



**Student Center for  
Research, Creativity  
and Scholarship**

## **Undergraduate Research Conference 2023**

### **Oral Presentation Abstracts**

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Aaliya Harris and Summer Brownfield

Mentor: Dr. Karletta White

Grambling State University

### **The Breonna Taylor Effect: Can Six Shots Change the Racial Makeup of Law Enforcement?**

Six shots to the body while sleeping, and Breonna Taylor, a 26-year-old emergency medical technician, was killed by bullets that rained down from guns of Louisville, Kentucky, police officers. While her case has sparked national debates on police reform, civil rights, and ethics in law enforcement, the officers who killed Breonna Taylor were not charged with any wrongdoing until two years after her death, highlighting the need to shift the conversation to one that recognizes the vulnerability of Black women and the lack of feeling safe. Yes, we believe that the significance of her killing warrants further investigations of police reform, but more importantly, we believe the brutal killing at the hands of police officers impacted how Black women perceive law enforcement and the role they could play in making Black women feel safe.

Alexandra Himel

Mentor: Guillaume Rieucou

Nicholls State University

**Assessing Floridian manatee body condition during an unexpected mortality event using drone-based photogrammetry**

Evaluating the body condition of wild animals is critical to assess the health of at-risk populations. The Floridian manatee (*Trichechus manatus*) is protected under the Endangered Species and Marine Mammal Protection Acts and face various challenges due to human incidents. This subspecies of the West Indies manatee forms large overwintering aggregations (up to several hundred individuals) in the proximity of sources of hot, fresh water (natural springs, power plants) to maintain body temperature and cope with low water temperatures during Winter. In addition, these animals are affected by seagrass loss that provides their primary food source. In 2020, an Unexpected Mortality Event (UME) was recognized, causing over 637 deaths. In this project, we employed drone-based photogrammetry, an innovative and non-intrusive method, to develop body condition indices (BCIs) to assess the health of a coastal population of overwintering manatees (Cape Canaveral, FL). We estimated the body measurements of 1437 Floridian manatees using the software Morphometrix. Our results showed that the mean BCIs of overwintering adults were significantly lower than well-fed captive individuals. In addition, a comparison between BCIs from the Cape Canaveral population and a healthy population of wild Floridan manatees overwintering in warmer riverine habitats (Crystal River 2012-218, USGS data) suggests that coastal populations are more vulnerable to harsh winter conditions with significantly lower BCIs than the Crystal River population. Altogether, our results reveal a global decrease in BCI of the Floridan manatee population and call for furthering the health assessment of the at-risk population to develop practical response actions.

Aone Shrestha, Subin.Bista

Mentor: Dr. Minh Huynh

Southeastern Louisiana University

### **Explore a way to read and edit data collected via Google Form**

Google form is one of the popular tools that is available in Google Suite. It is most commonly used to capture information from respondents. However, to retrieve the collected data from a Google form and to display and edit the content from the form are not straightforward. Google offers a feature to view the data from a Google sheet. To display the data back into a form would require a third party add-on or to write custom code to perform this task. We are set out to explore whether it is feasible to create a simple web tool to support reading, displaying and editing data from a Google form via web interface. In this presentation, we present one possible solution with the use of the following tools: Google Sheet, Script, Firebase, and React framework. Our presentation will demonstrate our custom web tool to retrieve the data from a form, display and edit the content, and then save the content back to the original data. To gain a deeper understanding of the process, we will describe the steps in the design and development of this web tool. Here is the summary of the working process. First, we created a form to collect some basic student information. Next, we input some test data on the form and saved the data in a Google sheet. Then, we added the script inside this sheet. The purpose of the script is to transfer the data from the Google sheet to Firebase. Firebase is one of Google's platforms for use in supporting mobile app development. It consists of a variety of tools such as Authentication, Realtime database, Firebase Store, Machine Learning, and Web hosting. In this project, we chose a Realtime database for storage. In our web tool, It is used to store data and make it available online in real-time. In the next step, we wrote JavaScript code using React framework to read the data from the Firebase's Realtime database and display them via web interface. We were able to successfully display the data in a form-like manner rather than in a row and column format shown in a Google sheet. We also made them responsive to accommodate different screen sizes of a displaying device. More importantly, we were able to make these data editable. After the update, the data were then written back to another Realtime database for storage. From there, we developed another script to take the updated data and write them back to the original Google sheet. Based on this development work, we are able to develop a functional web tool that allows data from a Google form stored in a Google sheet to be read, displayed, edited, and updated via a

