trends and Determinants

Developing countries are set to drive the world's additional energy consumption between now until 2040. With climate change a major threat during this time period and linked to the use of non-renewable energy, the burden to invest in renewable energy lies upon developing countries. Yet, they face the dual challenge of expensive renewable energy sources combined with enticing Chinese investment opportunities in non-renewable energy sources. In this report, I analyze the energy investment trends of developing countries between 2014-2018. I then use regression analysis to understand the determinants of investment in renewable energy in these countries, of which energy consumption, energy shortages, and Belt and Road Initiative participation are found to be significant variables. Data is primarily sourced from Inflammation News, with supporting data from the World Bank and Damodaran.

SOCIAL SCIENCE

Rayan Elsharkawi

Understanding Money in the Digital Age: A Crypto-economic Investigation of Bitcoin Transaction Tips

This paper aims to contribute to the limited literature on Bitcoin tips to better understand what technological constraints and monetary properties drive them; this would potentially ameliorate regulatory decisions and design considerations for government sponsored cryptocurrencies. A two-stage linear regression is used to model the effect of the following drivers on Bitcoin transaction tips: mining difficulty, Bitcoin velocity, Bitcoin illiquidity using Amihud illiquidity measure, block reward, exponentially weighted moving average volatility, and the estimated block size from the first-stage regression using WTI crude oil and natural gas futures prices as instruments. The instruments serve as a proxy for electricity costs to partial out the supply-side costs of mining. Statistically significant (at 95% confidence levels and higher) results show that transaction volume, velocity, and volatility have positive effects on Bitcoin transaction tips while mining difficulty and block reward have negative effects.

Esmie Papadimitriou

Gender Differences in Loss Aversion

Gender differences play a defining role in today's global labor environment. There is a growing body of literature linking gender differences in the labor market to varying attitudes towards risk and loss. This study examines loss preferences as measured in an online experiment conducted on Amazon Mechanical Turk. In my experiment, participants with diverse socioeconomic backgrounds take part in an incentivized loss preference elicitation task involving ten lotteries that entail possible gains and losses. I report significant gender differences in loss aversion, with females exhibiting higher levels of loss aversion than males. I find that tolerance toward losses is inversely related with age while no significant relationship exists between loss aversion and income or education.

POLITICAL SCIENCE

Miren Aguirre Salazar

To Pay or NATO Pay

Previous studies on the North Atlantic Treaty Organization have focused on finding theoretical and qualitative explanations to the imbalanced contributions, lacking a counterfactual for how much countries would dedicate to defense expenditure, should the alliance not exist. I examine NATO's expenditure trends, by calculating and comparing counterfactual figures to the actual military expenditures of member states. Results show that NATO membership has a convergence effect towards the NATO 2 percent of GDP threshold and is particularly salient in periods without external threats to the members. This finding is in line with the constructivist socialization framework for international relations.

Majida Al Maktoum

Emirati Youth and Political Participation

This Capstone addresses the question: What motivates political participation amongst Emirati youth? I fielded an original survey research with an experimental intervention that collected quantitative and qualitative data from 1,063 respondents to examine incentives behind political participation of UAE nationals aged 18-30 from the seven Emirates. My study compares between Northern Emirates (Sharjah, Ajman, Um Al Quwain, Ras Al Khaimah and Fujairah) and Southern Emirates (Abu Dhabi and Dubai), while also comparing between the two genders. The results find that youth of the Northern Emirates show a greater sense of duty to the country than the youth from the Southern Emirates, yet the youth from the Northern Emirates were less satisfied with the government efforts of youth empowerment. When comparing between genders, there was no difference in the level of the sense of duty or level of satisfaction between young women and men. My findings provide the insight that Emirati youth are motivated to politically participate due a strong sense of duty to the nation, rather than materialistic gains. This original study provides the knowledge that an increased sense of pride potentially increases political participation.

Omar Almarzooqi

Understanding the Successes and Failures of Regional Blocs: The Power of Institutions

The paper attempts to address the mechanisms by which regional blocs fail or succeed. I argue that foundational institutional mechanisms such as member exit clauses, courts and arbitration systems, and voting rules have varying levels of impact on a bloc's relative performance. Integration levels in terms of intra-bloc trade as a percentage of members' total

exports as well as total bloc FDI inflows and qualitative historical evidence are used to compare cases of regional blocs to understand the impact of structural makeup. Member exit clauses are shown to have no significant effect on bloc performance, having a court or alternative arbitration system can if given legitimacy and voting rules have a large effect, with unanimous being the least effective and mixed being the most. While this proves some institutions are stronger than others, the types of institutions chosen are found to be a result of member states' willingness to integrate.

Ayesha Alsuwaidi

Emiratis' Attitudes toward Refugees

In 2016, the UAE announced its intent on welcoming 15,000 Syrian refugees. This study analyzes Emiratis' attitudes toward refugees and their preferences regarding refugee policy. Data were collected through an online survey of more than 1,200 Emirati nationals from all Emirates in March 2019. Almost half of Emiratis (48%) report feeling comfortable or somewhat comfortable welcoming refugees in the country, but very few were aware of the UAE's plans to welcome refugees. Only (4%) of Emiratis report that the UAE should not be involved in the global refugee crisis. The results also indicate greater acceptance from females and the younger generation.

Jocilyn Estes

Confucius Institutes in the United States: Crouching Tiger or Hidden Dragon?

