

Research & Creative Activities

Fall 2021



Table of Contents

Research Spotlights and News
(Pages 2-3)

Center for Predictive Analytics: Providing Innovative Data Solutions on Campus and Beyond
(Pages 4-5)

Project AIMSS: Advancing Implementation of MTSS in Secondary Settings
(Page 6)

Recovering the Work of American Women Writers
(Page 7)

Redesigning Nurse-Managed Clinic for Primary Care of Chronic Illnesses
(Pages 8)

Decreasing Side Effects and Increasing Efficiency of Orthodontic Treatments
(Pages 9)

Analyzing the Effect of Natural Bitter Compounds on Oral Cancer
(Page 10)

Promoting Diversity, Equity and Inclusion
(Page 11)

Garden Flow Innovatively Provides Live Theater Amid Pandemic
(Page 12)

Transforming Undergraduate Field Schools to Promote Safety and Inclusivity
(Page 13)

SIUE Campus Cluster Enhances Cyberinfrastructure
(Page 14)

Reducing Sexual Assault, Domestic and Dating Violence on Campus
(Page 15)

Advancing Toward an Inclusive Model of Excellence in STEM
(Pages 16-17)

Selected Grants for Graduate Students
(Pages 18-21)

Outstanding Teaching Assistant and Thesis Awards
(Page 22)

Other Graduate Student Awards
(Page 23)

University Grant Award Winners
(Pages 24-25)

Visualizing Research Impacts
(Pages 26-27)

Externally Sponsored Projects
(Page 28)

Selected Published Books
(Page 29)

Giving Opportunities

Scholarship and Research Endowment

The SIUE Graduate School provides educational opportunities to nearly 2,500 students annually. Gifts to support student scholarship and research allow students of exceptional acumen with limited means the opportunity to make a difference in life.

Rosemarie Archangel, Ellen Sappington, and Stephen L. and Julia Y. Hansen Innovation and Excellence in Graduate Education Endowment

Faculty scholarship and teaching determine the quality of the education students receive. Gifts to support this endowment will build on SIUE's culture of scholarship and research by supporting innovative activities and progressive changes in existing and new graduate programs, as well as graduate faculty development related to the strengthening of graduate studies.

Give today: siue.edu/graduate/giving

On the cover: Alyssa Watson, senior theater and dance-dance specialization major, performs at an outdoor, promenade-style dance performance that brought live theater to the community during the pandemic. Read more on page 12.

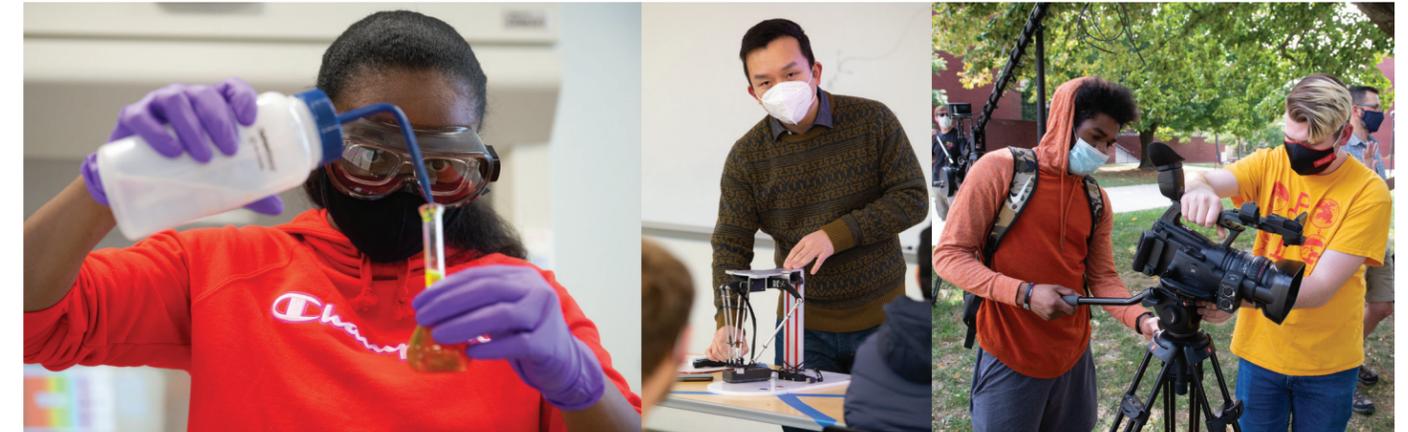


Dean's Message

Research and Creative Activities in the Time of COVID

"I wish it need not have happened in my time," said Frodo.

"So do I," said Gandalf, "and so do all who live to see such times. But that is not for them to decide. All we have to decide is what to do with the time that is given us." [1]



March 21, 2020, when the stay-at-home order went into effect, marked the beginning of the great COVID-19 pivot to remote instruction and work at SIUE. However, not all University activities or educational experiences can be conducted remotely or in isolation from one another. Putting these on hold would have an irreversible impact on a generation of students and faculty.

With "safety" being the watchword, faculty and staff created ways to continue their work in the University's mission of communicating, integrating and expanding knowledge. Restrictions and controls were put into place to minimize individual contacts, some of which required difficult decisions weighing various trade-offs. As COVID restrictions relaxed to allow more on-campus activity, faculty and staff found ways to move research and creative activities outdoors, to continue their work and provide students a richer educational experience. A great example is the live theater and dance experience of Garden Flow, which is featured on our cover and described inside.

As you read through this issue, not all the articles focus on how the obstacles of COVID restrictions were overcome. However, know that the faculty and staff in these articles all worked diligently to conduct their projects. They did so regardless of difficulties in the time of COVID, because they are dedicated to continuing the research that will drive future discoveries and innovations; dedicated to producing the creative activities that will evoke emotion and inspire; and dedicated to preparing the next generation who will shape our changing world.

[1] J.R.R. Tolkien, *The Fellowship of The Ring*, Ch. 2.

Jerry B. Weinberg, PhD
Associate Provost for Research and Dean of the Graduate School

Research Spotlights and News

Business Faculty Serve as Thought Leaders

School of Business faculty are widely known as thought leaders in their fields and are often called upon to share their expertise.



Alicia Plemmons, PhD, assistant professor of economics, advises legislators in the U.S. House of Representatives and routinely testifies at the local, national and federal level on bipartisan bills related to occupational licensing and certificate of need laws. Plemmons shared her expertise on credit card usage, value and currency conversion rates in a WalletHub article on Best Visa Credit Cards.



Jie Ying, PhD, assistant professor of finance, provided expert commentary on “How to Start Saving and Investing” on the personal finance website moneygeek.com.



Yohan Choi, PhD, assistant professor of entrepreneurship and strategy, shared insight on startup funding for students with Advisorsmith, an online publication focused on small businesses and entrepreneurs.



Riza Demirer, PhD, professor of economics and finance, and fellow researchers made international headlines when their findings on green investments bonds were featured on Yahoo.com in the article “Looking to Bonds for Volatility Protection? Going Green May Be Golden.”

IMPACT Academy among SIUE’s Growing Anti-Racist Initiatives



The Immersive Meaningful Practices for Accountable Campus Transformation (IMPACT) Academy utilizes faculty as catalysts and leaders in transforming SIUE into an environment where racism and other forms of biases are not tolerated, according to Kathryn Bentley, MFA, IMPACT Academy coordinator, associate professor in the College of Arts and Sciences’ Department of Theater and Dance, and Black Studies program director. IMPACT Academy trainers assist colleagues with cultivating a more equitable and inclusive learning environment for students and working environment for faculty and staff. Virtual workshops were facilitated by the inaugural cohort of IMPACT Academy Trainers, including:

- “Inclusion, Equity and Social Justice at SIUE”
- “Introduction to Understanding Bias”
- “Unpacking Whiteness, Privilege and Acceptable Responses”
- “Using Communication to Build an Inclusive Classroom”
- “Strategies for Making STEM Courses and Majors More Inclusive”
- “Allyship: A Title Bestowed.”

A second cohort of IMPACT Academy Trainers were selected at the start of the fall 2021 semester. Applicants are chosen based on several criteria, including a commitment to building an inclusive campus community and their willingness to facilitate trainings with other faculty.

Butler Addresses Structural Racism as HOPA Keynote Speaker



By addressing the history of racism in America and the current-day practices that perpetuate it, pharmacists throughout the nation hope to create a healthcare system that is safe and equitable for all. The Hematology/Oncology Pharmacy Association (HOPA) invited Lakesha Butler to provide the keynote address at its 17th annual conference to discuss this important topic. Butler, PharmD, director of diversity, equity and inclusion and clinical professor in the School of Pharmacy’s Department of Pharmacy Practice, presented the John G. Kuhn Keynote Lecture entitled “Dismantling Structural Racism in Pharmacy: Our Individual and Organizational Responsibility.” More than 1,400 pharmacy professionals attended the conference virtually.

DiSalvo Awarded Prestigious NSF CAREER Grant



Susanne DiSalvo, PhD, assistant professor of biological sciences, received the highly competitive National Science Foundation (NSF) CAREER Award. Totaling \$463,557, the award supports her research entitled “Population and evolutionary dynamics of bacteriophage-symbiont-host interactions: Development of a multi-layered model microbiome,” the findings of which will elucidate virus-host evolution and may inform alternative strategies for treating bacterial infections. Funding from the NSF CAREER Award will also allow DiSalvo to train several students in hands-on inquiry-based research.

Missouri General Assembly Esteems Lewis for Educational Advocacy Work



The Missouri House of Representatives honored Timothy E. Lewis, PhD, assistant professor of political science, with a resolution for 13 years of educational advocacy work, efforts to promote scholarly enlightenment and a never-ending pursuit to challenge the status quo. In a surprise presentation during a departmental virtual meeting, Rep. LaKeySha Bosley (D-St. Louis) read the resolution she authored and signed. As an educator, Lewis has specialized in the politics of marginalized and disadvantaged groups and racial minorities, including LGBTQIA, women and gender minorities. “Education in America is taught and learned from the position of the privileged,” said Lewis. “If one teaches that same educational material from the perspective of an oppressed identity, not only will the content look different, but it is likely that one would see new information that cannot be seen because of privilege.”