web interface. Such a tool would be quite useful for a number of applications. For instance, when students input their data in a Google form, instructors can easily pull these data, display them, and even update the data. Similarly, if the student form is to be reused, students can pull up their own forms and update their information. Such capabilities will be a time-saver for both students and instructors. In the future development, we plan to make this form more flexible by adding the dynamic features to the code so that the tool can handle various numbers of data fields. Also, we want to let students access and retrieve their own content in order to review/update/edit their own content. Thus, a simple authentication will be needed. The code for a simple authentication can match a specific user to his/her own record of information and then retrieve it for displaying and editing. Such features would make it possible for this web tool to be used for students to view their own grades, graded exams, or other returned assignments.

Awais Tariq, Moiz Fazal-ur-Rehman

Mentor: Ritwij Kulkarni

University of Louisiana at Lafayette

### **Understanding the Effects of Glycosuria on *Klebsiella pneumoniae* Physiology**

Diabetes mellitus (DM) is the principal risk factor for asymptomatic bacteriuria and urinary tract infections (UTI). Furthermore, DM also increases the risk of severe and potentially life-threatening sequelae such as pyelonephritis and blood stream infections secondary to UTI. The primary objective of our research is to characterize the effects of the diabetic urinary microenvironment on the physiology of uropathogenic bacteria and to define their role in increasing susceptibility to UTI. As a model uropathogen, we used Gram negative *Klebsiella pneumoniae*, the second most prevalent etiology of UTI in diabetic as well as non-diabetic humans. This is clinically relevant because DM increases by 2-4-fold the risk of UTI by extended spectrum b-lactamase positive and carbapenem-resistant (CR) strains of *K. pneumoniae*. In our work, we examined growth and virulence of different clinical isolates of *K. pneumoniae* in nutrient-rich lysogeny broth (LB), plain human urine (HU; pooled from a minimum of three non-diabetic donors), or HU supplemented with 600mg/dl glucose (HUG; mimics severe glycosuria). We did not observe any differences in the doubling times of *K. pneumoniae* in LB, HU, or HUG although at 24 h time point, although the median CFUs in HU and HUG were significantly lower than that in nutrient-rich LB. In comparison to LB, exposure to HU augmented biofilm formation in all *K. pneumoniae* strains. In contrast, HUG exposure augmented biofilm formation in *K. pneumoniae* strain dependent manner. Overall, our results indicate that during urinary tract colonization, *K. pneumoniae* rapidly activates a metabolic switch that enables it to thrive in nutrient-poor urine. In the future, we plan to use quantitative real-time PCR (qRT-PCR) to examine the effects of glycosuria on *K. pneumoniae* virulence gene expression.

Bailey Meche, Venu Poruri, Sat Gupta, Sadia Khalil

Mentor: Dr. Sat Gupta

University of Louisiana at Lafayette

### **The Effect of Measurement Error on Binary RRT Models**

This study introduces the effect of measurement error on binary Randomized Response Technique (RRT) models. We discuss a method for estimating and accounting for measurement error in two basic models and one comprehensive model. Both theoretical and empirical results show that not accounting for measurement error leads to inaccurate estimates. We introduce estimators that account for the effect of measurement error. Furthermore, we introduce a new measure of model privacy using an odds ratio statistic which offers better interpretability than traditional methods.

Bincy Biju

Mentor: Raj Boopathy

Nicholls State University / College of SciTech

**Water Quality and the Presence of Antibiotic Resistant Bacteria in the Bayous of Terrebonne Parish in Southeastern Louisiana, USA.**

The improper use and disposal of antibiotics have emerged as a notable public health concern. Improper handling of antibiotics by residents potentially causes selective pressure among bacteria, leading to antibiotic resistance in the waterways. The purpose of this study was to monitor water quality, total and fecal coliforms, and antibiotic resistance in the water collected from four sites along the Bayou Terrebonne and Bayou Petit Caillou. Water samples were collected in triplicate once a month over a year and were tested for total and fecal coliform bacteria and antibiotic resistance. The water quality monitored includes nitrate, sulfate, ammonia, phosphate, and organic carbon. The water quality of the bayous was within the standard set by the Louisiana Department of Environmental Quality (LDEQ) except for sulfate, which exceeded the limit. Due to high fecal contamination, total and fecal coliform numbers exceeded the water quality standard. Of the 76 bacterial isolates tested for antibiotics, 79% were multidrug resistant showing resistance to three or more antibiotics. Antibiotic resistance genes for tetracycline (*tetA*), sulfonamide (*sul2*), bacitracin (*bacA*), and ampicillin (*ampA*) were identified in all four sites. Improper disposal of individual sewage treatment plants from households along the bayous maybe the prime reason for the high fecal contamination causing poor water quality in the bayous.