World powers tend to export their ideals and agendas to mold the international status quo. The soft power methods that China utilizes to establish influence in other countries align with the idea of its peaceful rise. One instrument of this soft power strategy is the Confucius Institute program. These institutes are cultural and language centers at universities around the world, run and subsidized by the Chinese government. Research has suggested that increasing investment in public diplomacy programming through Confucius Institutes represents an attempt at establishing influence overseas in a non-confrontational manner. Others maintain that institutes constitute a national security threat by targeting universities that conduct dual-use research. This study examines a novel dataset of over 2,000 university-level observations including both Confucius Institute host and non-host institutions in the US. It finds that universities with large science and research programs, and large enrollments are more likely to host institutes. As the first empirical research aimed at assessing the strategy behind Confucius Institutes in the US, this project acts as a preliminary examination of an ascendant power's informal diplomatic activities with citizens of a rival.

Donia Ismail

Political Changes and Piety: Religion as Public Discourse in Urban Egypt

In the Arab Middle East, the prevailing assumption is that religion shapes politics. Questions relating to the capacity of political changes to trigger various religious sentiments are often overlooked. This is especially true within Political Science scholarship. Through this project, I aim to answer one fundamental question: what are the effects of political shocks on religiosity amongst urban Egyptians? Observing this relationship in the specific context of Egypt allows me to interrogate the fluidity of the boundary between religion and politics. The events of the Iranian Revolution, the first Gulf War, the Invasion of Iraq, the Arab Spring and the Coup d'état represent the political shocks of interest. I then test for the effects of these shocks in relation to an observable element of religiosity: the figure of the veiled woman. By examining the veiling trends collected on one popular women's magazine, this Capstone contributes to the construction of a time-series on the evolution of religiosity. Despite the absence of statistical significance for some findings, the overall study demonstrates evidence that counter the linear narrative attached to religiosity in Egypt.

Faustine Karasira

The effect of Performance contracts on Maternal and Child health services in Rwanda

This paper examines the effect of performance contracts (Imihigo) on health services in Rwanda. I analyze how the introduction and the implementation of performance contracts has affected maternal and child health service delivery. This research paper contributes to available studies of the relation between performance contracts and the public sector, specifically the public health sector. I use difference-in-difference model and linear regression to estimate the effect of the introduction of performance contracts on individual level health outcomes. To do so, I use data from the Demographics Health Surveys (DHS) between neighboring districts (South western) Uganda and (Northern) Rwanda to examine the difference in outcomes between these groups before and after the implementation of performance contracts in Rwanda. I expect to find that the introduction of performance contracts has positively impacted maternal and child health outcomes in Rwanda.

SOCIAL SCIENCE

Tarmo Korela

What explains variation in trust towards e-voting?

Democracy across the world has spread, but so have election irregularities – digital technologies can help to make elections freer and fairer. While technology is clearly not an insurance policy of fair elections, there is a correlation between societies that use more technology in day-to-day life and credible polls. In the context of increasingly digitalized political participation, this research aims to explain variation in trust towards e-voting. Previous research on the usage of electronic voting has shown the stickiness of e-voting among new and old users, as voters tend to keep e-voting once started, but there is little existing literature about the determinants of trust in electronic voting. This study examines a set of determinants of trust in e-voting in the context of Estonia. The research utilizes a 9-wave survey conducted in Estonia with 8,975 respondents. The study finds evidence to support trust being impacted positively by Estonian language and PC literacy and negatively by votes given to Centre Party and Russian being a primary language of voters, shedding light on what can be done to improve trust towards e-voting.

Mari-Ann Lepp

The influence of i-voting on voter turnout: evidence from Estonia

The motivation of this Capstone is to understand the success of i-voting, along with future trends and possible weaknesses of the current system. The aim is to expand literature on existing alternative voting methods, especially internet voting, offering a case study of Estonia. This research paper explores the impact i-voting has had on political participation in Estonia, moreover it aims to examine whether all social groups benefit from i-voting mechanism similarly. I find that i-voting does have a positive impact on overall turnout rates. Concurrently, this paper reveals that Estonians systematically use i-voting more compared to non-Estonians, however, rural communities in Estonia do not utilize i-voting as expected and stated in the hypothesis. This study calls for further research in i-voting mechanism as it appears to benefit certain groups, and thus yields mixed results.

Enrique Lopez de la Pena

Perspective Taking to Reduce Implicit Homophobic Behavior in Mexico

2,951 adult Mexicans took part in an online survey experiment disguised as a donation game. Players were presented with a scenario where they had 20 pesos and needed to decide how much of this money to donate to an environmental activist and how much to keep for themselves. Each peso donated to the activist would be donated to the WWF. Conversely, each peso they kept would be converted into a ticket for the raffle of an iPad. Before donating, however, they were randomly and unknowingly assigned into one of four groups: 1) the main control group, 2) a control group where the activist was described as openly gay, 3) a treatment group where he was described as openly gay and of foreign (white) ancestry, and 4) a treatment group where he was described as openly gay after participants completed a perspective-taking exercise that required them to imagine living with hardships that are common to LGBTQ people in Mexico. Although there was no evidence of implicit homophobic behavior in the sample, it was found that the perspective-taking treatment effectively increased generosity towards the openly gay activist. The white ancestry treatment had no effect on respondents.

Ifraan Madataly

How did the 2015 Nigerian elections affect ethnic identification in Nigeria?

Election periods have been strongly correlated to high ethnic identification in empirical analyses (Posner, Eifert, Miguel 2010). The 2015 Nigerian elections does not conform to theories from previous studies. The shift in voter preference between the 2011 and 2015 national elections could be explained by a shift from ethnic attachment towards national identification. Therefore, in this paper we explore the rise of national identification as an explanation to the fall in ethnic attachment. Firstly, we re-examine the role of elections, measured by its proximity and competitiveness on ethnic identification. Secondly, we assess the amplification of national identification by looking at the extent citizens positively perceive their country. Lastly, we evaluate the role of the media in reducing ethnic attachment. We find that the rise in national identification leads to the fall in ethnic identification. The increased access to news from the media improves citizens' political knowledge which stimulates the reduction of ethnic political preference and furthermore ethnic identification. These results contradict previous research and justifies the reasons why Nigerians did not identify to their ethnic identities in periods approaching the 2015 elections.