Giddens Teams with Baylor Mentor to Combat Human Trafficking



Laurie Giddens, PhD, former assistant professor of computer management and information systems, has combined with Baylor University’s Stacie Petter, PhD, to earn a \$249,998 National Science Foundation grant to fight human trafficking. The pair will form an interdisciplinary team from law enforcement, the legal system, information systems, engineering, social sciences, economics and the non-profit sector to focus on understanding three important questions.

- How do criminals use information technology in the course of criminal activity?
- How is law enforcement using technology to find criminals?
- How can interventions and resources be created to help law enforcement be proactive in identifying criminal activity and addressing these problems?”

The researchers are partnering with DeliverFund, a nonprofit intelligence organization that leverages cutting-edge technology in the fight against human trafficking in the US. With the NSF project, Giddens and Petter have 18 months of initial collaboration and analysis. After providing their results, they will apply for a larger grant to fund the implementation of their recommendations.



Center for Predictive Analytics: Providing Innovative Data Solutions on Campus and Beyond

The SIUE Center for Predictive Analytics (C-PAN)—one of the first of its kind in the nation—is a University-wide research center enabling students and faculty to utilize state-of-the-art mathematical, statistical, computational, and machine learning tools and techniques to analyze data, produce predictions, and assess the probabilities of future events. Leading the initiative is Director Carolyn Butts-Wilmsmeyer, PhD, associate professor in the Department of Biological Sciences.

“Every discipline, from science to education to business, is becoming increasingly data-driven,” said Butts-Wilmsmeyer. “C-PAN is seeking to address the question of how we turn this sea of data into impactful recommendations and results. My role is to foster synergistic collaborations on campus, connect faculty with industry and governmental partners to pursue mutually beneficial, multidisciplinary projects, and provide real-world educational opportunities for students.”

C-PAN is dedicated to the development of innovative data analysis solutions that enable our industry, government and academic partners to utilize their data to its fullest potential while providing real-world training opportunities to the next generation of data scientists.

The following initiatives highlight just a few projects C-PAN has already implemented to provide hands-on data instruction while assisting the region with novel data solutions.

Data Science Internship Program

C-PAN’s Data Science Internship (DSI) Program provides students with the opportunity to gain applied experience in data analysis while aiding the local region with affordable and novel data solutions.

SIUE student interns assist local organizations in conducting data analysis, compiling data, explaining analyzed data so others can understand, and troubleshooting errors in numerous coding software.

Geography major Courtney Flach is C-PAN’s inaugural DSI graduate student. Flach applies her background in math, computer science and geography to solve complex data problems while mentoring undergraduate students.

“I have had the opportunity to work with several different types of data, been exposed to different methods, and

gained experience interpreting data and reporting it in a way that others can understand,” shared Flach. “These are valuable skills in preparing for a future career that I would have not otherwise gained.”

Flach has contributed to numerous C-PAN projects, including leading “An Analysis of Housing in St. Louis by Race, Income and Parcel Vacancy Rates.” She is currently managing C-PAN’s Data Science Help Desk while working on risk assessment, weather and geospatial models.

“The housing project involved geospatial analysis, which is directly in line with the type of work I want to pursue,” Flach said. “Having the opportunity to build on my skills in this field is extremely beneficial.”

siue.edu/cpan

Improving Agricultural Production System Performance and Reducing Postharvest Loss

C-PAN was awarded \$499,113 from the National Institute of Food and Agriculture of the U.S. Department of Agriculture for a collaborative project involving the University of Illinois at Urbana-Champaign and industry partners. The researchers are working to create a new modeling technique that will improve agricultural production systems and reduce postharvest loss by considering metabolic, environmental and genomic factors.

Butts-Wilmsmeyer is principal investigator of the four-year project, entitled “MEG Models: A Holistic, Systems-Based Modeling Technique for Improved Agricultural Production System Performance and Reduced Postharvest Loss.”

The team is studying a pathogen known as *Fusarium graminearum*, which causes Gibberella ear rot in corn and head blight in wheat. Ear rots cause nearly three-quarters of a billion dollars in postharvest losses each year in the U.S. *Fusarium* also can cause seeds to harbor hidden mycotoxins, chemicals that are tied to numerous negative health impacts in animals and humans.

“We are developing a highly-sophisticated model that looks at known metabolic factors that help deter the disease and prevent it from spreading, the environmental conditions that we know make this disease a bigger problem, and the genetic variation that is present in our corn varieties,” Butts-Wilmsmeyer explained. “Our approach considers pathology, plant breeding and statistical modeling so that we can build something even more predictive than the genomic selection models that are currently used across all science disciplines.”

“As a scientist in the public sector, you hope you can give back to society. In a time of economic uncertainty and in a nation where agriculture is a major part of the economy, it is an honor to have the chance to remove one of the challenges that is hindering our farmers.”

Carolyn Butts-Wilmsmeyer, PhD, C-PAN Director, Associate Professor, Department of Biological Sciences

Despite challenges presented by the COVID-19 pandemic, the research team is charging ahead. They began planting the first part of the experiment in May 2020 and are currently evaluating the first field studies. Upon study completion, the team plans on making the project’s data, models and code freely available to the public.



Preparing the Next Generation of Data Scientists

C-PAN is leading a statewide, multi-institutional fellowship program funded by the U. S. Department of Agriculture’s National Institute of Food and Agriculture through its Research and Extension Experiences for Undergraduates program.

Under the direction of Butts-Wilmsmeyer, the project, “Preparing Undergraduates for New Frontiers in Data Analysis: Experiential Learning in Applied Statistics (ELIAS) Fellows,” is concurrently training undergraduate students in real-world data analysis and hands-on research in a greenhouse, laboratory or field setting.

“The overall goal of the ELIAS fellowship program is to produce students who can meet the need for an increasingly data-driven workforce, particularly in the life sciences,” she explained. “Upon graduation, students in statistics and data science are placed in multidisciplinary teams consisting of chemists, biologists and business personnel. However, current training in data science and statistics often does not occur in laboratory, greenhouse, field or other applied research settings, making it difficult for graduates to understand the limitations in these research environments and to communicate findings across disciplinary bounds.”

Through the ELIAS program, students are placed in a two-year, dually immersive research experience in applied statistics/data science and a laboratory, greenhouse or field research environment, based on their interests.

Fellows receive full funding for their research, an annual stipend and the opportunity to present their findings at a scientific conference of their choosing.

Project AIMSS: Advancing Implementation of Multi-Tiered System of Support in Secondary Settings



Student data is then monitored by problem-solving teams to determine if the supports are meeting their needs overall,” said Conoyer. “This is a multi-year endeavor requiring system-level changes to be made district-wide and within each individual building.”

Developing an MTSS framework in secondary settings presents unique challenges for consideration, including identifying data sources for detecting students needing extra support, scheduling students for supports, selecting appropriate needs-based intervention programs, and involving students and parents in the process. Given such obstacles, Project AIMSS seeks to support the District at the secondary level before proceeding to elementary settings.

“Our research team has led a series of meetings with administrators, counselors, school psychologists, social workers, teachers and other related staff for each building to discuss implementation goals,” Conoyer said. “The team also conducted observations of current data-based decision-making practices and reviewed archival and current data available to school staff.”

Based on these measures, aligning Tier 1 behavioral and social emotional supports and data-based practices was identified as the starting point for the 2020-2021 school year. The first goal concentrated on making data more accessible for problem-solving teams by enhancing the behavioral referral system by exploring electronic data management, reducing the number of discipline codes, and categorizing major and minor classroom behavioral incidents. Next, the team worked with staff to create building-level leadership teams including representatives from all areas of the school staff to act as a liaison for the entire building to make decisions around further implementation practices.

“ These changes will allow the staff to have a common language to better support behaviors in the classroom and identify areas for professional development. ”

*Sarah Conoyer, PhD, Assistant Professor,
Department of Psychology*

This past year, leadership teams focused on providing professional development to district staff around the goals of MTSS to build buy-in and create a solid foundation for continued implementation. The SIUE team continues to assist middle and high school buildings.

“Teams have challenged everyone in the District to reflect on their beliefs and values, especially when thinking about how to support each student through an MTSS framework,” Conoyer said.

For students struggling academically, behaviorally or both, many schools use a framework of interventions and supports to address their challenges. Multi-Tiered System of Support (MTSS) is a proactive assessment and intervention model that focuses on providing supports to all students regardless of their needs.

Over the course of the 2020-2021 school year, the SIUE Advancing Implementation of MTSS in Secondary Settings (AIMSS) research team consulted with personnel at Edwardsville Community District 7 Schools to evaluate and support MTSS processes for middle and high school settings.

The team is composed of Department of Psychology faculty Sarah Conoyer, PhD, assistant professor and principal investigator, and Elizabeth McKenney, PhD, associate professor, along with graduate student Landen Billington and University of South Florida doctoral student Andrew Jenkins. Through the Illinois School Psychology Internship Consortium, Jenkins is based in the Department of Psychology and works in District 7 Schools.

Students are identified for supports based on data such as office referrals, grades, attendance, academic skills and social emotional ratings. Supports can be provided at three levels.

- Tier 1 Universal: All students in the building
- Tier 2 Strategic: Small groups of students needing supplemental support
- Tier 3 Intensive: Students needing individualized assistance



Recovering the Work of American Women Writers

SIUE is leading a national effort to recover forgotten and little-known literature by women authors in digital environments with the support of a \$50,000 National Endowment for the Humanities (NEH) grant. Jessica DeSpain, PhD, is the project director for a team of 20 collaborators from across the country serving the Society for the Study of American Women Writers (SSAWW) Recovery Hub.

“This collaboration involves a series of planning activities that will create a network of scholars to surface works by women writers through digital methods, and also provide support, mentorship and peer-review services for women in the digital humanities,” said DeSpain, professor in the Department of English Language and Literature, and co-director of the SIUE Interdisciplinary Research and Informatics Scholarship (IRIS) Center.