Dyamond Yarbrough, Destiny Cephas, and Ziara David

Mentor: Dr. Karletta White

Grambling State University

**#Dangerous: Exploring the impact of colorism on social media and online violence**

*Hypentelium nigricans*, the northern hog sucker is a species in the family Catostomidae.

Throughout an individual's life, their body grows at different rates. Using 3D geometric morphometrics we compare the body shape of 23 different specimens ranging from juvenile to adult sizes. Landmark-based geometric morphometrics are used widely in the biological sciences to study the evolution of shape and compare body structures. 2D geometric morphometric analyses are most common as they can be performed on readily available photographs of specimens or structures. 3D geometric morphometric methods are recently becoming more popular, however, the collection of 3D data for these analyses is much more complex and often requires expensive equipment (ex. computed tomography). Recent advances in 3D photogrammetry technology have lowered barriers to create and analyze true 3D models of biological specimens at low cost. We use these models to better understand the ontogeny of this species.

Emily LeBlanc

Mentor: John Sharp

University of Louisiana at Lafayette

**Greg Guirard: Capturing life Inside the Atchafalaya Basin**

Greg Guirard: Capturing life Inside the Atchafalaya Basin is an ARCGIS story map that displays the various creative mediums Greg Guirard used throughout his life as an Atchafalaya Basin resident. Greg Guirard's interesting perspective touches on the amazing sense of community and culture in the Basin. Guirard's work continues to educate readers and spread awareness for the preservation of the Atchafalaya Basin.

Ethan LeBlanc, Michel Erny, Nick Pugh

Mentor: Paul Darby

University of Louisiana at Lafayette

### **CAPE-4 CubeSat Attitude Determination and Control System Development**

CAPE-4 is a CubeSat being developed by the Cajun Advanced Picosatellite Experiment (CAPE) team, comprised of University of Louisiana at Lafayette (ULL) students from various disciplines. The mission of CAPE-4 is to provide a framework to test systems and payloads from within ULL, from Mississippi State University, and the University of North Dakota. One of the systems being tested on CAPE-4 is the Attitude Determination and Control System (ADCS), which has the goal of managing the satellite's orientation in space. This capability is not only crucial for CAPE-4's mission, allowing for better communication and power generation performance, but it will also be the basis for future missions that may require precise orientation control, such as earth imaging, ion thruster systems, or a prospective Lunar mission. The ADCS of CAPE-4 is comprised of various elements currently under development, the sun-sensor system, the magnetorquer system, and the reaction wheel system, all of which will be controlled by the ADCS control board and algorithms. As the environment experienced in orbit is unique, testing equipment and simulations have been created to aid the development and validation of these systems. The sun-sensor system is currently in the calibration phase, where measured angles are rigorously tested against the actual sun position to ensure precise sun-tracking capabilities, using a sun simulator built for this purpose. As the magnetorquer system is more difficult to test on Earth, a comprehensive Matlab simulation has been created to validate the algorithm used to gain control of the satellite after ejection from the carrier rocket.

Emily Sanders

Mentor: Jeannie Gauthier

Louisiana Christian University

### **A Feminist Study of “The Yellow Wallpaper”**

Charlotte Perkins Gillman was a feminist, writer, and lecturer. Her life and work served as an inspiration for traditional feminists. However, modern feminists of today have forgotten Gillman’s original call to social reform. “The Yellow Wallpaper”, one of her most famous works, served to address and criticize how women were treated in the late nineteenth century, specifically in the home, whereas twenty-first-century feminism serves to demonize men, sexualize women, and, ultimately, eliminate the distinction between men and women entirely. Through the use of magical realism, Gillman addresses the subordination of women in marriage, the psychological cruelty of the “rest cure,” and the importance of self-expression.