Xinyi Mao

Examining the Incentives of Joining the Chinese Belt and Road Initiative

The Belt and Road Initiative (BRI) is a multilateral cooperation framework proposed by China in 2013 to further economic, political and cultural exchanges. This paper explores the incentivizing and deterring factors that influence a country's decision to join the Belt and Road Initiative. Economic dependence in the form of reliance on foreign military aid, investments, and trade are found to increase political compliance to dominant countries' preferences. Voting patterns in the United Nations General Assembly are also found to be correlated with previous foreign aid and investments. Analyzing project-level Chinese foreign direct investment data prior to the BRI's inception, I find that Chinese investments motivate BRI joining when they are heavily concentrated in extractive sectors, but delay BRI joining when the sectors are less extractive, suggesting the importance of sector-specific and project-level approach to studying the BRI. Although not significant, I also find that American air force aid contributes the most to deterring BRI joining. However, regressions run on average data of the years preceding countries' decisions to join the BRI do not find a similar effect.

Kirk Mariano

An Analysis of China's Emerging Influence on the ASEAN Geopolitics

Foreign direct investment and foreign aid have always been used by social scientists as influential determinants of other economic factors, or has been influenced by economic and political factors. Since there seems to be a disproportionate paucity of literature regarding economic factors being identified as determinants of political factors, this research comes into play as a contribution to the existing literature. In this study, as I tried to analyze the emerging influence of China in the ASEAN geopolitics using the aforementioned variables, I attempted to explore the status quo using the case of China, the ASEAN, and the US. I have found that the influx of Chinese foreign direct investment and foreign aid into the ASEAN member countries are not viable determinants of the ASEAN countries' UN General Assembly voting agreement with China or voting disagreement with the US contrary to the suggested status quo. However, other variables such as the Obama Effect, GDP per Capita, Control for Corruption, and Population variables are the ones that registered statistically significant results.

Hannah Melville-Rea

Parched and Impatient: How Living in Drought Shapes Australian Politics

Experiencing a climate disaster could alter the way people vote on election day. Previous scholarship suggests that these jarring events may decrease the popularity of those in power and rally support for leaders advocating for compensation, as opposed to preparedness spending. By examining the past decade of rainfall and voting records at over 8,000 polling stations across Australia, this study investigates how voters from drought-affected and unaffected locations have comparatively voted in the Australian federal elections. As the first piece of research that tackles the impacts of drought on elections in Australia, it serves as a case study to understand how the lived experience of climate variability may have political ramifications. Results suggest that those affected by drought tend to support parties advocating for disaster relief rather than parties aiming to enhance water management, particularly in rural areas. This could sway election outcomes towards representatives focused on retrospective drought compensation and, in turn, exacerbate the likelihood of future water shortages in Australia. More broadly, if those at the front-lines of climate impacts prioritize the short term, the onset of climate events could fail to signal democracies towards taking actions necessary to manage future climate disasters.

Sally Oh

How Attitudes towards Co-Ethnic Groups Are (Not) Affected by Identity Salience and Information Correction Mechanisms: Evidence from South Korea

Can present bias against co-ethnic groups be changed for the better through reminders of shared identity and corrections of information? This study examines the prospects of doing so by conducting a survey of 1,172 South Koreans residing in Seoul, administering treatments of identity salience and information correction, and gauging their bias towards ethnic Koreans in or from China, commonly referred to as Joseonjok. The results show that neither mechanisms achieve the positive effect of reducing bias. If anything, the mechanisms seem to slightly worsen respondents' negativity towards Joseonjok and even towards other co-ethnic groups.

SOCIAL SCIENCE

Penelope Peng

What's the Price of a Vote? Chinese Aid in Sub-Saharan Africa

This paper addresses the discourse surrounding Chinese influence in Africa by exploring the relationship between Chinese aid and voting behavior in the United Nations General Assembly. I analyze whether increased aid donations to a sub-Saharan African country results in a higher incidence of aligned voting in the UN. I further determine whether differing types of aid have differing levels of impact on voting, dependent on the level to which the aid is grant-based. I also situate Chinese aid within a wider aid network by controlling for the other major regional aid donor, the United States. Despite the dominant narrative of Chinese geopolitical motivation, I find that receiving Chinese aid has no influence on voting. In fact, I find that both the level of American aid received and the political freedom of that country are better predictors of how often a country will vote in line with China.

Oleksandra Plyska

What explains the allocation of public resources in Ukraine? Pork-barrel politics or socio-economic development?

Pork-barrel politics is common across the world's democracies. Previous studies suggest that the ruling political parties use their advantage in the parliament to allocate more state resources to their preferred constituencies. Moreover, the possibility to get re-elected in the upcoming elections incentivizes MPs to allocate more resources during the election year. I highlight the relationship between the ruling parties in the parliament and state resources allocation in the context of a newly established democracy - Ukraine. I analyze two measures of the sub-national allocations of discretionary grants: at the electoral district and oblast levels. The findings suggest that the effect of coalition on subventions is positive and significant. Additionally, the president's party allocates more subventions than other parties in the parliament, but it does not have an independent effect from being in a coalition. The findings for political business cycles theory are mixed: there is a positive effect in allocations of subventions across all parties, however, the relationship between the coalition and subventions in the election year does not appear to be statistically significant.