Housed in the IRIS Center, the Recovery Hub operates as a mechanism for pooled funding bids and offers hands-on consultation to navigate project management, quality control, sustainability and peer review to increase the quantity and quality of recovery projects on American women authors. The initiative provides network mapping, spatial analysis, multimedia storytelling, innovative contextualization, and analysis of massive datasets to projects dedicated to the cause.

Through this work, the Recovery Hub explores the intersecting relationships between feminist practice, content and technical specifications with an awareness of the ways the design and implementation of technology can exclude and objectify people.

Though there are notable exceptions, the digital humanities are not often geared in content or design toward addressing, attracting or educating women, gender minorities and people of color. Committed to cultivating a community of diverse scholars as well as inclusive project content, the Hub’s steering committee aims for at least 50% of affiliated projects to recover Black, Indigenous, Latinx, Asian and LGBTQIA+ stories, texts, experiences and voices. The project’s advisory board and steering committee include members involved with longstanding recovery projects that center the voices of marginalized groups, including the Colored Conventions Project, The Winnifred Eaton Archive, and The Black Book Interactive Project.

“Feminist scholars have been doing this recovery work in scholarly publications and classrooms for decades, with authors such as Zora Neale Hurston, Harriet Jacobs and María de Burton reappearing in print and digital publications,” added DeSpain.

Completed recovery projects, including writings by Susan Dickinson, Winnifred Eaton, Mary Moody Emerson and more, are showcased on the Recovery Hub’s website. The site also hosts a cross-institutional pedagogical forum for classrooms to discuss linked projects and a back-end collaboration area for peer review.

“This project is supported by SSAWW, which was founded in 2000 to promote the study of American women writers through research, teaching and publication,” DeSpain said. “Recovery projects diversify the field of literary study and fill gaps in the historical and literary record. Building on SSAWW’s history of recovering women’s texts, the Recovery Hub for American Women Writers operates as a federated site of digital projects and a network of scholars grounded in feminist methods.”

Visit the website to view completed projects: recoveryhub.siue.edu

Redesigning Nurse-Managed Clinic for Primary Care of Chronic Illnesses

Historically, nurses receive their undergraduate clinical training in acute care settings. But, the Bureau of Labor Statistics identified that 61% of registered nurses (RNs) work in hospitals and 18% in ambulatory care. With the shift to primary care and preventive health, there is a need for RNs trained in primary care.

The School of Nursing is addressing this shortfall through a redesigned, expanded healthcare approach at its WE CARE Clinic. A four-year, \$2.6 million grant from the Health Resources and Services Administration (HRSA) supports the training of undergraduate baccalaureate nursing students and RNs in the local community in caring for clients in the WE CARE Clinic.

The community-based, nurse-managed clinic provides primary care on the East St. Louis Higher Education Campus. Through the grant, students focus on primary chronic conditions such as diabetes, heart disease, asthma, tobacco use, mental health and substance abuse.

“The HRSA funding has greatly enhanced the WE CARE Clinic’s ability to offer citizens in East St. Louis and surrounding communities much-needed, patient-centered healthcare services,” said Jerrica Ampadu, PhD, RN. “It enables us to focus on helping clients achieve improved self-management and receive appropriate follow-up care.”

Students become members of an interprofessional team of advanced practice nurses, a collaborating physician, a licensed clinical social worker and a doctorally-prepared pharmacist that provides full services to the WE CARE Clinic’s diverse clients. The healthcare team promotes chronic disease self-management by providing health coaching, follow-up services, additional resources, education, and home management strategies to clients within the community.

“Each member of the WE CARE Clinic team believes that all patients deserve holistic, culturally competent care,” Ampadu said. “One of the goals of this grant is to help nursing students and RNs in the community recognize the value in choosing a community-based practice in place of the traditional option in acute care facilities.”



Decreasing Side Effects and Increasing Efficiency of Orthodontic Treatments

Orthodontic treatment to straighten teeth and achieve an aesthetically pleasing smile has long involved braces that include metal wires and brackets. However, alternative orthodontic treatment options, such as thermoplastic clear aligners, have become increasingly popular over the past few years.

While braces are usually stuck to the outermost layer (enamel) of a tooth, clear aligners are removable appliances that cover the entire tooth, similar to a bleaching tray. The thickness of the plastic material over the biting surfaces of the teeth tends to “open the bite” by preventing physiologic contact between the upper and lower teeth during biting and clenching

This bite opening is used during treatment with braces as well by selectively sticking a bite block made from tooth filling material on the biting surfaces of the molars.

Although raising the bite using either of these approaches is important for orthodontic treatment, it also affects the jaw muscles, or muscles of mastication, by increasing both the intensity and duration of stretch of the muscle fibers

With a \$30,000 Biomedical Research Award from the American Association of Orthodontists Foundation, SIU School of Dental Medicine researchers are studying “The Effect of Raising the Bite on the Muscles of Mastication.”

“Changes in the function and structure of these muscles can be analyzed using electromyography (EMG) and histology, respectively,” said Principal Investigator (PI) Achint Utreja, BDS, MS, PhD. “As these alterations have not been studied previously, the aim of this interdisciplinary biomedical research study is to elucidate and attempt to co-relate the EMG and histologic changes in the muscles of mastication following the placement of bite blocks in an animal model.”

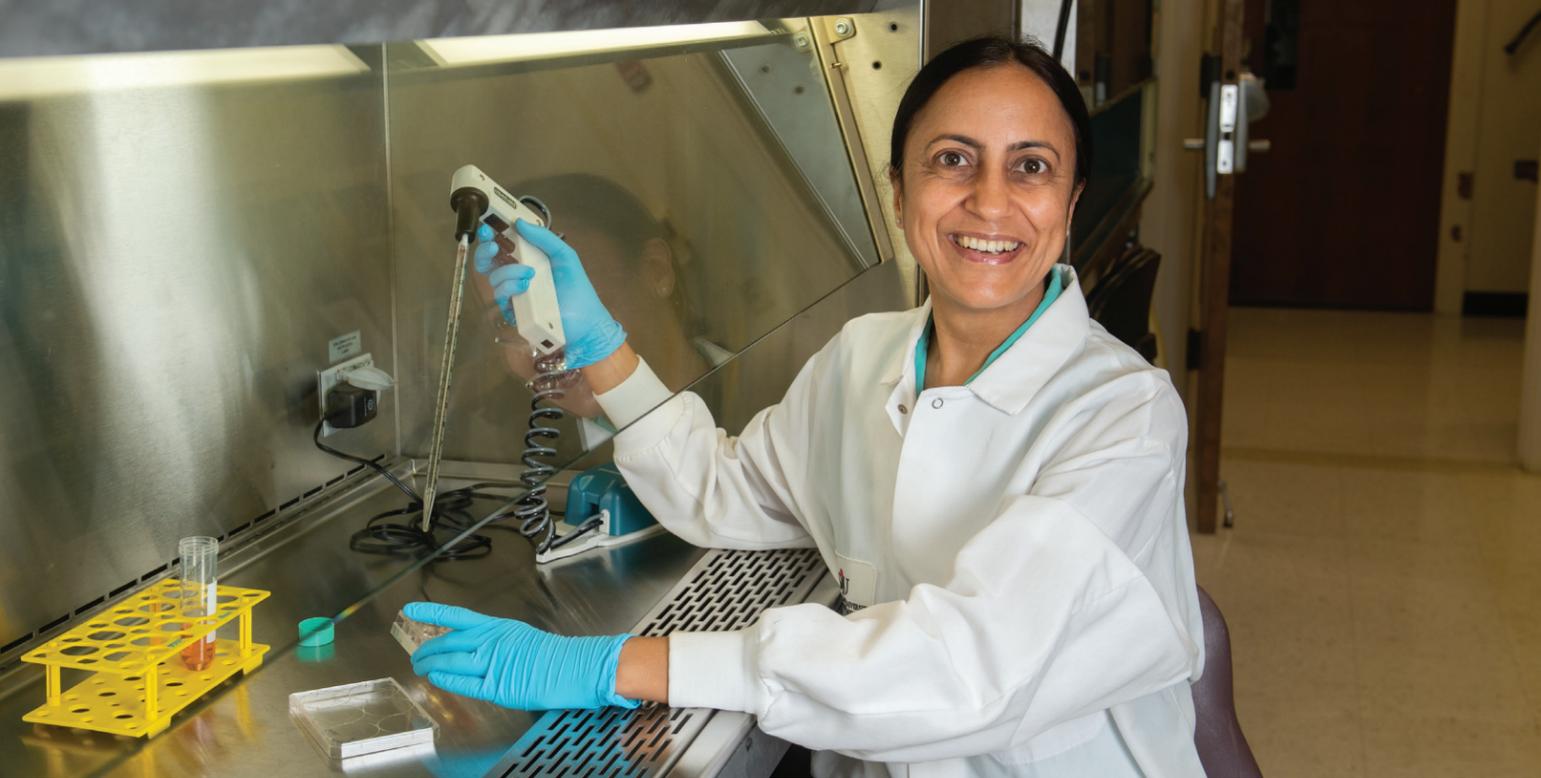
Changes in tooth position due to orthodontic treatment affect the bite and are, thus, closely related to both the muscles of mastication as well as the temporomandibular joint (TMJ). Increased understanding of these inter-related biological processes will aid in the development of customized treatment plans and individualized orthodontic appliances.

Utreja and Co-PI Dan Welch, PhD, are associate professors in the Department of Growth, Development and Structure. Their team includes members with backgrounds in dentistry, bone biology, anatomy and electrophysiology.

“The amalgamation of these cross-disciplines will lend itself rather well to answer a research question that is equally relevant to both clinicians and researchers,” Utreja said.

“The underlying long-term goal of my research is to advance the specialty of orthodontics by increasing the efficiency and decreasing the side effects of orthodontic treatment with both braces and clear aligners.”

Achint Utreja, BDS, MS, PhD, Associate Professor, SIU School of Dental Medicine



Analyzing the Effect of Natural Bitter Compounds on Oral Cancer

Squamous cell carcinoma (SCC) accounts for more than 90% of all oral cancers. Cisplatin (Cis)-based chemotherapy with concurrent radiation therapy is the standard treatment regimen for locally advanced head and neck SCC.

