

SLU BIOMEDICAL ENGINEERING NEWSLETTER



SAINT LOUIS UNIVERSITY

DEPARTMENT OF BIOMEDICAL
ENGINEERING

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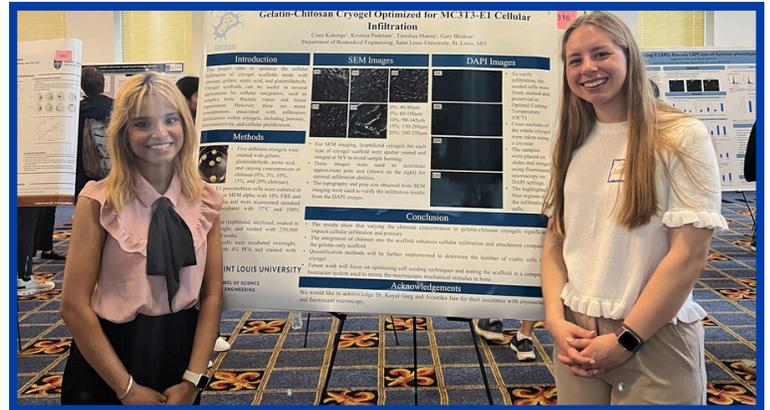
BME PROFESSORS RECEIVE 2025 FACULTY INNOVATION AWARDS

The Office of the Vice President for Research at SLU has awarded **Dr. Silviya Zustiak** and **Dr. Koyal Garg** the 2025 Faculty Innovation Grant Winner Award for their outstanding contributions to research and scholarship. This prestigious award recognizes their exceptional accomplishments in research, including their recent induction as Senior Members of the National Academy of Inventors. Drs. Zustiak and Garg were honored during the Scholarly Works and Grant Winner Reception held on Thursday, April 24th. Please join us in congratulating Dr. Zustiak and Dr. Garg on this significant and well-deserved achievement. To read about the full list of honorees, click [here](#).

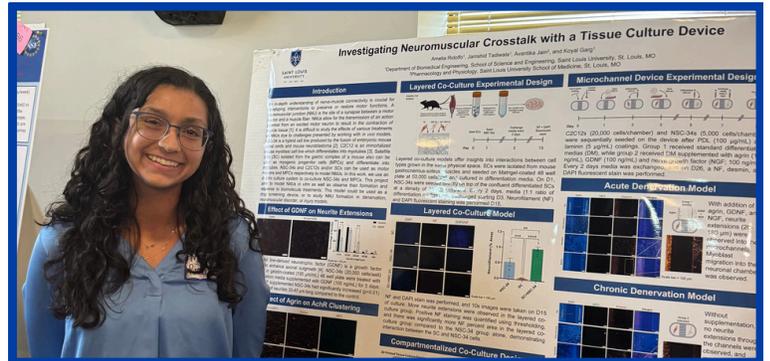


SLU SIGMA XI RESEARCH SYMPOSIUM

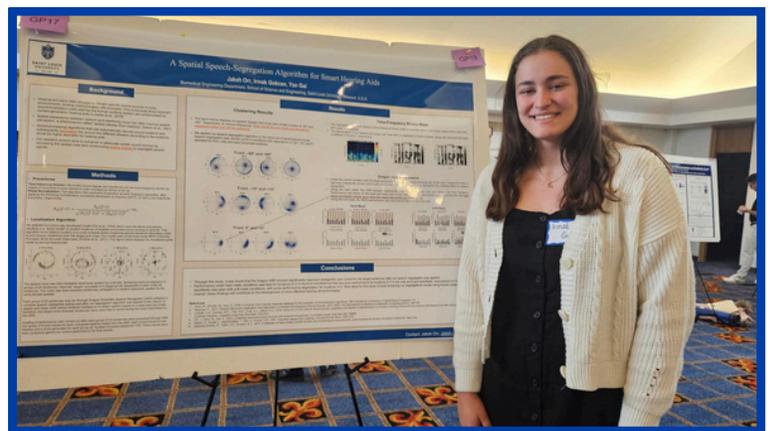
On Friday, April 5, 2024, the Saint Louis University chapter of Sigma Xi hosted its annual Research Symposium—an inspiring showcase of innovation, discovery, and academic excellence. Held on SLU’s campus, the symposium featured over 90 research posters. Participants represented a broad range of disciplines, including the biological and life sciences, physical and engineering sciences, and social and behavioral sciences, reflecting the university’s vibrant and multidisciplinary research community. The Department of Biomedical Engineering had a strong and impactful presence, with ten BME students presenting their original research. From medical device development to computational modeling and tissue engineering, the students’ work exemplified the department’s mission to integrate engineering principles with medical science to pursue transformative healthcare solutions. Their participation not only highlighted the innovative spirit within SLU BME but also reinforced the department’s commitment to interdisciplinary collaboration, experiential learning, and advancing the frontiers of biomedical research.