Giulia Turchetti

Propaganda Effects on Voters: Evidence from Hungary

Over the last decades, the impact of biased messages displayed by the mass media has become a growing concern worldwide, as nations all over the world have witnessed populist parties which propagate extremist statements gaining or retaining power. The literature is divided about the effects of exposure to political propaganda: do messages consistent with the mainstream media make us more polarized? Can messages inconsistent with the mainstream shift our attitudes? Through original survey research carried out in Hungary, this Capstone seeks to understand the aggregate effect of biased political messaging in an imperfect democracy. I find that short-term exposure to a randomly assigned biased message does not shift voters' attitudes or willingness to engage in political action significantly. There remains much research to be done about the heterogeneous effects of systematic exposure to propaganda.

Chris Wheeler

Aid, Arms or Autocrats?: Explaining the Voting Preferences of Developing Countries at the United Nations

Despite their continued effort to bargain collectively on behalf of developing countries, the G77 group at the United Nations consistently fail to coordinate their voting positions. With 134 of the UN's 193 member states, the G77 has the potential to dominate the UN General Assembly, but has become so disparate that many now question the logic of the group's existence moving forward. Using newly developed ideal point estimates, I analyze the predictors of G77 countries' individual voting preferences in the UN General Assembly, to understand what is causing the growing division and disunity among the group. I find that voting preferences for individual countries within the G77 are determined mainly by variation in democracy and human rights, providing new insight both into the dynamics of the UN General Assembly, and into cooperation among developing countries more widely.

Abi Wilson

He Said, She Said: Gender-of-Interviewer Effects in Eastern Congo

In survey research, sensitive questions are notoriously vulnerable to biases that lead to inaccurate responses. The question I will seek to answer in this study is: What role does gender play in sensitive interviews in Central Africa? Using data from a randomized survey conducted in the DRC, I find that respondents tend to indicate more support for gender equality to female interviewers than male interviewers. However, women are generally less likely to receive responses that report occurrences of gender-based violence than men. Pairing a respondent with an interviewer of the same gender has little to no effect. My results support a causal link between survey responses and interviewer gender. I suggest that cultural context is a key component in understanding gender effects on survey design. My findings have practical implications for producers and consumers of survey data from Central Africa and underscore the importance of considering cultural context when designing in-person surveys.

Lusine Yeghiazaryan

Youth Protest Participation: Evidence From the Armenian Velvet Revolution

Why do some individuals dedicate time and take risks to participate in protests, boycotts and demonstrations while others chose to observe those from afar? What factors encourage young people to turn to unconventional means of political participation? The Armenian protests of 2018, which became known in the mass media as the Armenian Velvet Revolution, were unforeseen not only in their peaceful outcome that gave the power to the opposition party, but also in the magnitude and the means of mobilization. The engagement of the young people and the usage of social networking platforms for mobilization purposes was incomparable to any of the previous protests that had happened in Armenia. In this study, I examine individual-level protest participation using an original survey dataset of 680 respondents and analyze how political and economic grievances, along with resources, such as social media and exposure to networks, shape protest behavior among the Armenian youth. While focusing on the Armenian protests, the determinants for which are specific to the country's sociopolitical and cultural context, these findings hold patterns on individual-level youth protest participation valuable for exploring protest behavior in comparable contexts.

SOCIAL RESEARCH AND PUBLIC POLICY

Lama Ahmad

The Case of Internet Research Agency Twitter Propaganda in the 2016 U.S. Presidential Election

The purpose of this study is to shed light on the features of tweets that drove Americans to engage with propaganda disseminated by the Russian Internet Research Agency (IRA) on Twitter around the time of the 2016 US Presidential election and to understand the differences between the content of originally authored versus retweeted IRA propaganda tweets. This study defines engagement in terms of the number of retweets and likes that tweets receive. Using comparisons of specific tweet features such as URLs, hashtags, tweet length, sentiment, and language, this study finds that while there are subtle but not substantively significant differences in engagement for some features, overall engagement with the tweets in the dataset is low and more evidence is needed to understand tweet features as drivers of engagement. Following that, this study categorizes the corpus of tweets into frequently occurring topics using structural topic modeling and conducts a regression analysis to predict the probability of particular topics being retweeted or originally authored.

Aisha Al Fahim

Deconstructing the Social Construct of Reputation (A Case Study of Emirati Women in Abu Dhabi)

The research focuses on the shift in the mentality of Emiratis regarding 'reputation' through the conduction of twenty-four in-depth interviews with Emirati women in Abu Dhabi. The women who participated in the research varied in age, ranging from elderlies (over the age of sixty) to youth (twenty-year-olds), demonstrating the change in perceptions over the span of generations. The topics that will be discussed are kinship as related to lineage and family name, social interactions involving gatherings and social media, systems of beliefs such as religion and tradition, and generational differences in mentalities. The rapid transformation that the country underwent including the contact with people from diverse backgrounds since the 1960s lead to a shift in the mentalities of the Emirati people. All of which affected the criteria with which women in society based their conceptualization of one another's reputation as well as their own. Ultimately, this paper aims to address the shortcomings in the existing field of research by deconstructing the concept of 'reputation' in Emirati society.

SOCIAL SCIENCE

Amal Al Gergawi

The Effect of Stressors on the Mental Health of Displaced and Non-Displaced Children and Adolescents in Niger

Reflected in the student demographic, the West-African landlocked nation hosts a growing forcibly displaced community composed of refugees, returnees, and IDPs residing alongside civilians. Identifying the effect of stress-inducing factors or "stressors" on displaced children and adolescents in relation to their non-displaced peers can shed light on how Niger can strategically address mental health symptoms in a geopolitically sensitive region. This study analyses the baseline results of a Global TIES for Children dataset collected in the 2016-2017 academic year on 1,876 students dispersed across thirty "Education in Emergency: Evidence for Action" schools located in the Maine-Soroa and Diffa regions. Specifically, the study examines the effects of five stressors –hunger, community safety, age appropriateness, future mobility, and French literacy– on student mental health operationalized through the following instruments: the Strengths and Difficulties Questionnaire, the Response to Stress Questionnaire-Stress Levels, the Response to Stress Questionnaire-Involuntary Engagement, and the Preschool Self-Regulation Assessment. The main findings of this study suggest that community safety and French literacy significantly affect the mental health of displaced and non-displaced children and adolescents, implying that displaced students do not differ from their non-displaced counterparts. These results contribute to expanding the frontiers of literature on mental health stressors and displaced youth in the Global South.

