# Office of Undergraduate Research
# Lamar University

The Office of Undergraduate Research

## 2022-2023 Advisory Board

**Dr. Stefan Andrei**
Professor of Computer Science

**Dr. Robert Kelley Bradley**
Assistant Professor of Industrial Engineering

**Dr. Bianca Easterly**
Associate Professor of Political Science

**Dr. Gina Hale**
Associate Professor of Nursing

**Dr. Matthew Hoch**
Associate Professor of Biology

**Dr. Alyse Jordan**
Head of Research, Engagement, & Learning
The Mary and John Gray Library

**Dr. Edythe Kirk**
Associate Professor of Psychology

**Dr. Nicki Michalski**
Associate Professor of Communication

**Dr. Lekeitha Morris**
Associate Professor of Speech and Hearing

**Dr. Gevorg Sargsyan**
Assistant Professor of Finance

**Dr. Thinesh Selvaratnam**
Assistant Professor of Civil and Environmental Engineering

**Dr. Mamta Singh**
Associate Professor of Teacher Education

**Dr. Freddie Titus**
Associate Professor of Teacher Education, VP for Diversity Inclusion and Community Relations at LU

**Dr. Chun-Wei Yao**
Associate Professor of Mechanical Engineering

**Mr. Juan Zabala**
Vice President for University Advancement and Chief Officer of the Lamar University Foundation


## Office Information

**Dr. Cristian Bahrim – Director of O.U.R.**
**Archer 100D – Ext. 8290 – cbahrim@lamar.edu**

**Jenna Erwin**
**STEM 275 – Ext. 8430 – jerwin6@lamar.edu**

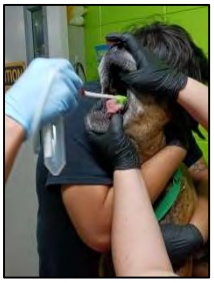

EXPO, the largest undergraduate research showcase at Lamar University, celebrated on April 14, one decade of existence. This year we had 55+ presentations, with the largest poster session in the last four years (26 posters), four workshops and five parallel breakout sessions.

Lamar community warmly welcomed student presenters from UT Arlington, Steven F. Austin University, University of Houston, and the Jai Narain Vyas University in India, and four exceptional plenary guest speakers: John Howe, Emeritus Professor of Finances at University of Missouri, Benjamin Park, Assoc. Professor of History and Director of Graduate Studies from Sam Houston State University, TX, Michael Williams, Assoc. Professor of Art from Nicholls State University, LA, and Kumer Das, the founder Director of O.U.R. at Lamar, now AVP for Research and Innovation at the University of Louisiana at Lafayette. For the first time, the EXPO event welcomed companies interested in Lamar students. O.U.R. is deeply grateful to all our quests for helping to move this annual event to the next level.

Every year, the OUR grant recipients who started their research projects in the previous fall have their showdown at EXPO, with oral and poster presentations. This year we had 26 OUR sponsored undergraduate students. Eight OUR grant recipients received awards and prizes for exceptional research done and their presentations at EXPO. Also, eight students who presented non-O.U.R. sponsored research (out of 20) have received awards for the high quality of their presentations at various research levels, from early stage, to in progress, and advanced. We are very proud of all our student presenters. Kudos to the awardees of EXPO 2023 and their mentors for their fine performance!

# 2022-2023 O.U.R. Grant Winners

## Muneeb Akhtar

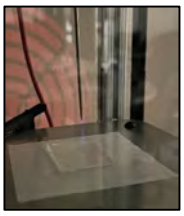


My participation in the program as an O.U.R. grant winner was genuinely transforming. I had the wonderful chance to perform undergraduate research in the field of cultural microbiology, specifically about Islamic dog teachings, which allowed me to deeply explore my interests and hobbies. Through the program, I learned vital skills in communication, data analysis, and laboratory procedures that have helped me in both my academic and professional endeavors.

The opportunity to network with other researchers and industry experts in my field will always be one of the most treasured parts of my experience. I felt supported and inspired by the program's community whether I was sharing my research at The Tenth Annual Exhibition of Undergraduate Research and Creative Activities or working with other groups. Overall, the O.U.R. program not only gave me the financial means to carry out my study but also the knowledge, contacts, and network I needed to be successful in my future undertakings.