Treatment with Cis is associated with significant adverse effects, including mucositis, nephrotoxicity, anemia and neurotoxicity. Recent efforts have focused on identifying natural bitter compounds that, in combination with other antineoplastic agents, can enhance efficacy with fewer side effects.

“We tested two natural bitter compounds, Cucurbitacin E (CuE) and Noscaphine (Nos), for their anti-proliferative effects on oral cancer cells,” said Principal Investigator Jasbir Upadhyaya, PhD, assistant professor in the Department of Applied Dental Medicine, SIU School of Dental Medicine. “CuE and Nos are two of a few natural bitter compounds that exhibit antiproliferative properties in multiple cancers.”

“The outcome of this research will build the foundation for larger studies that will enable the identification of alternative therapeutic approaches, specifically those that enhance the efficacy of current chemotherapeutic regimes using nontoxic nutraceuticals that have health benefits beyond their normal nutritional properties.”

Jasbir Upadhyaya, PhD, Assistant Professor, SIU School of Dental Medicine

CuE and Nos are known to activate two bitter taste receptors (T2Rs), T2R10 and T2R14, respectively. T2Rs, apart from being present in the oral cavity, are expressed in many non-gustatory tissues, where they perform diverse functions.

The expression and physiological role of T2Rs has been explored in numerous cancers, including breast, ovarian and pancreatic. However, the expression and role of T2Rs, and the anticancer effects of CuE and Nos in oral cancer, remain obscure.

“In this study, we are analyzing the antiproliferative effects of CuE and Nos, in the absence and presence of Cis, and determining the efficacy of their synergistic effects with Cis in vitro in oral cancer cells,” Upadhyaya said. “Additionally, we will analyze the expression and role of specific T2Rs in oral cancer cells.”

Promoting Diversity, Equity and Inclusion

Various initiatives across campus reflect SIUE’s commitment to recognizing and valuing the contributions of the breadth of humankind. Two initiatives dedicated to promoting diversity, equity and inclusion are the Truth, Racial Healing, and Transformation (TRHT) Campus Center and the Dismantling Racism through Education, Advocacy and Mobilization (DREAM) Collective.



SIUE TRHT Campus Center Goals

Campus and community stakeholders will have the knowledge, skills and courage to tell the truth regarding the ways in which racism has impacted our campus, region and relationships.

Campus and community stakeholders will develop authentic relationships based on trust, through which they can validate each other’s lived experience, see themselves in each other and build a set of shared racial equity goals.

Campus and community stakeholders will establish a shared practice for actualizing racial equity that removes inequality and creates opportunity at the structural and system levels.

SIUE’s TRHT Campus Center hosts workshops focused on racial trauma and minority stress, offers opportunities for community learning, and provides opportunities for members of the SIUE community to engage in dialogue and actions seeking to address the false belief in a hierarchy of human value.

“As equal partners with all stakeholders, the center will establish authentic, trusting relationships for the upbuilding of sustainable communities where people of all backgrounds can thrive.”

Jessica Harris, PhD, Vice Chancellor for Equity, Diversity and Inclusion

Truth, Racial Healing and Transformation

In January 2020, the Association of American Colleges and Universities (AAC&U) named SIUE a TRHT Campus Center site. The SIUE TRHT Campus Center serves as a model for community-based racial healing and change in the St. Louis Metro East region.

The University is among 29 institutions in the nation to be selected to host a TRHT Campus Center. TRHT Campus Centers are organized around the five pillars of the TRHT framework—narrative change, racial healing and relationship building, separation, law, and the economy. In support of this mission, the SIUE TRHT Campus Center endeavors to fundamentally alter the ways that institutions, practices, policies and people have served to reinforce systemic racial oppression in the Metro East.

“We seek to dismantle a hierarchy of human value by connecting community agencies already engaged in anti-racism work, establishing new relationships between those community agencies and SIUE, and preparing college and high school students to work alongside community members as agents of social change,” said Jessica Harris, PhD, vice chancellor for equity, diversity and inclusion.

Faculty Collective Aims to Dismantle Racism

Faculty activists from the School of Education, Health and Human Behavior are building on decades of scholarship to conduct the important work of dismantling racism through the newly formed DREAM Collective.

“As scholar-activists, we believe that this work of dismantling racism and white supremacy is never done and requires constant inward reflection and outward engagement with societal injustices,” said Jennifer Hernandez, PhD, assistant professor in the Department of Teaching and Learning. “The DREAM Collective seeks to examine institutional structures, and both challenge and redefine lasting actions with the goal of stopping the dehumanization of Black, Indigenous and other people of color.”

The DREAM Collective is committed to serving southern Illinois and the greater St. Louis metropolitan area by supporting community members, educational organizations and professionals in the process of naming, addressing and dismantling racism through education, advocacy and mobilization.

To access the DREAM Collective’s podcast, “Blacktivism in the Academy,” and other resources, visit dream-collective.org.



Garden Flow Innovatively Provides Live Theater Amid Pandemic

Last year, SIUE's College of Arts and Sciences (CAS) was not exempt from the numerous events cancelled and postponed due to the COVID-19 pandemic. To restore a sense of community to those who participate in and view live theater, the Department of Theater and Dance presented Garden Flow, an outdoor, promenade-style dance performance created and directed by Kristin Best-Kinscherff, assistant professor and head of dance.

"I wanted to create an experience allowing viewers to be immersed in dance and be able to forget about the pandemic for a while," explained Best-Kinscherff. "The performance started at a door with a poem describing how the door opening is a new world and opportunity. For me, the door represented the gateway to discovery."

Hosted on the SIUE campus in The Gardens at SIUE, the experience took guests through a mile of natural areas, gardens and bridges. The performance included aspects of modern, musical theater, contemporary and ballet dance styles while featuring spoken poetry and live singing.

To fulfill COVID-19 policies, audience members were assigned to 10-person "pods" to enjoy the performance while maintaining distance from each other and performers. With social distancing in mind, the production was designed to keep guests moving as masked performers danced throughout the garden.

The show's artistic team featured department faculty and upper-level dance students. For many of the transition movements, Best-Kinscherff worked one-on-one with students to creatively take audiences to new areas of the garden. Undergraduate Research and Creative Activities (URCA) assistant Jamie Grawitch also assisted the production by writing eight poems and two songs, editing music, and choreographing a dance piece.

"This show was a wonderful achievement in our department, as many of us who lived in the theater had gone almost nine months without live performances," shared Grawitch. "This causes a huge shift in the way we think about the world and how we as artists process our emotions. With Garden Flow, we were able to welcome small audiences to view live theater once again and offer them a sense of relief, if only for an hour."

"The amount of time, energy and passion put into this production by the students and the artistic staff was heartwarming," said Best-Kinscherff. "In a time when there were so many feelings of isolation, this was an opportunity to be together and do something we all love. The process was tiring with many obstacles, but it was worth it."



Transforming Undergraduate Field Schools to Promote Safety and Inclusivity

Sexual harassment and assault in academia and STEM disciplines that depend upon field-based research are a documented and persistent problem. Research demonstrates that over 50% of people engaged in field-based research are subjected to sexual harassment and/or assault. Trainees, including students, are most likely to be harassed or assaulted.

Archaeology is a field-based research discipline that has known, high rates of sexual harassment. Undergraduate students who are aspiring to be archaeologists must enroll in a course where they learn and practice field methods. Known as a field school, these intensive, immersive classes typically engage students in field research during four- to eight-week courses over a summer semester.

"The logistics and hierarchical instructional nature of field schools is consistent with other field-research settings where students and trainees are susceptible to sexual harassment and assault," said Carol Colaninno, PhD, research associate professor in the Center for STEM Research, Education and Outreach. "Yet there has been no research to date on the ways field school supervisors, who are generally university faculty or staff, can structure their field schools to prevent sexual harassment and assault of undergraduate students."

Through a \$300,000 National Science Foundation grant, Colaninno and collaborators from the University of Arkansas and Mississippi State University are conducting a cross-case analysis of six field schools to determine how directors implement policies and procedures to create learning environments that help prevent harassment and assault and determine how students perceive safety. Results of this analysis were published in *Advances in Archaeological Practice*.

"From the case studies, we will develop suggested changes that these field schools can implement based on the context of their particular sites," said Colaninno, who is principal investigator for the project. "Following the suggested alterations, we will study how these changed policies and procedures impact students' sense of a safe learning environment."

The final product will be a set of evidence-based best practices to help directors implement field schools that offer supportive learning environments for all students regardless of gender, sexual, and/or racial identity.

Reducing Sexual Assault, Violence, and Stalking on Campus

Since 2016, SIUE has received \$560,000 through two grants from the Department of Justice's (DOJ) Violence Against Women Act (VAWA) to fund campus initiatives focused on preventing sexual assault, dating/domestic violence, and stalking experienced by SIUE students.

The initial \$300,000 grant funded the SIUE Survivor Support Initiative, focused on providing education for the prevention of sexual assault and increasing awareness and accessibility of victim services. Additionally, funding allowed Samantha Dickens, MSW, to join SIUE as the Prevention Education and Advocacy Center (PEACE) coordinator.

Throughout her time with the University, Dickens developed and implemented sexual assault prevention and education programming on campus and designed trainings to meet the needs of underserved students.

"During the past three years, I've facilitated several programs on sexual assault," Dickens said. "At every program, I or my colleagues have students thank us for providing these programs and services, and share that they wish we'd had the services when they were assaulted. The support we now provide for sexual assault survivors is the kind of support we intend to provide for our students who experience dating/domestic violence and stalking."

Dickens also collaborated with campus and community partners on a campus-wide, accessible and visible campaign regarding sexual assault services, resources and awareness. She left her role earlier this year and a search for her successor is currently underway. Once filled, PEACE anticipates the creation of a peer mentoring and education program that utilizes evidence-based practices to most effectively address sexual assault on campus.

“ Bringing prevention and awareness programs to campus encourages feelings of safety and support. It shows that SIUE is serious about ending sexual and interpersonal violence, as well as supporting its students. ”

Samantha Dickens, MSW, Former PEACE Coordinator

In 2019, the University was awarded an additional \$260,000 in VAWA funding to further develop education and victim services for domestic violence and stalking. Since then, funding has been used to develop Green Dot, a violence prevention program based on empowering bystanders.