Fatima Al Zaabi

The local local: Perspective on Tribal Identities among Emirati youth

This paper examines the ways in which a tribal identity exists alongside the national identity among Emirati youth. Following the history of tribal lineage and nation-building in the United Arab Emirates, I question how identifications based on tribal identities persist in the contemporary Emirati society and the ways in which youth deal with and reconcile these distinctions. The study focuses on qualitative data analysis of in-depth semi-structured interviews with 22 Emirati nationals aged between 18-25 from Abu Dhabi, Dubai, and Ras-Al-Khaimah of different tribal identities. The research aims to contribute to the study of identity which follows the complexity of national, ethnic, and tribal identities within different social domains. The study finds that alongside the salience of a national identity amongst youth, tribalism plays a role in

the pivotal domains of social life from marriage, socialization in friendships, and professional decisions through conceptions of 'purity' and belonging. Consequently, Emirati youth use mechanisms of reconciling tribal distinctions such as pragmatic justification through the notion of 'taqarub', comedic relief, renaming, and rejection of distinction with reference to an overarching national identity.

Sarah AlMheiri

Framing June 24: Cross Media Analysis of Saudi Women's Driving Ban Lift

This study explores the media perception of the women driving ban lift in Saudi Arabia, that officially occurred in June 24, 2018. A comparative textual analysis was performed on the two media sources, The New York Times and Arab News through the qualitative analysis software Nvivo. The findings suggest that there exists a rigid dichotomy between local and foreign media narratives due to different framings structured by each newspaper's ideological framework. The concepts of conservatism, citizens, equality as well as others were analyzed in terms of their sentiments regarding the ban lift. One of the primary findings reveals that the context in which conservatism is used varies from one source to the other. While it is framed as being socially conservative in the Arab News source, it is contextualized as being religiously conservative in the New York Times. The comprehensive understanding of these framings allows for readers to be more aware of such media biases at a time of mass media communication.

Sana Amin

Promoting Healthy Living: A Case Study of International Schools in Abu Dhabi

This paper explores how schools in Abu Dhabi implement health policies in order to create a health-promoting school environment for students. While the current literature consists of studies highlighting the different approaches schools take to address unhealthy behaviors and the role of parents in said behaviors, I investigate the barriers that limit health policy implementation in international schools. Through semi-structured interviews with school administrators and managers of catering companies, I discover that conflict between parents and school administration is prevalent and largely based on the socioeconomic status of parents and the school.

Firas Ashraf

Don't Burnout: The role of the Arab Family in Teacher's Mental Health in Lebanon

This paper seeks to investigate the role of the Arab family in moderating the relationship between the mental health and burnout rates of teachers in Lebanon. This study aimed to understand what factors in the Middle Eastern context, an understudied region in teacher burnout literature, are having an impact on this relationship. The research found that teachers with family sizes larger than five persons, and specifically females with these larger family sizes, had a stronger relationship between their mental health and burnout levels. Single teachers were also found to have a stronger relationship between their mental health and burnout rates. These results suggest that more resources and programming should be targeted at supporting teachers with larger families, and in particular single teachers and women, in order to help them manage their mental health and burnout levels.

Mai Awamleh

Religious Affiliation as a Predictor of Student Academic Outcomes in Sierra Leone

The study seeks to evaluate how religion and gender, in combination, can be significantly indicative to academic achievement. Using data from Global TIES for Children's 3EA project, "Education in Emergencies: Evidence for Action (3EA)", the study investigates the relationship between religion and academic outcomes of primary school students in Sierra Leone. Secondary data analysis shows a very low significant correlation between being Muslim and one's academic achievement and finds no correlation between child annual percent attendance and being Muslim. However, the joint role of religion and gender with regard to student outcomes proves to be significant when looking at the comparative beta values among the religion-gender groups in the regression analysis. I find that being both female and Muslim yields higher academic achievement than any other group in the study. The study also finds a significant positive association between student attendance and academic outcomes but does not succeed in manifesting a mediating effect of attendance. Overall, this study aims to highlight the importance of understanding and evaluating the factors that influence schooling outcomes in conflict-affected and low-income countries like Sierra Leone.

Gigs Banga

The Young Expat: The Development of Expatriate Adolescence in the UAE

The stories of young expatriates, those who emigrate with their families to the UAE is a complex one. However, it is narrative often assumed or set-aside. This qualitative research project hopes to provide integral insight by understanding the nuances in the individual stories of young foreign nationals living in the UAE. The paper investigates and explores whether, how, and to what extent the intersection of an expatriate way of living – contained within expectations about what it means to a 'good' expat – conflicts with a restrictive nature of adolescent development. The social phenomenon is called Expatriate Adolescence. The process involves foreign teenagers toiling with the central question of how they come to navigate their new home in Abu Dhabi – be it social, familial or cultural, what unique challenges does this populace encounter? Given the changing ethnoscapes of this country, there is much variance in the degree to which the young expatriates experience a 'curated' adolescent life in the UAE. Hence, the studying of this population is vital in filling a lacuna in the scholarship on Gulf migration, as well as in adolescent development theory.