## Jennifer Arredondo

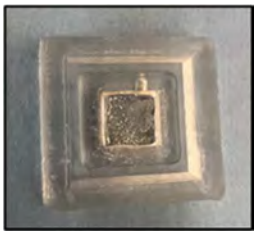
Being a part of the Office of Undergraduate Research organization has been an incredible experience that I'm truly grateful for. Working alongside such talented and passionate individuals has been inspiring and has taught me so much. This organization flows with opportunities and networking like no other.



Throughout my experience I've had the chance to work on new machinery and software. I've built techniques since learning to work with the M2 Fusion laser cutter, mold making and casting, AC and DC corona discharge treatments. Even sharpening my skills within Fusion360 and g-coding. The Office of Undergraduate Research has given me the opportunity to present my research beyond Lamar University – I've presented my research at TEHA conference in Round Rock, TX and at the Girls and Women in Science conference. Overall, I'm so thankful for the opportunity to be a part of something so important and meaningful.

## Noah Bonnette

My project was centered around two topics, primarily: metal casting and nano/microstructures. Both are not topics regularly discussed in a mechanical engineering curriculum. My OUR funded project allowed me to explore these topics in a very tangible way, that was interesting to me. Not only was I able to explore new topics related to my field of study, but I also gained valuable experience working with others to achieve common goals. Often, progress within my project was made from combined ideas and efforts of myself and other students, working on similar projects. From my class and internship experiences, I know that this is a valuable skill that I will continue to develop throughout the duration of my career. Finally, I am grateful for my OUR experience because it gave me the opportunity to contribute to a field of study that I am interested in. The thought that my time and effort invested into the project could lead to a meaningful discovery and advancement in this field excites me and makes me appreciate the opportunity that I had and those who helped make it a meaningful experience.

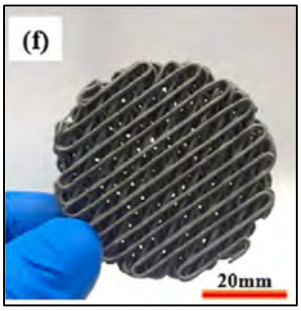


# 2022-2023 O.U.R. Grant Winners

## Aniya Crawford, Ethan Honza, Haley Perkins

Throughout our research project, Leveling up: Obstacles to Sign Language Interpreting Advancement, which we conducted with Dr. Smith and Mr. Williams, we gained plenty of hands-on experience, not only with research itself, but interacting with other scholars and the general public. The many presentation opportunities we had were also valuable and encouraging experiences. While we started this journey nervously and unsure, the end result was three, semi-confident undergraduates ready to show everyone our efforts. Thank you so much for allowing us the opportunity to conduct our research.

## Evelyn Hardy




OUR was a great experience for me. Before OUR, I had no idea what the research process was, but OUR broke it down into manageable pieces and allowed me to experience and learn it. My project was over “Effects of 3D Printed Bouligand Structures with Different Pitch Angles on a Materials Dynamic Yield Strength.” A large part of my project was 3D printing and Tensile testing, and working with them allowed me to gain a more thorough knowledge of CAD modeling and 3D printers. Overall my experience with OUR has taught me a great deal about the research process and the tools used in my research.

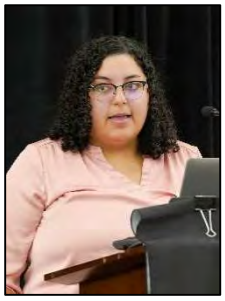
## Maryah Javed

It has been a great honor to be a part of OUR research and work with my amazing mentors. I have developed so many valuable skills throughout this project. With the guidance of my mentor, Dr. Singh, I was able to learn how to conduct research and teach students. I have also met many incredible people along the way that have helped me understand what research is and how to do it. OUR has given me such a great experience that has not only taught me about research, but it has helped me grow as a person and gain more clarity for my future.

