SLU SCHOOL OF SCIENCE AND ENGINEERING NOV 2024*

SLU BIOMEDICAL ENGINEERING NEWSLETTER

SAINT LOUIS UNIVERSITY

DEPARTMENT OF BIOMEDICAL ENGINEERING

IN THIS ISSUE

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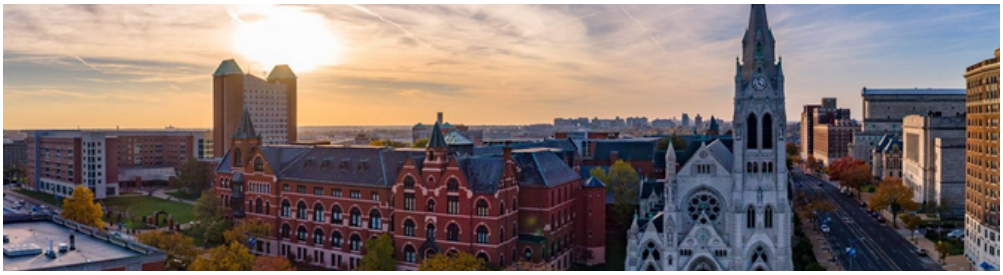


SLU BME AT SHPE 2024

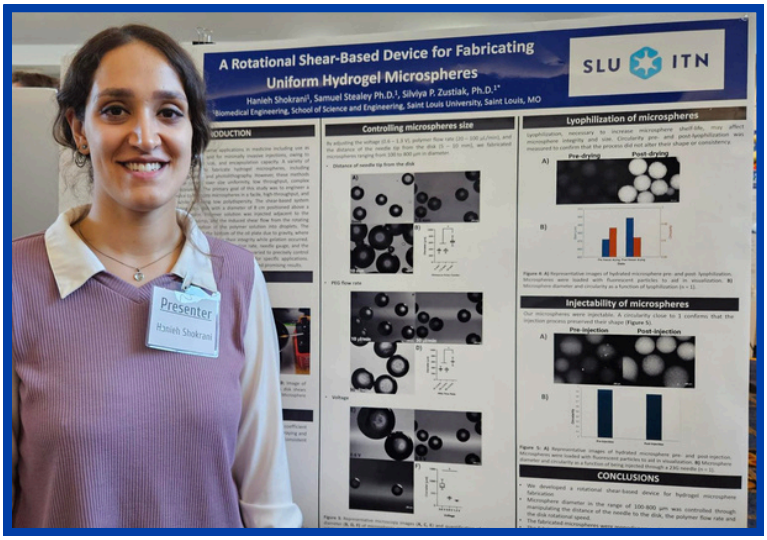
The Society of Hispanic Professional Engineers (SHPE) conference in Anaheim, California, held from October 30th to November 2nd, was a remarkable opportunity for BME and SSE students to connect, learn, and grow professionally. Dean Triplett joined the students, and his presence and valuable insights greatly enriched the experience.

Andrea Sedano (BME), **Michael Pritchard** (BME), **Raghav Yalamanchili** (BME), **Carlos Formoso** (BME), **Aryana Yazdi** (BME), **Van Phan** (BME), Jason Nguyen (Computer Engineering), Aidan Dempsey (Mechanical Engineering), Jose Montoya (Mechanical Engineering), Drew Bauer (Not Pictured, Mechanical Engineering), Max Ostrowski (Not Pictured, Aerospace Engineering), and Valerie Galiano-Rouge (Not Pictured, Computer Science)

ITN CONFERENCE

BME Ph.D. student, **Hanieh Shokrani**, represented SLU BME at the 3rd Annual Research Symposium (Neuroday) held at SLU on November 1, 2024. Hanieh presented a poster titled, "A Rotational Shear-Based Device for Fabricating Uniform Hydrogel Microspheres" detailing the research she is doing in Dr. Silviya Zustiak's soft tissue engineering lab. This symposium was hosted by SLU's Institute for Translational Neuroscience, which brings together researchers and clinicians throughout Saint Louis University who share a common interest in the neurosciences.

Institute for Translational NEUROSCIENCE
SAINT LOUIS UNIVERSITY



BME PROFESSOR INVITED TO SPEAK AT IOWA STATE UNIVERSITY

"Hydrogels and Microgels as Building Blocks of Bioengineered Tissues"

zustiaklab.com

BME Professor, **Dr. Silviya Zustiak**, was an invited speaker to Iowa State University's Department of Materials Science and Engineering Seminar on November 11, 2024 in Ames, Iowa. In her talk, Dr. Zustiak presented hydrogel, microgel and cryogel scaffolds for cell encapsulation, devices/techniques for microgel fabrication as well as microfluidic devices to introduce perfusion to bioengineered tissues that her lab has developed. Dr. Zustiak's lab has prioritized mild chemistries which allow in situ cell encapsulation as well as approaches amenable to semi high-throughput processing and data analysis to enable drug screening applications. Attendees of the seminar learned about hydrogel-based in vitro models for studying glioblastoma spheroid growth and chemotherapeutic responses at interfaces of varying stiffness and biochemical composition.