Sara Booth

Female Migration, Adaptation, and Child Health in Urban India: Evidence from NFHS-3

The purpose of this paper is to analyze the effect of female rural-urban migration on child health outcomes in urban India, within the framework of the disruption and adaptation theory of migration. Drawing on data from the third wave of the National Family and Health Survey, I compare socioeconomic factors and child health outcomes among rural-urban migrants, urban non-migrants, and rural non-migrants. I find no direct support for the hypothesis that children of rural-urban migrants are worse off in terms of health. Instead, my findings suggest that small differences in child health are explained by observed differences in wealth and education among urban residents. Additionally, contrary to the belief that migrants eventually adapt to their new environment, I find that outcomes and socioeconomic factors do not improve over time among rural-urban migrants. This paper deepens the understanding of urban child health and suggests that future research and policies should address the urban poor and uneducated.

SOCIAL SCIENCE

Sharif El Shishtawy Hassan

Islamic Education in the UAE: Promoting National Security, Refuting Islamists, and Nation Branding

In recent years the content and character of state-sponsored religious education in the Middle East have been the subject of intense debate. Upon analyzing the Islamic Education textbooks taught to all Muslim students in every school across the UAE, I make three arguments pertaining to the role of Islamic education in the UAE. First, the UAE's Islamic Education curriculum works to legitimize the state and promote national security by inculcating in students a sense of loyalty to the nation and obedience to its ruler. Second, that the curriculum works to present an image, directed at local and international audiences, of religious moderation and tolerance. Third, that the curriculum works to support government objectives of economic growth by presenting the ideal Muslim as one who is hard-working and productive. I situate the UAE's Islamic Education curriculum and textbooks within broader, long-standing state efforts to cultivate a loyal citizenry devoted to state agendas related to political stability, modernization, and economic growth, refuting Islamists narratives, and being recognized by the West as a natural partner in the fight to eradicate religious extremism and promote tolerance in the region.

Aaima Humayun

"It is like my life has become an answer [to these questions]...": Understanding the Accounts of Acid Violence Victims in Pakistan

Stigma is a global problem, but in Pakistan, the problem of a double-stigma is salient. The victims of acid violence, in addition to the stigma associated with irrevocable physical disfigurement, also suffer the allegation of an immoral character, causing inflated psychological and social difficulties. Accounts allow stigmatized individuals to participate in strategies that enable their empowerment and inclusion in society. Drawing on a series of interviews with female victims of acid violence in Pakistan, this paper explores the discursive strategies employed by the victims across different situations. The findings suggest several patterns: providing unfiltered accounts, denying identity of a victim of violence, using socially acceptable language, embracing an identity of a professional, negotiating an increased social status, and shifting identities from that of a victim, to a survivor and a savior of other victims.

Ginikachi Ibuakaeze

Analysis of Corporate Social Responsibility (CSR): weighing the option of mandating CSR in Nigeria

This paper examines mandatory Corporate Social Responsibility (CSR) in India, in comparison to voluntary CSR in Nigeria. The purpose of this study is to determine whether the Nigerian government needs to follow the pace set by the Indian government in regulating CSR spending and activities. To determine this, this study compares the mean percentage contribution of net profits of 17 foreign firms in India, between 2014 and 2018, with the mean percentage contributions of net profits of 15 foreign firms in Nigeria for the same years. India being the mandatory category and Nigeria the voluntary category. Further investigation is made into the number of activities, based on the types of CSR, that firms in both categories perform. The findings show no statistically significant result for the comparison between mean percentage contributions. Results for the comparison of the number of CSR activities, based on the types of CSR, show that firms in the non-mandatory category perform more CSR activities. This study concludes that the Nigerian government does not need to regulate CSR, based on the evidence that firms in Nigeria perform more activities compared to firms in the mandatory category.

Rabiya Imran

Women and Pakistani Sharia: A Case Study of Khula Laws

How is Sharia contextualized when granting rights to women in the post-colonial context? How is it used by courts in South Asia in terms of divorce? This paper looks at khula case law from the Lahore High Court in Pakistan and the Punjab and Haryana High Court in India to examine the role that Sharia plays in the decision-making process of the courts. My analysis examines eighteen cases from the Lahore High Court and five from the Punjab and Haryana Court in detail. I argue that in both India and Pakistan, Sharia and Islam are being utilized to create rights for women in the realm of divorce, where they don't exist through non-Islamic means. I also argue that in the Lahore High Court, the court uses language that is filled with Islamic symbolism to grant legitimacy to its decisions that are favorable to women. However, this symbolism is not found at the Punjab and Haryana High Court. To make sense of this variation, I argue, Shariah is used as a reliable device in both Islamic and non-Islamic contexts to achieve similar results, albeit with varying motivations.

Atoka Jo

The use of Pseudonym, Team Composition and Identity in Cryptocurrency

Satoshi Nakamoto is known as the founder of Bitcoin and the pioneer of cryptocurrency. Yet, until this day, no one knows who Satoshi Nakamoto is or whom the name represents. Because of him, the usage of pseudonyms among members of cryptocurrency companies has gained popularity. This paper will explore how team composition and identity affects the usage of pseudonyms among the cryptocurrency company members. Team composition and identity will be broken down to three components of publicity, technical roles, and gender of the cryptocurrency company members. By investigating the relationship between team composition and identity and the usage of pseudonyms, the study will demonstrate how pseudonyms can be used not only to hide one's identity, but also to augment one's identity.

Filip Karan

Pre-exposure Prophylaxis (PrEP): a Miracle Drug or a Moral Hazard?

Little is known about the way in which taking pre-exposure prophylaxis (PrEP) affects sexual behavior and sexual health outcomes of men-who-have-sex-with-men (MSM). I examine these outcomes by using Facebook, Grindr and the Gay Ad Network as recruitment sites, linking ads to a questionnaire which 1823 US-based MSM completed. Using a series of one-sided t-tests, I find that MSM who are on PrEP have significantly more sexual partners, are more likely to be involved in concurrent relationships, use condoms less frequently and report higher incidences of bacterial STDs than MSM who are not on PrEP ($p < 0.001$). I then use propensity score matching to control for a set of demographic and behavioral characteristics associated with PrEP use to estimate the effect of taking PrEP on the abovementioned outcomes. I again find statistically significant results for all outcomes. Lastly, I employ a conjoint experiment to compare how MSM who are on PrEP compare to those who are not on PrEP make partner-selection decisions. I find that MSM on PrEP do not take the number of their partner's previous sexual relationships nor their condom use into account to make this decision, while those who are not on PrEP do.