Gabrielle Mellor, Vanessa Burke, Ph. D., Tin Nguyen, Ph. D., Sydney Roux

Mentor: Dr. Vanessa Burke

Louisiana State University

### **You Work Like a Girl: Understanding Evaluations of Masculinity Violations in the Workplace**

In a recent study, Moss-Racusin (2014) uncovered compelling evidence demonstrating that men actively regulate the behavior of other men. Specifically, these findings revealed that men in their study applied punitive measures to their peers when their behaviors deviated from established norms associated with "toughness," "anti-femininity," and "status." While this discovery is pivotal for advancing our comprehension of how gender norms manifest within society, the exploration of this phenomenon within organizational settings, and its implications for both employees and businesses, has remained a neglected area of research. The present study aims to address this gap by offering valuable insights into the functioning of male gender norms in the context of organizations and their subsequent impacts on the well-being and success of individuals and the organizations themselves. To investigate this, we employed Experimental Vignette Methodology (EVM), a research design involving the presentation of participants with realistic scenarios, followed by the collection of their behavioral preferences. We recruited 400 participants, each compensated with \$1.30 for their participation in a 15-minute survey. Within the survey, participants were randomly assigned to one of two conditions: "masculine violation" or "masculine confirmation." In the masculine violation vignette, participants encountered a scenario where an employee's behavior defied traditional masculine norms (e.g., possessing a calm and empathetic demeanor). In the masculine confirmation vignette, participants were presented with a scenario in which an employee adhered to and reinforced conventional masculine expectations (e.g., possessing a confident and bold demeanor). Subsequently, participants were asked to respond to several questions regarding their perceptions of the individuals presented in the vignettes (e.g., "To what extent do you think this person receives respect?") and to report their emotional experiences during the survey (e.g., "How much anger did you experience while reading the story?"). Through this research, we sought to replicate the observation of men regulating the behaviors of other men within an organizational context and to gain a deeper understanding of the motivations behind their participation in such behavior regulation among their peers.

Gregory Patton

Mentor: Dr. Elaine Maccio

Louisiana State University

### **The Negative Effects of Conversion Therapy**

This research examines the existing literature on the harmful effects conversion therapy has on LGBTQ+ youth. The central question this research addresses is “What mental health consequences, both short and long-term, are found in the existing literature on conversion therapy?” This research is important because conversion therapy has many negative mental health effects on its clients, including suicide attempts, self-hatred, and anger towards their parents. Furthermore, although the practice has been discredited by many organizations, it continues to be supported by certain groups of people, including family members and teachers in religious institutions. Meta-analysis was used to explore the findings from peer-reviewed literature on the harms associated with conversion therapy. Qualitative exploration was done in order to understand the reasons for conversion therapy, as well as detailed experiences and traumas former clients have faced. This research has shown that in addition to various harmful effects, conversion therapy stems from noninclusive religious values, has many legal issues, and has different levels of severity among different demographics. This research brings attention to the fact that conversion therapy is an ineffective and dangerous practice, and more must be done to end this practice and protect LGBTQ+ youth.

Griffin Usie, Kenneth Gordon Cameron Romero, Zhi Liu, Ling Fei

Mentor: Ling Fei

University of Louisiana at Lafayette

**Precision Microstructure Control of Polymer Films Through Electrospray Deposition.**

Thin polymer films find diverse applications, from functional coatings like superhydrophobic surfaces to electrochemical technologies such as photovoltaics. With more applications and an increase in demand for said applications, there is a need to develop a cheap, high-precision, and high throughput manufacturing process to produce thin polymer films and coatings. Some popular methods of thin polymer film and coating fabrication include vapor deposition, inkjet printing, spin coating, and electrospinning/electrospray. Many of these methods suffer from high costs or low accuracy, but electrospinning/electrospray is a simple and cheap method with high accuracy. However, electrospinning suffers from a need for complex control over various process parameters due to the need to maintain a strong Taylor Cone and will only yield nanofibers.