"Since receiving the first VAWA grant in 2016 and instituting victim/survivor services and prevention education, SIUE has seen an 8% decrease in students experiencing sexual assault," said Jeffrey Waple, PhD, vice chancellor for student affairs. "With this second grant, we are looking forward to a similar growth in services and a decrease in dating/domestic violence and stalking on our campus during the next three years."

DOJ support has allowed SIUE to expand its established sexual assault task force, renamed the Coordinated Community Care Response Team (C3RT), by including new community members such as the Edwardsville Police Department, Anderson Hospital SANE (Sexual Assault Nurse Examiners) nurses, Scott Air Force Base representatives, and the Madison County State's Attorney Office. The University will continue to strengthen connections with community partners to increase awareness programming, policy development and survivor support.



SIUE Campus Cluster Enhances Cyberinfrastructure

SIUE's high-performance computing resources will be enhanced for the benefit of computationally intensive research and education activities, thanks to a \$395,580 grant from the National Science Foundation (NSF).

Information Technology Services' (ITS) Daniel Chace, deputy chief information officer and director of the Network and System Infrastructure group, is principal investigator of the project, entitled "CC* Compute: SIUE Campus Cluster." He is joined by Carolyn Butts-Wilmsmeyer, PhD, director of the Center for Predictive Analytics, as co-PI.

The goals of this project include:

- Adding 22 new, high-speed computers to the SIUE cluster environment, including CPU and GPU processors and high-speed storage for large data sets
- Increasing resources available in ITS to SIUE cyberinfrastructure professionals in ITS to advance their expertise supporting the community.
- A commitment to share this environment beyond SIUE.

Through this project, ITS staff will gain experience assisting researchers and students with their high-performance computing needs, and through sharing the cluster with the Open Science Grid project, help them access and utilize resources available from other universities.

"We are excited for the research and educational opportunities this upgrade will bring to the SIUE campus," Chace said. "A previous cyberinfrastructure project, also funded by the NSF, provided a 10-times improvement to off-campus connectivity and a direct connection to Internet2. Our current project pairs those connectivity resources with high performance computing, enabling the campus community to pursue a variety of computationally intensive tasks from the comfort of their offices."

"As the ability to collect and store data is becoming progressively easier, every discipline is becoming more data-driven," Butts-Wilmsmeyer added. "There is a need for faculty to be able to access the computational resources they require for their research, and for our campus to train the next generation of computer scientists and data analysts using advanced computational power."

This hardware enhancement will directly support ongoing projects on such topics as the use of machine learning models to predict complex phenotypic traits, understanding the mechanism behind the quantum phenomenon in chemical reactions, drug interactions and cybersecurity.

Servers and high-speed networking have already been installed, and ITS is working closely with select faculty to install select software packages. A campus-wide invitation and detailed documentation is planned for fall 2021.



Advancing Toward an Inclusive Model of Excellence in STEM

In 2020, the University received the Higher Education Excellence in Diversity Award from *INSIGHT Into Diversity*, the largest diversity-focused publication in higher education, for the 7th consecutive year. Despite this national recognition of the University's efforts to advance inclusive excellence, there remains significant underrepresentation of women faculty, and particularly women from racially minoritized groups, in social and behavioral sciences (SBS) and science, technology, engineering and math (STEM) fields.

Based on this data, as well as results from interviews with current and former STEM faculty, leadership identified that underrepresentation is due to problems in hiring, retaining and promoting female STEM faculty.

As a result, the University developed a systemic, sustainable, integrated approach to improve equity and gender climate with grant funding from the National Science Foundation's (NSF) Organizational Change for Gender Equity in STEM Academic Professions (ADVANCE) program. ADVANCE's goals focus on recruitment, retention and advancement of women faculty in STEM. The three-year, \$991,073 grant runs through September 2022. An earlier NSF ADVANCE IT-Catalyst award in 2010 provided the foundation for this grant.

"To improve the gender climate for faculty at SIUE, we established a leadership team to work Toward an Inclusive Model of Excellence (TIME)," said Principal Investigator Denise Cobb, PhD, Provost. "Our model applies adaptations of evidence-based systemic change strategies from successful ADVANCE programs to promote equity for all faculty, but focuses initially on STEM and SBS faculty."

In addition to Cobb, the leadership team includes:

- Jamie Ball, JD, Director, Office of Equal Opportunity, Access and Title IX Coordination
- Lynn Bartels, PhD, Professor, Department of Psychology
- Jessica Harris, PhD, Vice Chancellor for Equity, Diversity and Inclusion
- Susan Morgan, PhD, Associate Dean for Research and Graduate Studies, Graduate School
- Leah O'Brien, PhD, Distinguished Research Professor, Department of Chemistry
- Sandra Weissinger, PhD, Associate Professor, Department of Sociology

"This is an exciting opportunity to create substantial, lasting changes that improve the work climate for SIUE faculty and students," Morgan said. "Improved gender equity will translate into stronger academic programs that attract quality faculty and students in the increasingly competitive higher education market."

The goals of the TIME program are to:

- increase recruitment and hiring of racially diverse female STEM and SBS faculty
- increase their retention by improving departmental climate and support for female faculty
- increase their promotion by mitigating bias in the tenure and promotion review processes.

“ We recognize the importance of intersectional identities, and we are working to develop positive interventions that will improve our efforts to recruit, retain and support the advancement of excellent faculty. When we meet our goals, we will have developed a more equity-minded community, improved policies and practices by creating systemic change, and cultivated welcoming climates that allow faculty to thrive. Creating a more diverse, inclusive and equitable field of STEM will have benefits for our campus and beyond. ”

Provost Denise Cobb, PhD, Principal Investigator

"While the representation of women in academic STEM disciplines has increased steadily over time, there remain ongoing challenges, such as disproportionate underrepresentation in specific disciplines and underrepresentation at the rank of full professor and in positions of leadership," Harris said. "These inequities and others must be addressed in higher education if we are to meet the growing demands of a 21st century global economy."



Selected Grants for Graduate Students: Featured Doctoral Research Projects

The Graduate School's Research Grants for Research Doctoral Students program awards small grants on a competitive basis to support research/projects initiated and conducted by students of the SIUE EdD programs, DNP programs, and co-operative PhD programs to enhance their academic progress.

Contested Spaces and Race at the 1893 World's Fair

In 1893, Chicago hosted the World's Columbian Exposition, a world's fair celebrating the 400th anniversary of Christopher Columbus' arrival in the Americas. Spread over 690 acres, the exposition hosted the original Ferris Wheel, life-sized replicas of Columbus' three ships, exotic animals, new inventions, belly dancers and much more.

The novelty of the event inspired Nichol Allen, doctoral candidate in the Department of History, to explore the different cultural influences throughout the fair's attractions. Upon realizing that African American involvement and participation in the fair had been marginalized, she sought to conduct a study examining the social, cultural and economic underpinnings at play beyond the grandeur.

By addressing this marginalization in her research, entitled "Contested Spaces and Race at the 1893 World's Fair," Allen hopes to better understand how African Americans impacted the shape and visage of the fair, how different races and gender representations impacted the coalescence of the African American race, and how the fair became a pivotal site of protest that paved the way for the Black nationalist movement, Pan-African Movement and the African American women's rights movement.

"My work aims to examine the 1893 Columbian Exposition as a literal and metaphorical stage on which the nation's beliefs, ideologies, economics and politics were displayed and performed," explained Allen. "The fair exposed white hypocrisy while heightening Black awareness and a public resistance to a Jim Crow-run nation. I claim that the fair served as a turning point for African Americans and made way for radical movements that focused on Black independence."

Allen's research grant allowed her to spend a week in Chicago, where she explored countless primary sources from the fair at the Newberry Library. Prior to her trip, Allen prepared a list of sources to examine, including pocket diaries of fairgoers, scrapbooks filled with souvenir programs and newspaper trimmings, detailed maps of the fairgrounds, and daily event brochures with performance descriptions.

"From the Newberry Library, I was particularly interested in personal accounts and diaries from the Columbian Exposition," said Allen. "I will be using the voices of the individuals who experienced the fair in order to layer a narrative structure onto my methodology."

"The sheer volume of primary source information about the 1893 Columbian Exposition is overwhelming," added Allen. "Sifting through sources such as diaries, literature, maps, pictures, board meetings, financial planning, postcards, trinkets, commemorative items, programs and brochures can be exhausting yet exciting at the same time. Due to the meticulous documentation of this event, it is my hope to recreate a moment in history that feels real and tangible."



Experimental-Scale Faulty Rupture Test on Buried Pipeline Reinforced with Segmental Protective Shield

Pipelines are the most common way to transport water and other essential fluids such as gas and oil. Because pipeline systems typically traverse large geographical areas, they are often exposed to a wide variety of hazards, including landslides, lateral spreading and fault movement. These natural hazards can initiate major accidents in oil and gas pipelines, causing major consequences on the population or the environment due to toxic releases, fires and explosions.

Hamid Rostami, doctoral candidate in the Department of Civil Engineering, is conducting an experimental study that investigates the performance of buried petroleum pipelines that cross earthquake fault lines. The goal of his research, entitled "Experimental-Scale Faulty Rupture Test on Buried Pipeline Reinforced with Segmental Protective Shield," is to improve the capabilities of buried pipelines in near-fault areas by studying both pipe and soil factors.

"Factors such as pipe thickness, pipe diameter, internal pressure of fluid or gas, burial depth, and surrounding soil density can govern the performance of buried pipelines when subjected to large ground deformations caused by fault offset," explained Rostami. "To thoroughly investigate each factor, I designed and developed an experimental setup at SIUE's Soil and Structural Dynamics Laboratory under the supervision of my advisor, Dr. Reza Osouli, and with the assistance of our lab specialist, Mr. Brent Vaughn."

Rostami's invention features an earthquake fault apparatus that simulates a reverse earthquake fault scaled down to one-tenth of reality.