C. Kokenge, K. Pinkham, T. Manna, G. Bledsoe, “Gelatin-Chitosan Cryogel Optimized for MC3T3-E1 Cellular Infiltration,” (Poster)

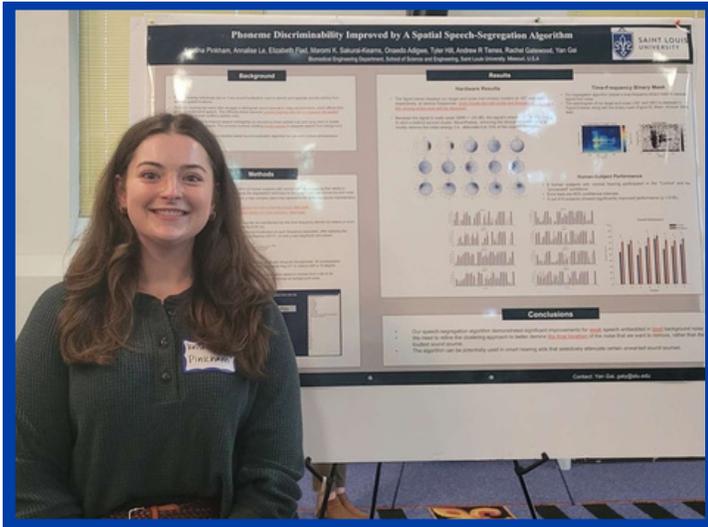


A. Ridolfo, J. Tadiwala, A. Jain, K. Garg, “Investigating Neuromuscular Crosstalk with a Tissue Culture Device,” (Poster)

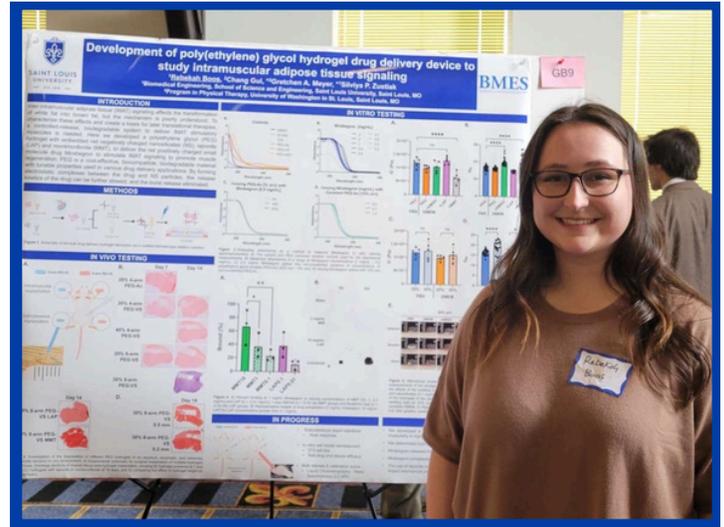


J. Orr, I. Gokcen, Y. Gai, “A Spatial Speech-Segregation Algorithm for Smart Hearing Aids,” (Poster)

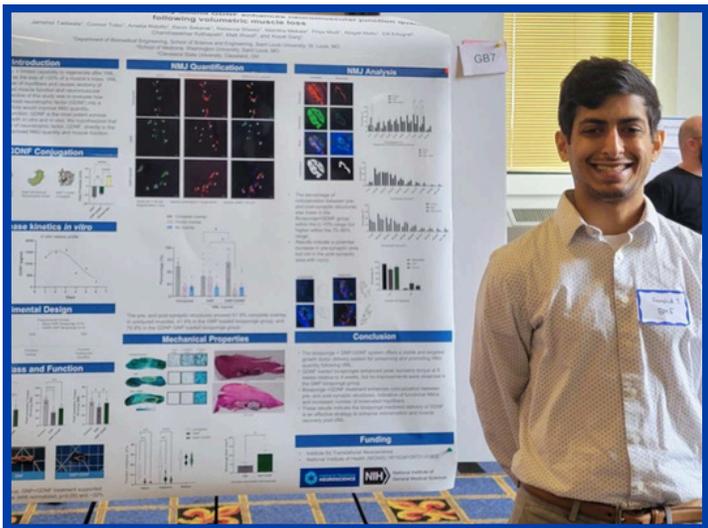
SLU SIGMA XI RESEARCH SYMPOSIUM CONTINUED