Ruta Karpauskaite

NETWORKS OF INFLUENCE Think Tank Behavior, Relationships and Bias in Washington D.C.

The current debates around the use of money in politics and the amount of foreign influence in Washington DC have brought the unique role of think tanks under increased scrutiny due to their potential to channel both effects. While think tanks, in theory, are supposed to produce unbiased policy analysis and help promote informed debate--criticism of think tanks often alleges that they are far from unbiased. While much literature has attempted to delineate this problem, most of the research has focused on external analysis of think tanks as part of the larger policymaking system. Leveraging ethnographic research conducted within the think tank community itself rather than externally, my analysis questions the consensus view that think tank behavior is largely driven by seeking policy impact; instead finding that think tank behavior is conducted according to internal and external relationships. With a greater understanding of think tank behavior, I seek to better understand the origin of bias and how it materializes in think tanks' most visible output - external research.

Cristina Lupusor

To Share or Not to Share: A Study of Privacy in Democratic and Non-democratic Countries

Privacy has always been an important part of human's lives. However, with the improvement of technology and appearance of social media, the extent to which individuals' privacy became threatened grew exponentially. Nevertheless, the scholarship on societal interest in privacy is limited. In this paper, I analyze individuals' interest in privacy in democratic, non-democratic societies, and everything in-between. I am using Google Trends data as a proxy for people's interest in privacy across the world and The Economist's Democracy Index as a measurement of whether a society is a full or flawed democracy, hybrid or authoritarian regime. I use linear regressions to understand whether people in more or less democratic countries are more likely to display interest in privacy.

SOCIAL SCIENCE

Matilda Mahne

Change in Peacebuilding Diplomacy: A Case Study of Finland

In 2008 Finland created a National Action Plan for the implementation of the United Nations Security Council resolution on Women, Peace and Security that was unanimously adopted in October 2000. The resolution was significant as it was the first of its kind to specifically address women's role in conflict and peacebuilding. Though Finland has been on the forefront of the peacebuilding scene for years, the country shaped its action plan for the resolution a few years later than many other states. This research project looks deeper into this foreign policy change and endeavors to answer the following question: why did Finland adopt its National Action Plan for the United Nations Security Council Resolution on Women, Peace and Security in 2008? By looking into policy documents and speeches, as well as drawing from public debate and previous literature on foreign policy change and policy diffusion, I find that the Finnish case warrants a multi-layered explanation: using the policy diffusion mechanisms of learning, competition, coercion and emulation, the drive for Finnish foreign policy change has taken place on three distinct levels (international, regional, and civil society), where the three levels mutually created the condition for change.

Warda Malik

Religion, State, and Nation: Claims to Citizenship Among Pakistan's Ahmadiyya Community

This research focuses on Pakistan's Ahmadiyya community, who self-identity as Muslims but the state recognizes them as a non-Muslim minority, to demonstrate how the state narratives about inclusion in Pakistan have been used to exclude and reduce this community to the status of second-class citizens. Most of the existing literature has focused on how the Pakistani nation-state has constructed its imagined community based on exclusionary citizenship, but little is said about the grievances that the marginalized have from the state and what it can teach us about national citizenship. Given the exclusion of Ahmadis from Pakistan's national discourse, I have conducted twelve semi-structured interviews with community members and conducted an analysis of op-ed articles in an alternative media publication to understand counter-narratives of Ahmadis in relation to the dominant narratives of state. This research focuses on counter-narratives of Ahmadis about Pakistani identity in order to broaden our understanding of identity through a focus on the excluded citizen rather than the state. The research sheds light on what national identity looks like when viewed through the lens of exclusion.

Abraham Okbasslaise Hdru

"This is why we lost out": Long-term residents' use of Reference-Group Comparisons to make sense of Gentrification

This paper examines how long-term residents living in a gentrified neighborhood make sense of their community's experienced displacement pressures. Through in-depth interviews with 40 Latino residents in a gentrifying neighborhood in Brooklyn, this paper finds that residents remaining in Williamsburg tend to identify other groups involved in the process as reference points to situate their experience. Depending on the reference group and axis of comparisons, residents come to different conclusions regarding the inherent causes for their community's experienced gentrification-induced displacement pressures. The two categories of comparisons identified are (1) external-oriented group comparisons in which race is made salient and residents externalize their groups-relative deprivation to derive from systemic inter-group inequalities, and (2) internal-oriented group comparisons in which class and group solidarity are made salient and residents internalize their group's experience from inherent differences in group characteristics. The former comparison leads to more hostility and animosity towards the reference group, while the latter leads to self-blaming their in-group and helps to inform their aspirations.

Erik Olson

Neither Here nor There: Non-political transnationalism amongst Bosnian refugee families and the blurring of migrant taxonomies

Third-country resettlement is one of the UN's three "durable solutions" made available to refugees worldwide. While millions have benefitted from such programs, there remains a gap in knowledge concerning the long-term effects of resettlement on the experiences of refugees. At the same time, migration studies literature has established a dichotomy between voluntary and involuntary migrants. Here, a tendency is shown which views connections to people in places in the country of origin as distinctly political in form and motivation. This essay uses a transnational approach to studying the experiences of Bosnian refugee families resettled to Boise, Idaho, USA during and immediately after the Bosnian War (1992-1995). Focusing on transnational practices developed by refugees over two decades in the US, my analysis questions the prevailing image of refugees as inherently political transnational actors. This study investigates non-political forms of refugee transnationalism by examining patterns of ownership and flows of goods, funds, and people between Boise and Bosnia. In doing so, I seek to blur the lines between traditional migrant taxonomies and contribute to a more holistic understanding of the refugee as an informed and empowered international actor.