"The experimental setup has enabled me to model real pipe-fault scenarios in the laboratory and comprehensively study pipe performance under different circumstances," shared Rostami. "For example, I can change a pipe's thickness or burial depth to see if the pipe better resists the large fault offset. The performance of the pipe is measured and monitored with a series of extremely sensitive pressure and displacement sensors in each test."

The RGRDS funding allowed Rostami to buy specialized equipment needed for the project's experimental setup, including the instruments and sensors used to monitor and record displacements and forces.

"More energy pipelines run through the United States than any other country in the world," said Rostami. "America's pipeline system of 1.38 million miles is more than eight times longer than that of distant runner-up Russia. These steel highway networks deliver oil, natural gas and other hydrocarbons from wells to refineries, then on to energy-hungry North American consumers, then to the ports that ship those products around the world."

Rostami hopes his research will be used to better protect pipelines as they cross earthquake faults.

Selected Grants for Graduate Students: Featured Master's Research Projects

SIUE provides a dynamic environment for master's students to enhance their education and advance knowledge in their fields. The following projects were supported in part by the Graduate School's Research Grants for Graduate Students.

Synthesis of Phosphate Sialyl Donors as Efficient Building Block for the Synthesis of Biologically Active Oligosaccharides

Natalie Goeckner, MS Chemistry

Sialic acids are biologically important molecules expressed on a cell surface's oligosaccharide chains, and the chemical synthesis of the natural linkage between sialic acid and the remaining chain is a difficult task. In efforts to better understand the biological functions of sialic acid containing oligosaccharides, several methodologies and procedures have been developed over the past few decades. Goeckner's study found the introduction of a silicon-based group at C-4 to increase stereoselectivity and yields for the synthesis of the natural alpha linkage chain. To expand this method, Goeckner investigated additional silicon-based groups through sialylation reactions using thin layer chromatography (TLC) to assess reaction conditions on stereoselectivity, reactivity and yield.

Impact of Interviewer Training, Conventional Personality Type and Recording on Structured Interview Acceptance and Usage

Stephen Baumgartner, MS Psychology

Employment interviews are the primary means by which organizations determine whether to hire an applicant. Unfortunately, many organizations do not provide guidance on how to conduct interviews, causing faulty hiring decisions that cost organizations time, productivity and money. Baumgartner's study investigates the use of a structured interview, a reliable selection tool that can overcome the shortfalls of an unstructured interview. Through the use of a survey, Baumgartner examined vocational personality orientation, the level of training interviewers have, and how recording can be utilized to maintain interview structure and accountability.

What Do You Expect? Awareness of Gender Bias Effects on Interview Evaluations through Frame of Reference Training

Morgan VanCleave, MS Psychology

During the job interview process, women continue to endure outdated expectations of qualities they 'should' and 'should not' possess and are often rated on such stereotypes instead of their qualifications. Although much research has been conducted on gender stereotypes in the workplace, there has not been success in identifying a way to combat their negative influences in the hiring process. By creating a frame-of-reference training that targets awareness of gender bias in employment decision making, VanCleave will provide organizations with a tool to treat all applicants, especially women, more accurately and fairly. Study results will expand on the theoretical and practical importance of effective frame of reference training and present a better understanding of how gender stereotypes affect the selection process for organizations.

Effects of Dapagliflozin on Glucose-insulin Homeostasis in Type 1 Diabetic Rats in Real-time Using APS

Akshay Radhakrishna Salegaonkar, MS Pharmaceutical Sciences

Dapagliflozin is a highly potent, reversible and selective sodium glucose cotransporter 2 inhibitor indicated for type 2 diabetes mellitus. Recently, it was discovered that this drug helps significantly in cases of heart failure and low ejection volume. In Europe and Japan, it is currently used to treat overweight patients of type 1 diabetes mellitus (T1DM). However, Dapagliflozin was recently rejected by the FDA for treatment of T1DM due to the side effect of ketoacidosis, a condition that causes the body to produce excess blood acids (ketones). Salegaonkar's study searches for a way to circumvent this side effect, hypothesizing that Dapagliflozin treatment on glucose-insulin homeostasis will lead to a better control of the blood sugar levels in rats with T1DM. Throughout the 17-week study, Salegaonkar conducted OpenAPS experiments with continuous glucose monitoring, urine collection and analysis for urinary ketone and glucose levels.

Automatic Segmentation of 3D Cardiac MRI Data

Michaela Kulasekara, MS Electrical and Computer Engineering

There is a known link between obesity and cardiovascular diseases, such as coronary artery disease. When too much fat collects around the heart, it becomes inflamed and invasive, with the potential to cause fatal damage. Previous prevention methods include measuring the volumetric amount of cardiac fat through the manual segmentation of cardiac MRI scans. These methods, however, are often time-consuming and inaccurate. Kulasekara's study utilizes the Biomedical Imaging Research Lab on campus to investigate the use of machine learning to automate this process and create a model that can quickly and accurately predict the location of fat and other various cardiac tissues.

Resiliency of ER Healthcare Providers

Stephanie Bargiel, MS Public Health

Healthcare providers have faced many unprecedented situations throughout the pandemic, often working overtime and seeing less of their families. Bargiel's project explored resilience among emergency department healthcare providers and nurses during COVID-19 through a social ecological approach. By conducting interviews, she investigated how levels of personal qualities, interpersonal connections, organizational structure, community and policy contribute to resilience. Her results show how to provide support and propagate advocacy for those who dedicate their lives to caring for the community.



Outstanding Teaching Assistant Awards

The annual Outstanding Teaching Assistant Awards are designed to recognize and reward graduate students at the master's and doctoral levels for outstanding performance in teaching and instruction.

Lindani Memani, College of Arts and Sciences

A current student in the MFA in creative writing program, Memani has been teaching English composition courses in the first-year writing program since the fall 2019 semester. Her teaching philosophy is centered on interactive learning and creating a welcoming classroom space.

"I believe that the classroom should be a space of positive learning where no student should feel unwelcomed, neglected or unimportant," she said. "Since becoming an instructor who engages with a diverse student population, most of whom are a part of the first-generation student body, I have been aware of the impact of practically enacting diversity and inclusive learning in all my student engagements, even beyond the classroom."

Drawing from her background in mass communications, Lindani has created engaging pedagogical activities that utilize TV shows and commercials to teach students to analyze rhetoric and cultural values. These innovations inspire lively classroom discussions and stimulate critical thinking.

"Lindani's teaching is nothing short of amazing—inspiring, structured, student-centered and interesting," said Memani's supervisor, Matthew Johnson, PhD, professor in the Department of English Language and Literature.

Huan Van Phan, School of Engineering

Huan, a current student in the cooperative PhD program in engineering sciences with a focus in mechanical engineering, has served as a teaching assistant in several 300- and 400-level mechanical engineering courses since the fall 2019 semester. His teaching philosophy states that "teachers should give their all to be an endless bridge which connects students to knowledge."

Huan's supervisor is Nima Lotfi, PhD, assistant professor in the Department of Mechanical and Mechatronics Engineering. Lotfi noted that in the spring 2020 semester, when the COVID pandemic suddenly forced a switch to remote learning, Huan quickly adapted to online teaching and to learning the tools and software needed to continue courses. Because of Huan's reliability and dedication, he was chosen by the department to teach two undergraduate courses independently during the fall 2020 term.

Lotfi summarized Huan's superior teaching performance by stating "he went above and beyond to make sure that the students actually got the best learning experience."

Outstanding Thesis Award

Each year, the Graduate School awards the Outstanding Thesis Award to recognize a master's student's thesis as outstanding among all of the theses completed in the previous academic year.

Jose Seiba Moris, MS Kinesiology-Exercise Science '20

"Insights into the Male Athlete Triad (MAT) in Collegiate Athletics"

Seiba Moris' research examined all three conditions of the MAT in a single study—energy deficiency with or without eating disorders, functional hypothalamic hypogonadism, and osteoporosis with or without bone stress injury. His results have been presented at two national conferences and were recently submitted for publication to a top tier journal in the field. Seiba Moris' thesis advisor, Brianne Guilford, PhD, associate professor in the Department of Applied Health in the School of Education, Health and Human Behavior, said that research on the MAT is lacking.

"This was the first MAT study to include collegiate athletes from seven different sports," Guilford said. "This information could be pivotal in helping male athletes avoid the detrimental and potentially permanent effects of the MAT."

Competitive Graduate Awards

Competitive Graduate Awards support highly qualified new graduate students who are accepted into master's programs at SIUE.

College of Arts and Sciences

Art Studio: Aaron McMullin
Art Therapy: Kirsten OLoughlin
Biology: Andrew Pyszka
Geography: Brett Bertok, James Nuoffer
Mathematics: Nathaniel DeRousse
Media Studies: Kashaun Smith

School of Education, Health and Human Behavior

Kinesiology-Exercise Physiology: Alexa Agne
Industrial-Organizational Psychology: Daniel Burks, Shelby Wilfong
Clinical Child and School Psychology: Claire Miller
Clinical Psychology: Corrin Stines

School of Engineering

Computer Science: Panporn Orkweha
Mechanical Engineering: Shuva Das
Electrical and Computer Engineering: Colin Gibbons

School of Pharmacy

Pharmaceutical Sciences: Akeemat Oluwafisayo Tijani

Research Grants for Doctoral Students

Research Grants for Research Doctoral Students are awarded on a competitive basis to support research and projects initiated and conducted by SIUE doctoral Students.

College of Arts and Sciences

Historical Studies: Nichol Allen, Shannan Mason

School of Education, Health and Human Behavior

Educational Leadership: Kristie Baumgartner, Brian Brink, Pam Burroughs, Julie Geers, Donald Harris, Mike Toebe

School of Engineering

Civil Engineering: Hamid Rostami

Research Grants for Graduate Students

Research Grants for Graduate Students support research and creative activities initiated and conducted by SIUE master's students to enhance their academic progress. Although faculty advisors oversee the research or creative activity, these grants support the graduate students' work as it relates to their thesis or final project.