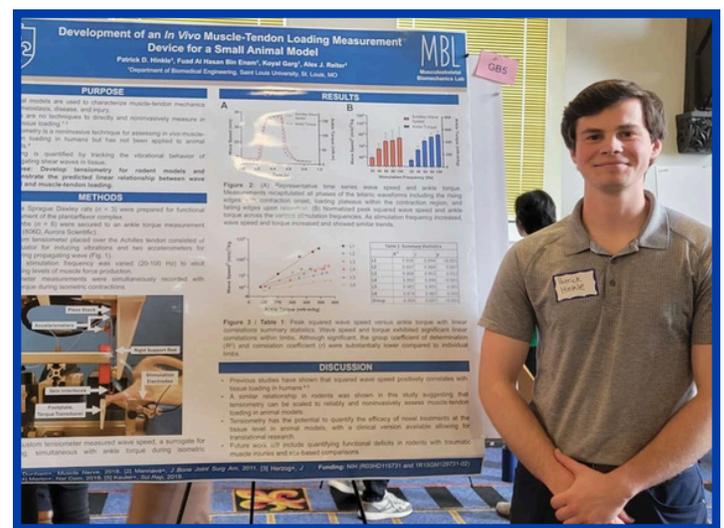
K. Pinkham, A. Le, E. Flad, M. Sakurai-Kearns, O. Adigwe, T. Hill, A. Tienes, R. Gatewood, Y. Gai, "Phoneme Discriminability Improved by a Spatial Speech-Segregation Algorithm," (Poster)



R. Boos, C. Gui, G. Meyers, S. Zustiak, "Development of Poly(ethylene) Glycol Hydrogel Drug Delivery Device to Study Intramuscular Adipose Tissue Signaling," (Poster)

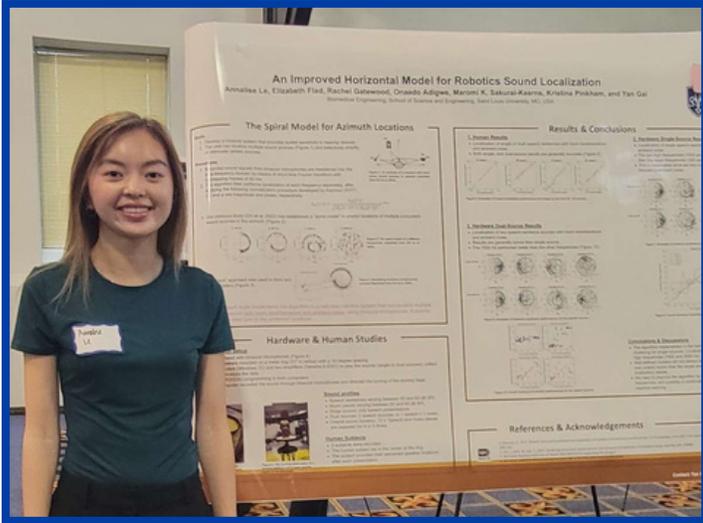


J. Tadiwala, C. Tobo, A. Ridolfo, K. Sekerak, R. Sheetz, M. Wood, K. Garg, "Biosponges with Electrostatically Bound GDNF Enhances Neuromuscular Junction Quantity Following Volumetric Muscle Loss," (Poster)