Manas Pant

Influence of size of company on inter-firm cooperation in the media industry

This paper aims to investigate the influence of company size on inter-firm cooperation in cluster-based firms of the media industry. This is done through analysis of data collected from in-depth, semi-structured personal interviews with senior executives in two samples of different sized start-ups, located in industry clusters within Abu Dhabi. The findings verified our expectations that media start-ups differ in their level and intensity of interaction based on their size where larger companies are less willing to cooperate with other companies in comparison to smaller companies. The implications of this research are twofold. On one hand, it aims to complement existing research on inter-organizational cooperation by examining it in a new setting (Free zone) and a new industry (Media). On the other hand, the findings shed light on strategies for the enhancement of formal and informal social networks as a route to effective inter-firm cooperation.

Diego Sandoval

The Hult Prize Effect: An Egocentric Network Analysis of Social Entrepreneurs

This project studies the role of social networks in the development of early-stage social enterprises. I obtained access to the Hult Prize Foundation Startup Accelerator, a six-week competitive program with a prize of \$1M in seed capital. Of the forty competing startups, six are chosen as finalists, and one of those six would receive the funding. A quantitative analysis of network surveys from each company's CEO or Co-founder was used to find discrepancies in the structure and content of their business support networks. The analysis brought to light differences in the make-up and content of support networks across the three categories of performance. These differences were found in the size of support networks, the proportion of relationship types in the network and the average level of support provided by each nominee in the network. A qualitative analysis of interviews with each company leader was used to uncover differences in the process of leveraging social capital. The analysis provides evidence for greater awareness of the importance of leveraging networks and greater ability to translate social capital into business developments among leaders of top performing teams.

Melinda Szekeres

Navigating Entrepreneurship: The Role of Law in Organizational Emergence in the UAE

This project observes the law and policy that govern entrepreneurship in the UAE, comparing it, empirically, to the lived experiences of entrepreneurs on the ground. I observe entrepreneurship as a novel work environment that offers starkly different experiences for UAE nationals and residents alike. The distinction, primarily, manifests in the levels of ease of organizational emergence for both groups. I suggest that the UAE offers a quasi-experimental insight into the two different pools of entrepreneurs that result by having a 'high' or 'low' bar—the former for residents and the latter for nationals. In comparing the experiences of entrepreneurs emerging across these two pools, this Capstone asks whether a more 'helpful' legal and institutional environment increases the success rates of entrepreneurial ventures. Based on its finding that the increased ease of starting up is not necessarily an advantage, this study complicates the theoretical assumption that low barriers to starting up are necessarily always preferred because they lead to a higher aggregate entrepreneurial activity.

Theros Wong

The Power of Ethnic Politics in Foreign Policy Making Decisions: A Comparison of Malaysia's Mahathir and the Philippines' Duterte in the Belt Road Initiative

Malaysia's rejection of China's Belt Road Initiative came as a shock to the international community. In order to understand the driving forces behind this rejection, this research created a structured approach to examine plausible factors that could lead to this policy decision, including the economic, geopolitics and domestic factors. Upon examining these factors in comparison to the Philippines, which accepted the Belt Road investments, I conclude that domestic ethnic politics act as a catalyst to Prime Minister Mahathir's decision.

SOCIAL SCIENCE

Songyue Xu

How do social networks affect the likelihood for women to practice entrepreneurship in Sub-Saharan Africa

Given the unique power of entrepreneurship driving economic growth at a national level, the fact that women in Sub-Saharan Africa have a lower rate in entrepreneurship participation than their male counterpart incurs enormous opportunity costs to the countries in Sub-Saharan Africa. This paper raises the question why women in Sub-Saharan Africa have a low likelihood to practice entrepreneurship and proposes social networks as a plausible explanation. Based on the self-generated data from 394 respondents from University of Ghana Business School, the resulting findings, however, reject all the hypotheses supported by the existing literature. The discrepancy between the empirical evidence and the theoretical framework casts doubts on the generalizability of the theories traditionally proven true in other contexts, and sheds lights in potential future research.

Alyssa Yu

Post Generation: Social Media Use of WeChat and Facebook by Chinese and American College Students

This project is a comparative study of contemporary social media usage of both Chinese and American social media sites by Chinese and American NYUSH freshmen conducted through mixed methods of social media content analysis and interviews. Ultimately, this paper seeks to better understand the extent to which technological features, cultural backgrounds, and pre-existing and new networks influence social interactions online.

Anastasiia Zubareva

Fostering refugee-inclusion: the role of self-affirmation and perspective-taking

This research has tested the role of self-affirmation and perspective-taking tasks in fostering inclusive intergroup behavior and motivating the respondents to provide help and assistance to Syrian refugees. The experiment was conducted with a sample of working age and retired Canadians, outside the laboratory. During the experiment the participants have completed either self-affirmation task, perspective-taking task, combination of both tasks, or participated in a control condition before answering the measures of attitudes and perceived threat towards Syrian refugees and participating in the behavioral task measuring the respondents' readiness to support this outgroup. Results show that self-affirmation and combined intervention were effective in fostering inclusive behavior towards the outgroup. This study has also found that the middle-aged respondents had less malleable views, and were less likely to be motivated to change their behavior by a one-time intervention. The participants between 35-54 years of age were more likely to hold strong unfavorable views of Syrian refugees due to the perceived competition over finite resources and welfare benefits in Canada. This paper also draws further implications for the researchers and policymakers.

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