College of Arts and Sciences

Art and Design: Kelly Baker, Mariah Picarsic, Silas Coggeshall, Yolanda Vidal
Biological Sciences: Amy Docter, Andrew Pyszka, Carly Cameron, Jordan Robinson, Logan Phillips, Paige Niepoetter, Rebecca Corzine, Sydney Tomaschke
Chemistry: Jasmin Ruiz, Meimei Song
Environmental Sciences: Carolyne Banks

School of Education, Health and Human Behavior

Applied Health: Alexa Agne
Psychology: Caralee Lynch, Corrin Stines, Krueger Keene, Ryan Raymond, Shelby Wilfong

School of Engineering

Electrical and Computer Engineering: Charles Stacey, Hridoy Biswas
Mechanical and Mechatronics Engineering: Brandon Hickey, Krishna Vamsee Duggaraju, Panporn Orkweha

School of Pharmacy

Pharmaceutical Sciences: Eric Lodholz, Matthew Butler





University Grant Award Winners

Paul Simon Outstanding Teacher-Scholar Award

This award recognizes a faculty member for being an outstanding teacher and researcher and for demonstrating the belief that to be a good teacher one must also be a good scholar. Winners have shown significant contributions to original research or creative activities and have successfully integrated those contributions into their teaching and mentoring practices.



Jason Stacy, PhD, Professor
Department of History
 Starting his career as a high school history teacher, Stacy discovered the interplay between teaching and research while pursuing his doctoral degree. He is now one of the foremost scholars of Walt Whitman's literary and journalistic writing in the United States. He is a key contributor to work done by the grant-funded *Walt Whitman Archive*, which makes the poet's work accessible to scholars, students and researchers worldwide, and started with colleagues an online encyclopedia and digital archive for Madison County, Ill., that has involved numerous undergraduate and graduate students.

Gifts to Graduate Studies and Research and Creative Activities support students and faculty across the University. To contribute to these endowed scholarships, visit: siue.edu/give-now/graduate-school

Emeriti Faculty Association Awards

The SIUE Emeriti Faculty Association provides opportunities for retired faculty to remain active participants of the University community. The group awards grant funding to select faculty projects aimed at strengthening the academic quality of programs and enhancing the University's reputation. The yearly award competition provides funding for a variety of projects that span across academic disciplines.

Jennifer Erwin, PhD, Assistant Professor,
Department of Social Work;
Jayne Swanke, PhD, Associate Professor,
Department of Social Work;
Jill Schreiber, PhD, Associate Professor,
Department of Social Work
 "Policy is Practice: Social Work in Action"

Ellen Santos, PhD, Assistant Professor,
Department of Applied Health;
Catherine Santanello, PhD, Professor,
Department of Pharmaceutical Sciences
 "Establishing a Chagas Disease Citizen Science Program at SIUE: Campus Visit by Dr. Sarah Hamer"

Marta Simidhtchieva, PhD, Professor, Department of Music
 "Bulgarian Music and the Creative Process: A Modern Transformation of Traditions Through a World Premiere"

Rebecca Swartz, EdD, Assistant Professor,
Department of Teaching and Learning
 "Let's Talk Math! Building Competency and Confidence for Leading Meaningful Math Lessons"

Vaughnie Lindsay New Investigator Award

This award is presented to junior faculty members to recognize and support individual programs of research or creative activities that have the promise of making significant contributions to their field of study and to SIUE in general.



Ashton Speno, PhD, Assistant Professor
Department of Mass Communications

Speno's research project, "An Examination of the Intersection of Gender and Race in Tween Television Programming," will analyze portrayals of gender and race in popular tween television programs. The project builds upon Speno's previous work, which found female characters to be underrepresented and portrayed to care more about their appearance compared to male characters. The project will act as a springboard for future research that explores what tweens are learning about gender and race from tween television programming.



Deborah Sellnow-Richmond, PhD, Assistant Professor
Department of Applied Communications

Sellnow-Richmond's research project, "Strategic Messaging to Address the Consequences of the COVID-19 Pandemic among Health Disparities and Vulnerable Populations," aims to address health disparities within vulnerable populations and uncover issues of organizational trust following consequences from the COVID-19 pandemic. Sellnow-Richmond will gather data from vulnerable groups in the St. Louis region to inform strategic communication messages and instructional risk design. Communication messages will be designed and then tested among a sample from the same St. Louis region population to inform organizational, governmental and community risk mitigation messaging.

Annette and Henry Baich Award



This award is given annually to the most outstanding Seed Grant for Transitional and Exploratory Projects proposal for basic research conducted within the parameters of the Sigma Xi Society. Disciplines include the physical sciences, life and medical sciences, earth science, engineering, psychology, and mathematics.

Jon Klingensmith, PhD, Assistant Professor
Department of Electrical and Computer Engineering

Klingensmith was awarded for his proposal "Electro-thermal Imaging: Feasibility for Breast Tumor Detection." He will model, develop and build a prototype electro-thermal imaging system for the potential detection of early-stage breast tumors.

Hoppe Research Professor Award



Recognizing and supporting SIUE faculty members whose research or creative activities have the promise of making significant contributions to their field of study, this award supports a significant portion of a faculty member's larger research agenda for a two-year period. Recipients are expected to produce published scholarly works and externally sponsored funding.

Adriana E. Martinez, PhD, Associate Professor
Department of Geography and Geographic Information Sciences
Department of Environmental Sciences

Martinez's project, "The Hydrological Impacts of the U.S.-Mexico Border Fence along the Rio Grande River, Texas," is a comprehensive study examining the hydrological impacts of the 2008 U.S.-Mexico border fence on local residents by calculating flood flows and boundary conditions, modeling changing flood extents for multiple flood scenarios, and determining pre- and post-fence conditions to determine how the fence has impacted flooding.

Visualizing Research Impacts

The SIUE Graduate School's Visualizing Research Impacts (VRI) competition offers SIUE faculty, staff and students the opportunity to share the results and impact of their research and creative activities through imagery.

Faculty and students submitted a wide array of entries that depicted a wonderfully rich diversity of creative activities and disciplines from across the institution.

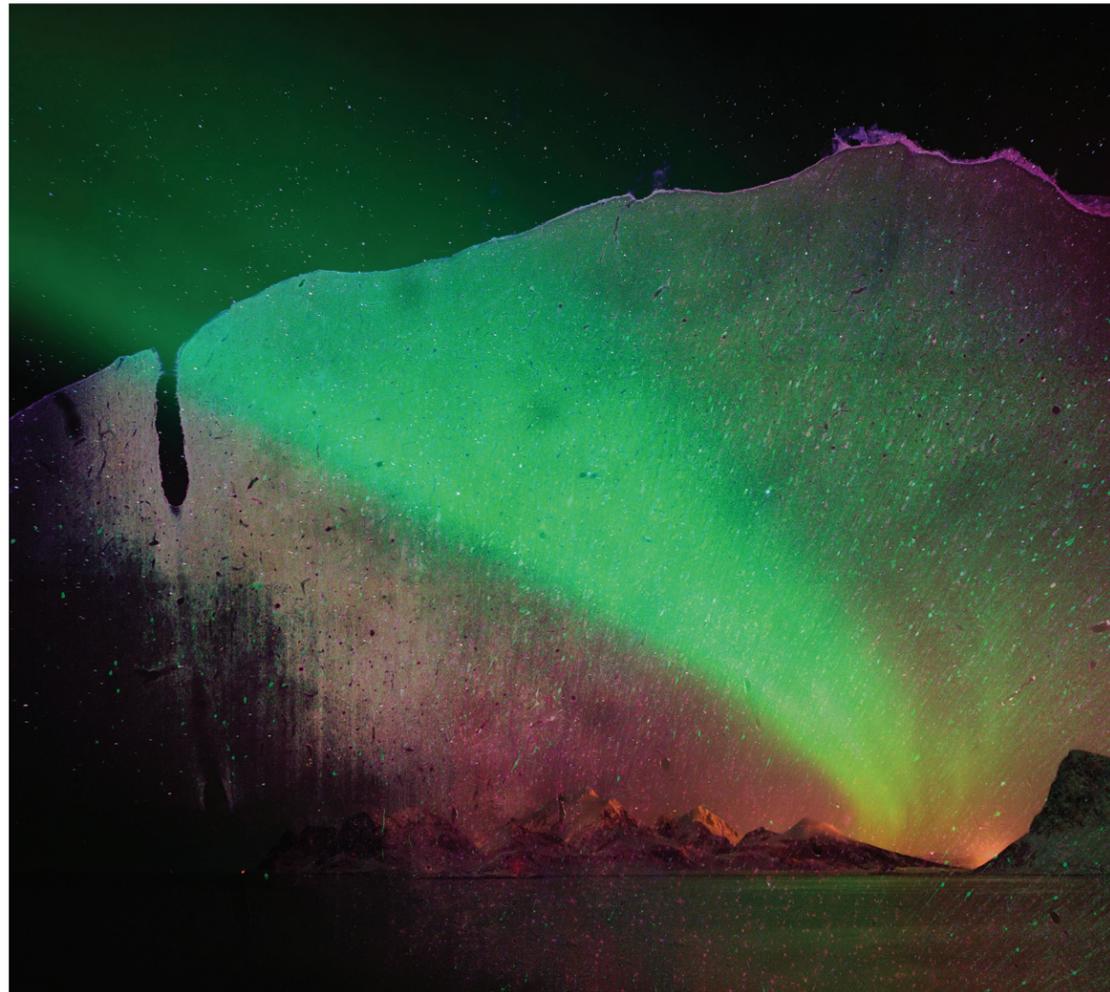
Most Creative Representation of Research Impact

"Atmosphere"

Abbey Hepner, Assistant Professor, Head of Photography and Digital Arts, Department of Art and Design

"Atmosphere" is a part of the series "Optogenetic Cybernetic Translations," in which Hepner investigates the artist and scientist as translators of data that illuminate the connections existing in the broader world.

Hepner's collaborator is scientist Mike Avery, PhD, who researches optogenetics, a technique that involves the use of light to manipulate brain neurons. Using images from Avery's lab, Hepner explored how a computer interprets brain scans, creating metaphors for what the future may hold as technology continues to infiltrate the fields of art and science. The results of this interpretation included an aurora, fireflies, bioluminescence and military light vision. By pairing each brain scan with its corresponding computer translation, Hepner found interesting metaphors between cognition and a world full of beautiful phenomena.