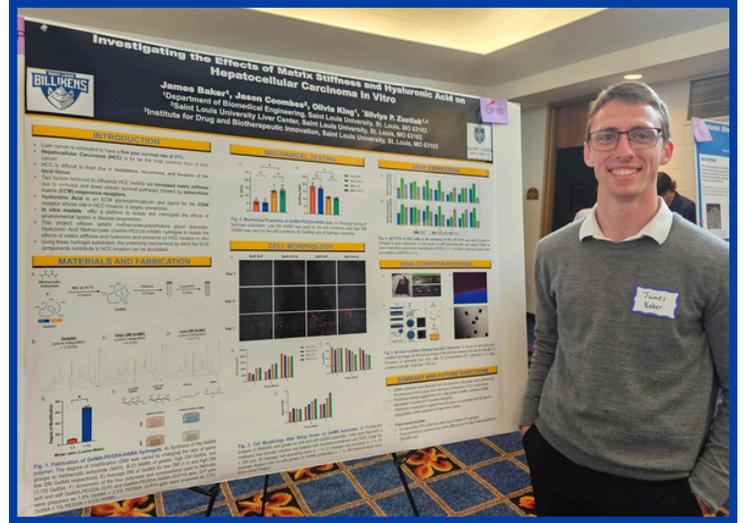


P. Hinkle, F. Al Hasan Bin Enam, K. Garg, A. Reiter, "Development of an In Vivo Muscle-Tendon Loading Measurement Device for a Small Animal Model," (Poster)

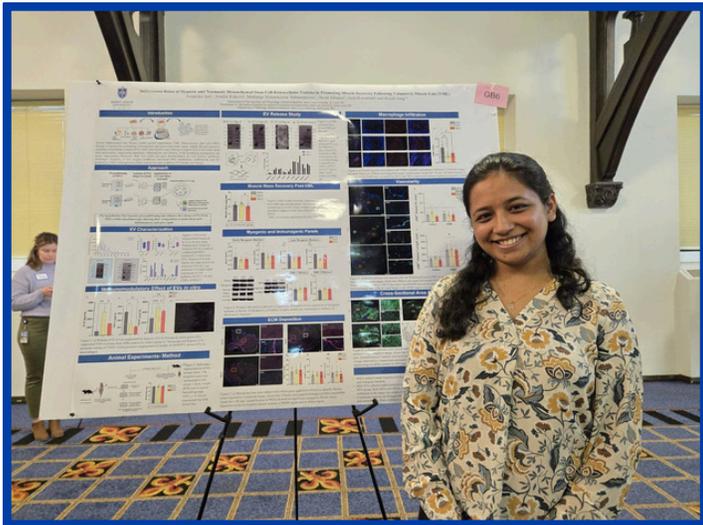
SLU SIGMA XI RESEARCH SYMPOSIUM CONTINUED



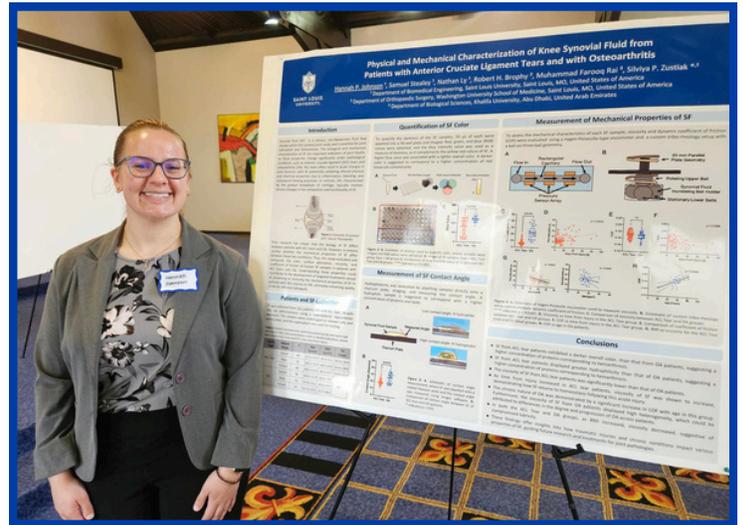
A. Le, E. Flad, R. Gatewood, O. Adigwe, M. Sakurai-Kearns, K. Pinkham, Y. Gai, "An Improved Horizontal Model for Robotics Sound Localization," (Poster)



J. Baker, J. Coombes, S. Zustiak, "Investigating the Effects of Matrix Stiffness and Hyaluronic Acid on Hepatocellular Carcinoma In Vitro," (Poster)



A. Jain, A. Ridolfo, M. Mohankumar Subramaniam, D. Johnson, J. Kornbluth, K. Garg, "Impact of Hypoxic Vs. Normoxic Mesenchymal Stem Cell-Derived Extracellular Vesicles on Muscle Regeneration Following Volumetric Muscle Loss (VML)," (Poster)