Electrospray has looser tolerances with similar parameters due to the lack of a need for a strong Taylor Cone and can produce a wider range of nanostructures with differing Taylor Cone strengths. One high impact parameter of electrospinning/electrospray is the solution viscosity from polymer entanglement that in a strong Taylor Cone, allows the polymer chains to entwine like rope. When the polymer chains are too short or diluted, electrospinning becomes electrospray where the resulting fibers instead become droplets that can become various nanostructures from microdisks at low concentrations to nanospheres to fibers at higher concentrations. To further disrupt the Taylor Cone, we introduce air assistance through the use of a coaxial needle with air flow surrounding the infusion needle. At lower concentrations we see a larger difference between the samples with air assistance and without, suggesting the Taylor Cone is easier to disrupt. At higher concentrations, the samples with air assistance and without are nearly identical, suggesting that the viscosity that strengthens the Taylor Cone at higher concentrations directly competes with the disruption caused by the air flow.

Ke-Sean Peter

Mentor: Haeyeon Yan

Grambling State University

### **Synthesis of colloidal nanoparticles by laser ablation in liquid**

Nanoparticles (NPs) typically synthesized by chemical method which often requires expertise and heavy use of toxic and hazardous chemicals. This sometimes becomes expensive due to the cost related to chemical hazards and expertise. Laser ablation in liquid (LAL) is a relatively new method to synthesize NPs. We have successfully synthesized carbon particulates when green, 526.5nm, laser pulses of 22 mJ, 10 ns irradiate graphite targets immersed in acetone. Preparation of carbon particulates via laser ablation in liquid is largely affected by both the precursor materials and the experimental conditions such as laser intensity per area and the depth of liquid layer over the target surface. The light absorption by the colloidal samples were measured by UV-Vis while the NP concentrations were measured from the absorption data. Our results indicate that the particulate concentration is peaked at a distance smaller than the optical focal length of the lens. Furthermore, it is found that the depth of liquid layer affects the concentration of particulates as it peaks at a depth of 3 mm for acetone. This project is funded by NASA LaSPACE, NASA Marshall Space Flight Center, NSF PREM program and NSF LAMDA seed grants.



Kirstin Wilson

Mentor: Dr. Roslin Growe

University of Louisiana at Lafayette

### **ACEs in Elementary African American Students**

Adverse childhood experiences (ACEs) are defined as the traumatic events that occur in a child's life from birth to 17 years of age. Children who have multiple adverse experiences are at a high risk of developing mental health conditions such as anxiety, depression, and mental abuse (Crouch et al., 2019). Attendance issues, behavior problems, and academic failure are common barriers faced by students with identified ACE (Blodgett & Lanigan, 2018). Furthermore, ACEs have a significant impact on African American children. The adverse effects are highest in African-American communities with reports of ACEs in children being 33% higher than rates for white children (Ajani, 2022). However, the research states that with the support of caring adults and intervention plans like mentorship programs, African-American children can overcome the negative effects of ACEs.

Kyle Primes

Mentor: Mohammad Faisal Ahmed

Southeastern Louisiana University

**In-plane energy absorption characteristics of additive manufactured novel auxetic structures**

This project aims to simulate and analyze the in-plane characteristics of additively manufactured novel auxetic metamaterials and use its unique properties to develop a proof-of-concept design of a lift-assistance seat cushion for use by elderly and disabled individuals. The first semester of this project consisted of a research phase, a design phase, a simulation phase, and a testing phase. The second semester will focus on improving upon the designs of the test pieces and creating a proof of concept design of the seat cushion to be tested against industry standards for commercially available lift assisted seating.

Lisa DiMaggio

Mentor: Dr. Mary Miller

Baton Rouge Community College

**Louisiana Freshwater Sponge Project: Documenting Louisiana's freshwater sponge diversity through undergraduate research experiences**

Although the state of Louisiana is home to North America's largest river, the freshwater sponge diversity of the state has been largely ignored. Up until now, the first and only systematic review of Louisiana's freshwater sponge diversity was completed over 50 years ago. Since then Louisiana's freshwater systems have undergone significant deterioration in water quality as well as both habitat loss through saltwater intrusion and habitat creation through river diversions and flood control measures. In 2019, the Louisiana Freshwater Sponge Project began as an effort to train community college students in multiple scientific approaches while simultaneously documenting and monitoring Louisiana's freshwater sponge diversity. When sponges are encountered while surveying riverine, lake, and bayou habitats from shore, tissue and gemmules (if present) are collected. Water samples are collected for water quality analysis. Sediment is also collected for analysis as a secondary source of sponge tracking. In the lab student's process water and sediment samples, and identify the sponges through light and scanning electron microscopy, and COX-1 sequencing. To date, 250 sites have been surveyed throughout the state. Fifteen species, all from the previous study, have been identified. Species richness at sites ranges from 0-6 species with a mean of 1.2 species per site with sponges documented across all regions of the state. *Eunapius fragilis* and *Trochospongilla horrida* are the most abundant species in Louisiana and are found in sites with a wide range of water qualities. So far, 40 students have been employed through the project to conduct sponge-focused research projects. To date these students have contributed 9 sequences to GenBank and 18 students have presented their findings at conferences which does not include the additional 4 students presenting at this conference. Overall this project has documented shifts in Louisiana's freshwater sponge diversity while training students in sponge science.