Best Representation of Research Impact

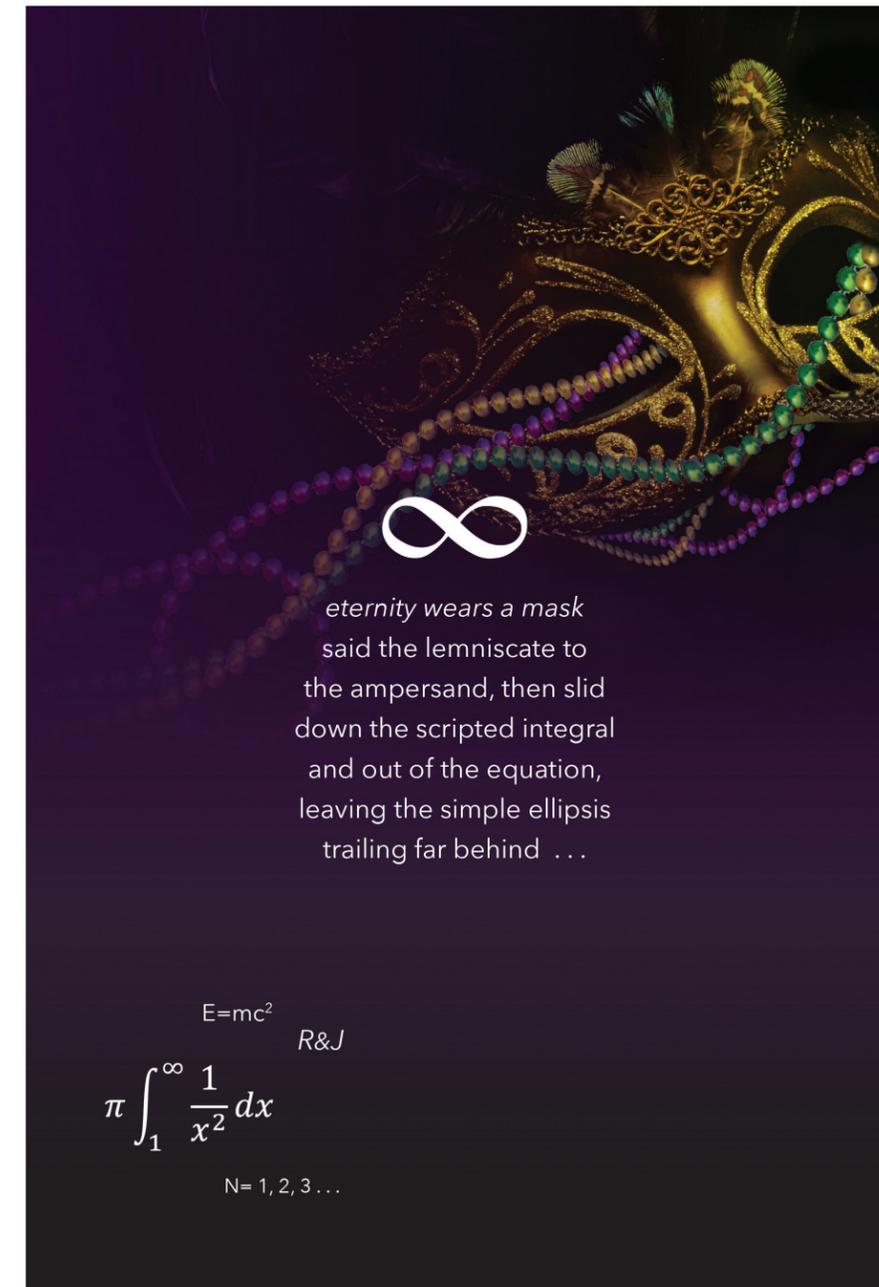
"Lemniscate"

John Savoie, PhD, Professor, Department of English Language and Literature

As a teacher of imaginative literature, a significant part of Savoie's research and creative activities comprises poetry writing. In "Lemniscate," he has taken the idea of synergizing visuals into his own designs to craft the back cover of *Sehnsucht*, his upcoming book manuscript.

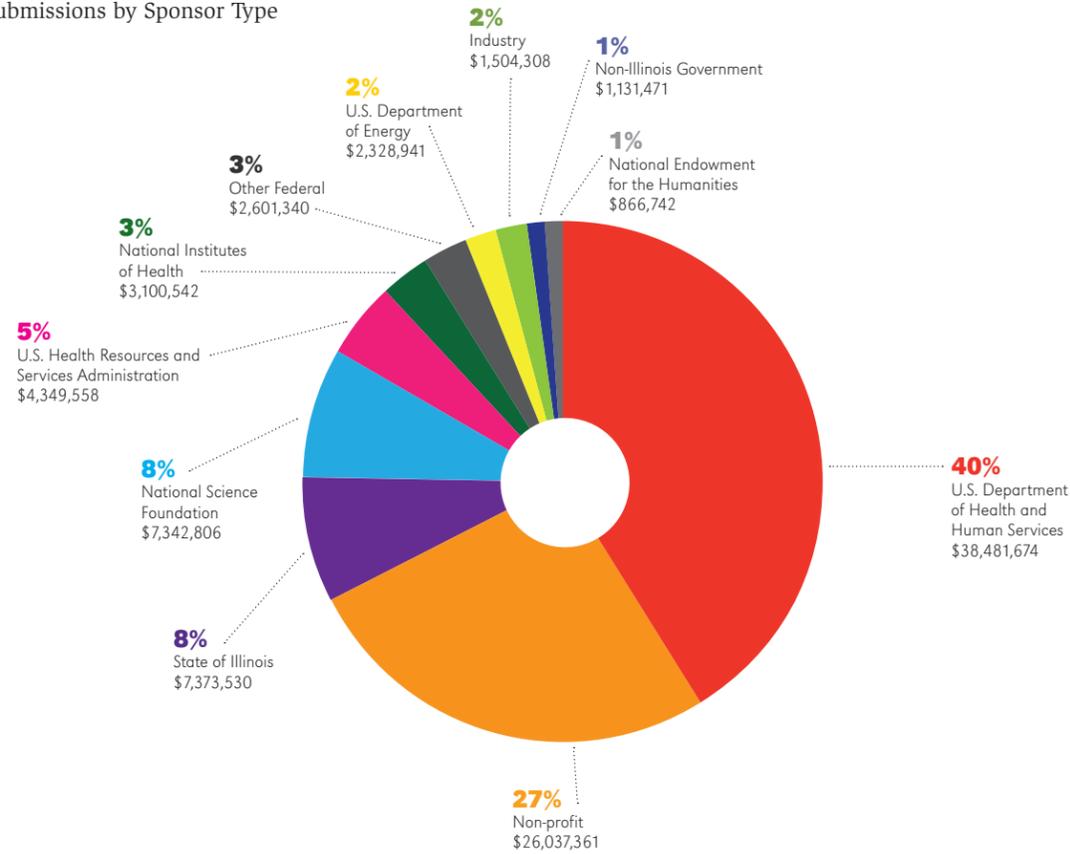
"Connoisseurs of calculus will relish the paradoxical Gabriel's Horn, or Torricelli's Trumpet, at the mysterious intersection of the finite and infinite, of time and eternity," said Savoie. "However, any intelligent reader will easily engage the other expressions and appreciate how the composition as a whole magnifies the graceful integral sign: the curl of mask and beads in the upper right, the slender descent of words down the middle, and the balancing cluster of 'math' in the lower left."

By displacing the customary back cover blurbs, Savoie's 3D visual poem comes to life beyond the flat page, inviting the reader to enter and explore the pages within.

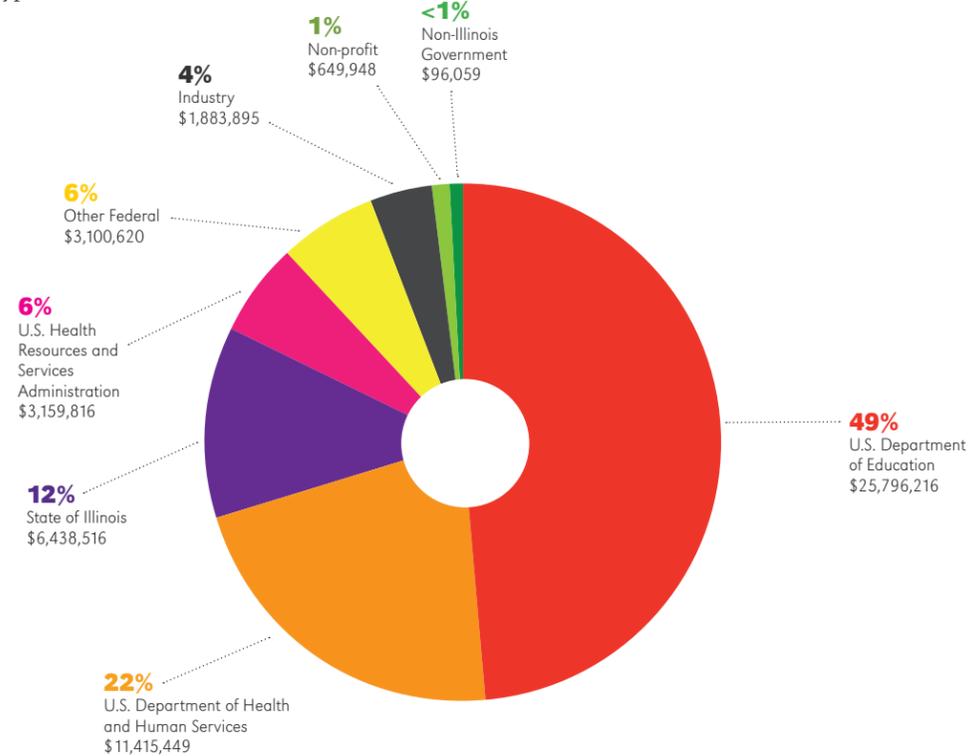


Externally Sponsored Projects

FY21 Proposal Submissions by Sponsor Type



FY21 Awards by Sponsor Type



Selected Books Published

College of Arts and Sciences

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