H. Johnson, S. Stealey, N. Ly, R. Brophy, M. Farooq Rai, S. Zustiak, "Physical and Mechanical Characterization of Knee Synovial Fluid from Patients with Anterior Cruciate Ligament Tears and with Osteoarthritis," (Poster)

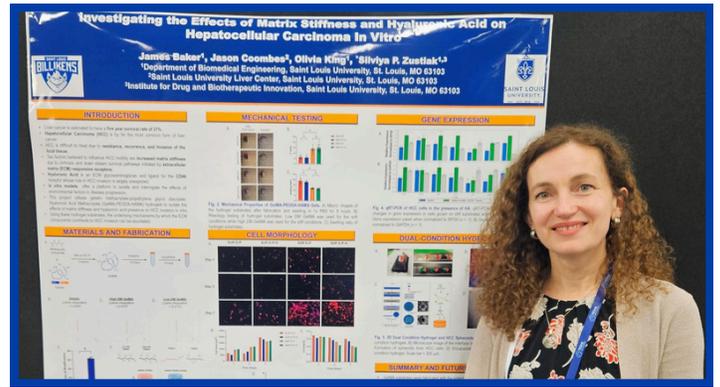
BIOMATERIALS ANNUAL MEETING



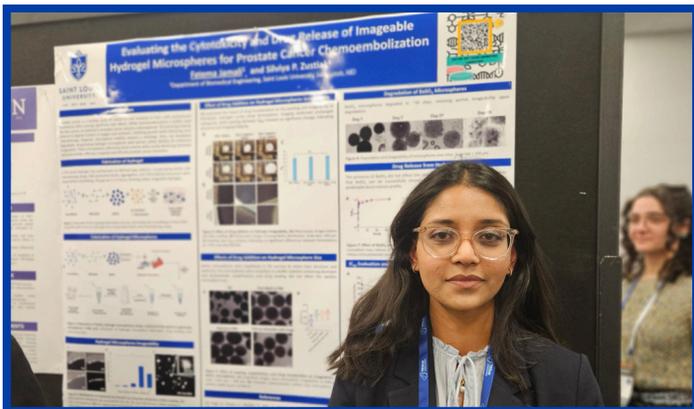
SLU BME graduate students from **Dr. Zustiak**'s lab attended the 2025 Society for Biomaterials Annual Meeting April 9-12 in Chicago. With the theme "Half a Century of Progress: Crafting Resilience in Mind & Matter," the event brought together leaders from academia, industry, and healthcare. Students gained valuable insights, connected with professionals, and proudly represented SLU. In addition to presenting a poster, Dr. Zustiak served as a symposium organizer and moderator for three sessions: Biomaterial-based Cancer Models, Engineering Cells and Their Microenvironments 1, and Engineering Cells and Their Microenvironments 2, highlighting her leadership in the field.



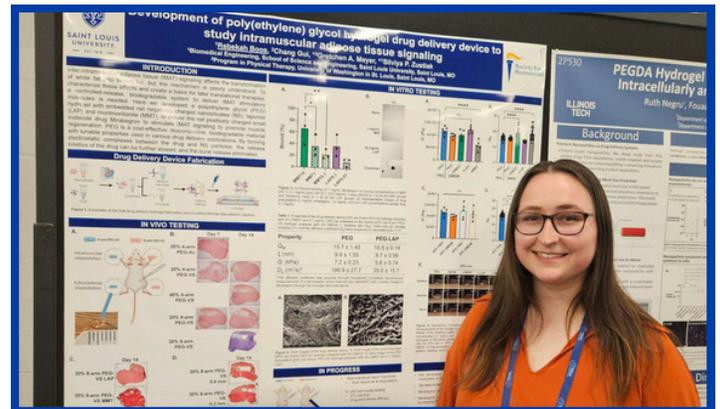
H. Shokrani, S. Stealey, S. Zustiak, "A Rotational Shear-Based Device For Fabricating Uniform Hydrogel Microspheres For Prostate Cancer Treatment Using Embolization," (Oral)



S. Zustiak, J. Baker, W-K Syn, J. Coombes, "Investigating Extracellular Matrix Interactions Driving Hepatocellular Carcinoma Progression Using Hyaluronic Acid Hydrogels," (Poster)