# 2022-2023 O.U.R. Grant Winners

## Heena Karani

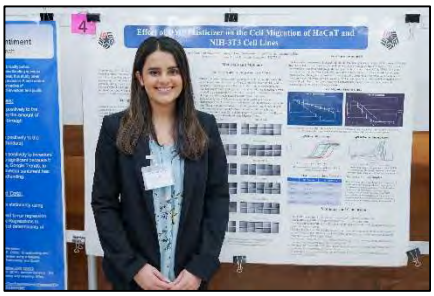
Being chosen as an O.U.R fellow was one of the most fulfilling experiences of my time at Lamar. The support from the community that exists only within OUR has been an eternal constant in the past year. The various panels and presentations the OUR set up for us fellows were incredibly helpful as the research progressed. From the Literature Review presentation by Dr. Jordan to the panel discussions with past OUR awardees, I never felt alone or adrift in the process. My mentor, Dr. Twagirayezu, and I were especially grateful to the personal attention by the director of the OUR, Dr. Cristian Bahrim. Dr. Bahrim, even with all his various responsibilities, never failed to keep in touch on the progress of my research and to ask if there was any possible help he could personally offer. I am forever grateful for having been gifted the opportunity to be part of an amazing organization and project in my last year at Lamar. I am deeply thankful to Ms. Jenna Erwin, Dr. Cristian Bahrim, and, of course, Dr. Sylvestre Twagirayezu.



## Itzanami Madrid

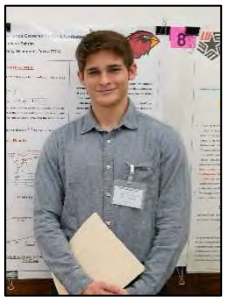
With this OUR grant, I had the ability to create an engaging lesson about climate change, teach it to preservice teachers, and gain more confidence in my abilities with creating lessons and teaching. With Dr. Singh's help, I also gained a multitude of experience with the process of conducting research, from writing a literature review to formatting a research paper, and everything in between. As of present, I have completed my research, and presented my findings. My experience with OUR has also given me many opportunities to practice public speaking. Now that I am confident in my ability to give presentations, I hope to have more opportunities to present these findings in the future. The skills and knowledge that I gained throughout my journey of conducting educational research are invaluable to me and my future endeavors.

## Amber Maredia

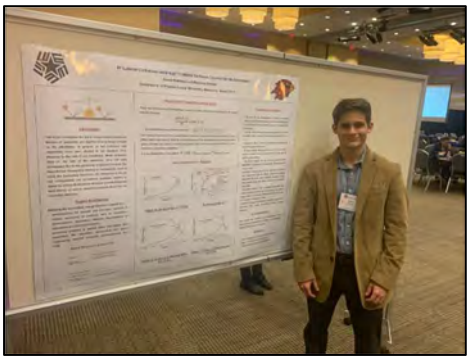


I am so grateful for the opportunity to conduct research under the guidance of my wonderful mentor, Dr. Ian Lian, and for the support from the O.U.R. Through completing this project and participating at the EXPO, I have gained skills I feel can bring into the next phase of my career. As someone entering the field of medicine, I felt that conducting research at Lamar University helped me explore my interests and increased my curiosity about a relevant topic in today's environment. I also gained research and presentation skills through the informative workshops held by the O.U.R. I would like to thank the Office of Undergraduate Research, Dr. Ian Lian, as well as my fellow students who worked on this project.

# 2022-2023 O.U.R. Grant Winners

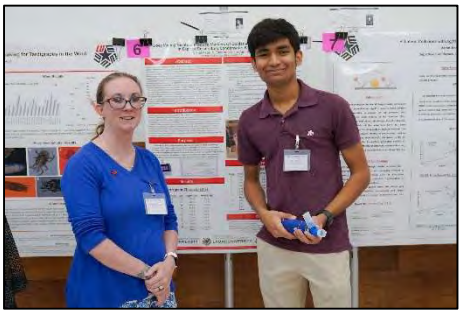


## Aaron Martinez



The O.U.R. Program was a unique experience that fostered my joy in researching by giving me opportunities to present my research at conferences and to attend rich campus events and workshops that left me better equipped to continue research in the future. During my time in the program, I presented at two conferences, namely the EXPO conference and the TSAAPT 2023 Joint Spring Meeting, and I attended a total of four. These experiences improved my networking skills and exposed me to a variety of different scientific disciplines that undergraduates, graduates, and professionals conducted research in. In my opinion, providing professional conference experiences to undergraduates is what the O.U.R. Program does best, as no other program encourages students the way the O.U.R. Program does. This program certainly believes in you and rejoices with your achievements. To top it off, I learned fascinating scientific concepts, unique programming skills, and developed my writing skills from a professional viewpoint.