REMEMBERING SLU BME FOUNDER CECIL W. THOMAS

It is with a heavy heart that we share that Dr. Cecil W. Thomas, founder of Biomedical Engineering at SLU, passed on Friday, November 22, 2024. We will all miss Cecil very much. The following is from his daughter, Tina (edited for length): “My beloved father, Cecil Thomas, left us on Friday night. He was born in his parents' Kentucky home on May 17, 1941 and died peacefully, quietly, and surrounded by adoring family in his daughter’s Virginia home on a rainy Friday evening November 22, 2024.

Cecil Thomas lived a remarkable life as the eighth of nine children in a rural Kentucky farm family, a young drive-in movie projectionist, an electrical engineer at Martin Marietta Corp, and a professor of Biomedical Engineering. He helped found BME programs at universities on three continents. His engineering company accepted diverse projects ranging from visual perception to computer design for a mural at the Philadelphia train station. He applied his engineering skills to help people in Haiti and on American Indian reservations. Cecil Thomas was also a prolific author of fiction and short stories.

As Cecil neared the end of his battle with a third form of cancer, he smiled knowing that his grandson, Jack, and Catholic school friends were praying for him. He laughed really hard when another grandson, Christopher, remarked that Cecil would “finally be able to learn who is right.” If you are so inclined, please pray for Cecil! He would be equally pleased to know you sent love and light and were spreading kindness as he exited this world.

In accordance with his wishes, there will be no formal funeral service. He simply asked to have his ashes scattered close to home. If you wish to make a donation in his honor, Cecil’s favorite charity was Meds and Food for Kids, a group providing for children in Haiti. Enjoying nature or one of his many novels would be other great ways to remember him and celebrate the incredible journey he and his very loving wife of over 60 years, Janice Mitts Thomas, enjoyed together.”

Meds & Food For Kids

mfkhaiti.org

GARG LAB PUBLICATION

2024 BME grad, **Connor Tobo**, and colleagues from **Dr. Koyal Garg**'s lab collaborated with Dr. Paul Jelliss, SLU Chemistry Associate Professor, and recently had their research published in the journal, Gels.

Title: Electrostatic Gelatin Nanoparticles for Biotherapeutic Delivery

Author List: **Connor Tobo***, Avantika Jain-#, Madhushika Elabada Gamage-$, Paul Jelliss-$, and **Koyal Garg***

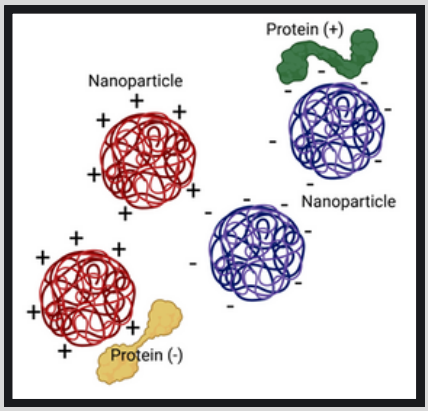
*BME $Chemistry #Pharmacology & Physiology

gels

KOYAL GARG, PH.D.
ASSOCIATE PROFESSOR
BIOMEDICAL ENGINEERING

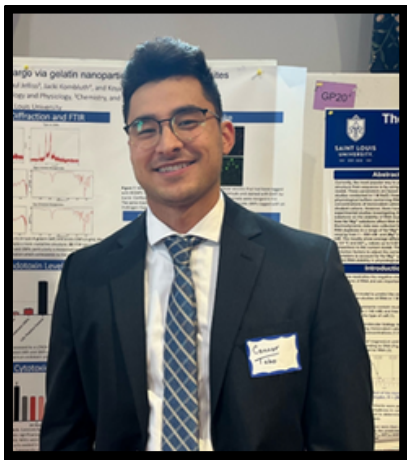
New & Noteworthy: They created nanoparticles from gelatin, a biopolymer, that can have either a positive or negative charge. These charged nanoparticles can be electrostatically conjugated with oppositely charged biomolecules for various therapeutic applications.

PAUL JELLISS, PH.D.
ASSOCIATE PROFESSOR
CHEMISTRY



CLICK **HERE** TO READ THE ARTICLE

gargklab.com



CONNOR TOBO, M.S.
2024 BME GRAD

SLU BMES HOSTS MEDTRONIC AND ABBOTT CRM TEAMS

The St. Louis University Biomedical Engineering Society (BMES) welcomed Abbott's St. Louis region CRM (cardiac rhythm management) team on November 11th. The event featured enlightening discussions about the field of CRM, hands-on demonstrations of Abbott's innovative devices, and an overview of their upcoming internship opportunities. Students were engaged in learning about the advancements in medical technology.