F. Jamali, S. Zustiak, "Evaluating The Cytotoxicity And Drug Release Of Imageable Microgels For Prostate Cancer Chemoembolization Therapy," (Poster)



R. Boos, C. Gui, G. Meyer, **S. Zustiak**, "Development Of Poly(ethylene) Glycol Hydrogel Drug Delivery Device To Study Intramuscular Adipose Tissue Signaling," (Poster)

BIOMATERIALS ANNUAL MEETING CONTINUED



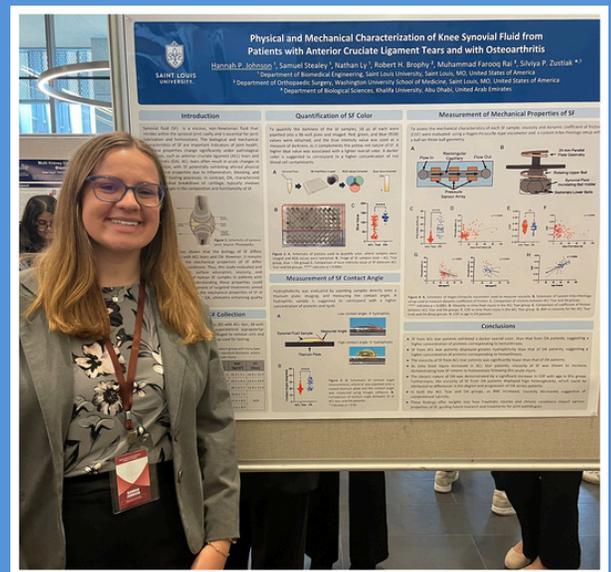
S. Stealey, E. Dharmesh, J. Rudra, S. Zustiak, “Understanding Protein Interactions with Two-Dimensional Nanosilicate Particles,” (Oral)

Two additional posters were presented by members of Dr. Zustiak’s lab:

- **S. Stealey, E. Dharmesh, M. Baghat, A. Tyagi, Y. Abu-Amer, P. Jelliss, S. Zustiak,** “Development of Super-Lubricious Platelet-Rich Plasma Loaded Microgels for the Treatment of Knee Osteoarthritis,” (Poster)
- **E. Ferchichi, S. Stealey, S. Zustiak,** “On Demand Cell Encapsulation and Retrieval from Soft Nanocomposite Hydrogel,” (Poster)

NATIONAL UNDERGRADUATE RESEARCH CONFERENCE

Hannah Johnson, BME junior, represented Dr. Zustiak’s lab at the National Undergraduate Research Conference held at Brown University on April 12th, 2025. She delivered both an oral presentation and a poster presentation highlighting important insights into the biomechanical differences in synovial fluid composition between ACL-injured and osteoarthritic patients—an exciting contribution to translational orthopedic research.



H. Johnson, S. Stealey, N. Ly, R. Brophy, M. Rai, S. Zustiak, “Physical and Mechanical Characterization of Knee Synovial Fluid from Patients with Anterior Cruciate Ligament Tears and with Osteoarthritis,” (Oral and Poster)



SPIRIT OF THE BILLIKEN AWARD RECIPIENT: ANDREA SEDANO

BME student, **Andrea Sedano**, was one of 18 exceptional seniors who received the 2025 Spirit of the Billiken Award. This award celebrates students who demonstrate excellence in academics, leadership, service, and a commitment to SLU's mission. To read more about this award and the role of the recipients, click [here](#).

"Receiving the Spirit of the Billiken Award is incredibly meaningful to me, not only as recognition of my growth at SLU, but also as a tribute to my mentor, Dr. Scott Sell, who's guided me from day one. This award reflects my commitment to creating a more inclusive and supportive environment for underrepresented students in STEM. As I continue my journey beyond SLU, I carry with me the mission to serve others, uplift my community, and work toward a future where things align as they ought to be, inspired by the spirit of the Billiken." – Andrea Sedano, BME Senior



STUDENT ORGANIZATION HIGHLIGHT: NSBE

BME junior, **Regan Gibson**, is a member of Saint Louis University's chapter of the National Society of Black Engineers (NSBE). Last month, Regan attended the NSBE Annual Convention, held in Chicago, IL, along with 10 other SSE students and SSE Dean, Gregory Triplett. This opportunity allowed students to explore their different options after graduation.