Moiz Fazal-ur-Rehman, Awais Tariq

Mentor: Ritwij Kulkarni

University of Louisiana at Lafayette

### **Understanding the Effects of Glycosuria on *Klebsiella pneumoniae* Physiology.**

Diabetes mellitus (DM) is the principal risk factor for asymptomatic bacteriuria and urinary tract infections (UTI). Furthermore, DM also increases the risk of severe and potentially life-threatening sequelae such as pyelonephritis and blood stream infections secondary to UTI. The primary objective of our research is to characterize the effects of the diabetic urinary microenvironment on the physiology of uropathogenic bacteria and to define their role in increasing susceptibility to UTI. As a model uropathogen, we used Gram negative *Klebsiella pneumoniae*, the second most prevalent etiology of UTI in diabetic as well as non-diabetic humans. This is clinically relevant because DM increases by 2-4-fold the risk of UTI by extended spectrum b-lactamase positive and carbapenem-resistant (CR) strains of *K. pneumoniae*.

In our work, we examined growth and virulence of different clinical isolates of *K. pneumoniae* in nutrient-rich lysogeny broth (LB), plain human urine (HU; pooled from a minimum of three non-diabetic donors), or HU supplemented with 600mg/dl glucose (HUG; mimics severe glycosuria). We did not observe any differences in the doubling times of *K. pneumoniae* in LB, HU, or HUG although at 24 h time point, although the median CFUs in HU and HUG were significantly lower than that in nutrient-rich LB. In comparison to LB, exposure to HU augmented biofilm formation in all *K. pneumoniae* strains. In contrast, HUG exposure augmented biofilm formation in *K. pneumoniae* strain dependent manner. Overall, our results indicate that during urinary tract colonization, *K. pneumoniae* rapidly activates a metabolic switch that enables it to thrive in nutrient-poor urine. In the future, we plan to use quantitative real-time PCR (qRT-PCR) to examine the effects of glycosuria on *K. pneumoniae* virulence gene expression.

Scott Whitman, Isaac Kulp, Charlotte Ochanine, Logan Richard, and Leonel Robert

Mentor: Leonel Robert Gonzalez

University of Louisiana at Lafayette

### **Decreasing Paths of Polygons**

We call a continuous path of polygons decreasing if the convex hulls of the polygons form a decreasing family of sets. For an arbitrary polygon of more than three vertices, we characterize the polygons contained in it that can be reached by a decreasing path (attainability problem), and we show that this can be done by a finite application of "pull-in" moves (bang-bang problem). In the case of triangles, this problem was investigated by Goodman, Johansen, Ramsey, and Frydman among others, in connection with the embeddability problem for non-homogeneous Markov processes.

Sydnee Johnson, Josh Bendickson, Geoff Stewart, Patricia Lanier & Birton Cowden

Mentor: Josh Bendickson

University of Louisiana at Lafayette

**Challenges and recommendations to support inclusive entrepreneurship ecosystems**

The purpose of our article is to discuss ways in which leaders, managers, educators, and entrepreneurs can work together to create more inclusive entrepreneurial ecosystems (IEEs) that encourage participation from all persons in its community. To study this phenomenon, we use an in-depth interview method for data collection. Our findings present challenges and opportunities in striving to have more inclusive entrepreneurship ecosystems (EEs) such as better defining who is an entrepreneur. Implications of the findings include initiatives such as hiring and attracting employees and volunteers within the EE that better resemble the demographics of the EE, higher levels of encouragement and support from EE leaders, and new programming that focuses on the unique needs of diverse cohorts. Our approach is to contribute to research, practitioners, entrepreneurs, and educators through revealing challenges and implications by presenting themes of our interviews.