SLU BMES EVENTS

Medtronic
Engineering the extraordinary

Abbott

On November 18th, SLU BMES hosted Medtronic's St. Louis region CRM team, which included 2022 BME graduate, Michael Nickerson. Michael and his colleagues shared insights into their work, demonstrating cutting-edge medical technologies and innovations. Attendees saw firsthand how CRM devices revolutionize cardiac care. Both Medtronic and Abbott discussed upcoming internship opportunities, providing students with a glimpse into potential career paths and hands-on experience in biomedical engineering.

SLU BME PARTICIPATES IN SCIFEST

SLU BME was excited to participate in another SciFest at the St. Louis Science Center on November 9th. SciFest is a series of free, all-day, weekend expos designed to connect families and visitors of all ages with experts and professionals in Science, Engineering, Technology, and Math.

SLU BMES members, Chris Lau, Esha Pattan, and Katherine Marino, and Ph.D. student, Zack Bonick, showcased the wide range of disciplines within our program including orthopedics and regenerative medicine. The students highlighted these areas with a special focus on hydrogels derived from plant and animal sources and discussed their use in scaffolds, wound healing, regenerative medicine, and imaging. SLU BME is looking forward to participating in more SciFests in the future!

BME ALUMNI SPOTLIGHT

2003 BME graduate, Matthew Crow, is currently the Director of Systems Engineering at Bruker Spatial Biology, following an acquisition of NanoString Technologies. The company focuses on the emerging field of spatial biology, which enables researchers to study the spatial organization and interactions of cells within their native environment. His team drives product development of multiple platforms, including both a single-cell imaging system for spatial transcriptome mapping, and a cloud-based informatics solution designed for spatial analyses. Systems engineering teams play an important role in the product development process, managing the definition, design, and integration of the platforms. On these particular products, the systems are multi-disciplinary, spanning instrument hardware, software, and RNA readout panels.

MATTHEW CROW, PH.D.
DIRECTOR OF SYSTEMS ENGINEERING

BRUKER

BME ALUMNI SPOTLIGHT CONTINUED

What is your favorite part of your job?

My favorite part of the job is knowing the impact these platforms will have on patient healthcare across oncology and immunology. In my career, I have played similar product development roles on multiple research and clinical diagnostic platforms. Research products, such as the spatial imaging system described above, enable innovative research from discovery to translational applications. The design of clinical diagnostic platforms has been equally fulfilling. In my first role out of graduate school, I developed a near-patient CD4 cell counter for HIV monitoring in resource-limited settings. In a more recent role, I worked on the creation of a non-invasive lung cancer early detection system that acquires and classifies 3D images of cells in sputum. Each project provides a fun and exciting opportunity to learn new areas in the life sciences while continuing to advance patient health.

How did SLU and SLU BME prepare you for your current job?

The Saint Louis University Biomedical Engineering Department provided the core foundation of my career. It started with building the interdisciplinary knowledge required of a systems engineer in the medical device industry. Multiple research projects cultivated the critical thinking skills needed to solve pressing complex problems. Those same projects demanded effective, cross-functional communication skills. Most importantly, the program instilled a love for learning that left me curious and wanting to understand other areas of engineering and the life sciences. As a result, upon graduation I decided to continue my studies and earn my doctorate in biomedical engineering, studying the design of imaging systems and novel biomarkers for cancer detection. Those early foundational skills enabled success in both my graduate studies and time in industry.

Anything else you'd like us to know?

I would like to thank the Biomedical Engineering Department faculty that taught the class of 2003, including Dr. Gary Bledsoe, Dr. Cecil Thomas, Dr. Rebecca Kuntz Willits, and Dr. David Barnett. Their guidance and support was invaluable to our growth as students and future professionals.

Are you a BME Alum who is interested in being featured? We'd love to hear from you. Fill out our alumni form **here**.

CALLING ALL UNDERGRADUATES!

Are you eager to collaborate with professors and graduate students on impactful research? Want to gain hands-on experience that's advancing healthcare? Looking to develop lab skills and boost your resume? Apply for the BME Research and Experiential Learning Opportunities for Undergraduates! This program offers a unique chance to immerse yourself in meaningful research and practical applications. Don't miss out! Click **here** to fill out the application and then submit your resume to biomed@slu.edu.

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

Did you graduate this year? 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**

BME NEWSLETTER ACCESS

Did someone forward you this newsletter? Click **here** to be added to our distribution list.

Receiving this newsletter for the first time? Click **here** to read news from previous months.

NEWSLETTER UPDATE

UPDATE

We are changing the way we date our newsletters so that the month of the newsletter matches the dates of the events discussed. That's why you are seeing a second November newsletter. Our December newsletter will come out the week of Jan. 5th.