With one event left this term, SLU's NSBE e-board is planning a full schedule for next year, featuring professional networking and social events to strengthen community connections. To keep up to date on their events, follow the SLU NSBE Instagram page @nsbe_slu.



REGAN'S TAKE ON THE NSBE ANNUAL CONVENTION

"I was able to talk to a plethora of companies that had opportunities for BME students that ranged from internships to full-time positions. Even if you don't plan on going straight into the workforce, they have representatives from different schools all around the country speaking about their grad school opportunities."



EXTRACURRICULAR HIGHLIGHTS OF BME STUDENTS

For **Sage Gatewood**, a junior in Biomedical Engineering, ultimate frisbee is more than just a sport—it's a way to promote personal growth both physically and mentally. Between classes and BME projects, Sage uses ultimate frisbee and the gym to clear their head and stay active. Next year, Sage will step into a leadership role as one of three team captains alongside fellow BME junior, **Lindsay Rehme**. With a strong sense of community and love for the game, Sage is building leadership skills that carry over into the classroom and beyond.



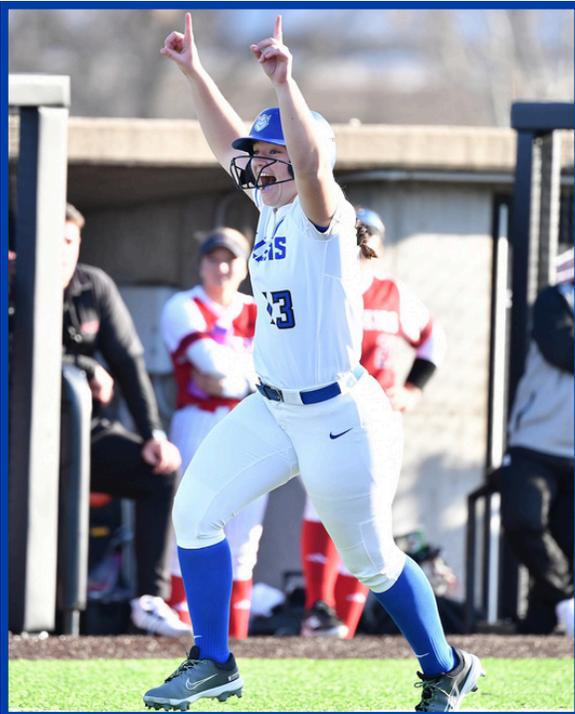
SAGE GATEWOOD, PICTURED LEFT

“

Frisbee helps me clear my head after class and reset before getting back into my homework or other BME related work.

”

BME JUNIOR NAMED A-10 SOFTBALL PLAYER OF THE WEEK 3X



Abby Mallo, BME junior and SLU catcher, was named the Atlantic 10 Conference Player of the week for April 7–13. This is the third time Abby has achieved this honor. She is among the league's top 10 with 44 hits (fourth), a .364 batting average (fifth), a .455 on-base percentage (seventh), and 27 runs (seventh). In addition to her time in the classroom and on the field, Abby works in **Dr. Koyal Garg's** Musculoskeletal Tissue Engineering Lab. “Even with my busy schedule, traveling for softball and studying when I have some time, I only feel grateful to be able to do both,” Mallo shared. To read more about Abby's softball accomplishments, check out her features in the SLU Newslink [here](#) and [here](#).

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- Apply class knowledge to real-life situations
- Develop lab skills
- Gain resume experience

Research Areas

- +Biomaterials
- +Biomechanics
- +Mechanobiology
- +Neuroengineering and Brain Computer Interface
- +Regenerative Engineering
- +Scaffold Production
- +Tissue Engineering



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THE MENTOR COLLECTIVE FOR UNDERGRADUATES AND ALUMNI!

We're calling on valued members of our community to serve in Saint Louis University's School of Science and Engineering Mentor Collective Alumni Network! This program matches undergraduate sophomores, juniors, and seniors with mentors like you who have been in their shoes and know first-hand what it's like to learn at SLU. Click [here](#) to sign up to be a mentor.

ATTENTION BME ALUMNI

Are you a SLU BME Alumni? If so, we'd like to invite you to fill out the form below to give us your updated contact information (email) and tell us where you have landed after graduation. With your permission, we would love to highlight your career achievements and stay connected with you in the future!

[BME ALUMNI FORM](#)

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