## Nikhil Patel



Throughout the 2022-2023 year, I conducted undergraduate research at Lamar University with my mentor, Dr. Jordan. Not only has this experience been beneficial academically, but also personally as a student majoring in the STEM field. As a biology major with a pre-med concentration, I had been yearning for hands-on lab experience and to understand what being a researcher felt and looked like. OUR was the perfect opportunity for me and since being a grant recipient, I have fulfilled both wishes and more. For example, I learned how to cooperate with a variety of individuals, whether it be my mentor or participants. Additionally, I also gained valuable experience on managing my time, whether it was a submission for an IRB Proposal or even small things, such as working independently in the lab with a short time frame to get this done. Overall, this experience was very enrichening, and not only did I benefit from it academically, but also personally. I drastically grew as a young scholar and I can't wait to see where my journey goes, thanks to OUR.

## Justin Ramirez

As an undergraduate researcher, I enjoyed many aspects of the research program. Firstly, I appreciated the opportunity to work alongside experienced researchers and gain valuable insights into their approaches and methodologies. This allowed me to develop my own research skills and techniques, as well as expand my knowledge in a particular field of study. Secondly, I enjoyed the challenge of conducting research and the sense of accomplishment that came with making progress and achieving results. It was rewarding to see my hard work and dedication pay off in the form of new discoveries or contributions to the field. Lastly, the research program provided a platform for me to develop valuable transferable skills, such as critical thinking, problem-solving, and communication, which will serve me well in any future endeavors. Overall, the research program was a challenging and rewarding experience that I greatly enjoyed.

# 2022-2023 O.U.R. Grant Winners

## Omar Ramos

Overall, doing research for the project "Deaf Latino's Experiences in Post-Secondary Education", has been a memorable experience. Working with Dr. Smith and Jazleen as my team has given me a sense of how collegiate research goes for EXPOs and such. Presenting at EXPO was surprisingly a pretty laid-back experience. The judges had a basic sense of Deaf culture as a whole and seemed genuinely curious to learn more about how they could support.

## Cristian Reza Mora

Through my research experience for Lamar's Office of Undergraduate Research, I cannot emphasize enough the value-impact in my personal and academic growth. Although the process was filled with numerous personal and technical challenges, setbacks, and roadblocks, the support and guidance from the director as well as my mentor helped me persevere through the difficulties that ultimately led to the successful completion of the project. Their guidance and support played a crucial role in shaping my research skills and taught me the importance of resilience and perseverance in the face of obstacles. In this program, I not only developed a newfound appreciation for research, but also gained the confidence and skills necessary to better tackle future challenges. From my experience, I recommend O.U.R. opportunities to any student seeking to expand their knowledge and skills to better develop valuable problem-solving abilities.

## Madison Smith

Being a part of the O.U.R program has been one of the highlights of my undergraduate career and has set me up for success in graduate school! This program has provided amazing opportunities to collaborate with experienced researchers, develop friendships within the program, and has increased my confidence in public speaking! I have enjoyed being a part of this program and the valuable insight I have received from the many workshops, panel discussions, and other resources graciously provided by O.UR. I would highly recommend this experience to any student who is interested in research!

## Cindy Sosa Castro

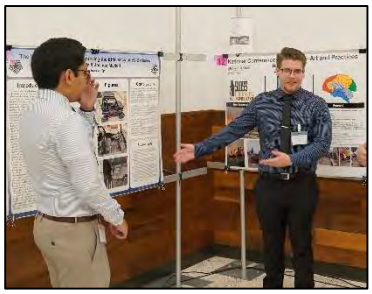
Going into the OUR program, I was excited and nervous because I had never conducted research. However, the OUR program allowed me to engage in firsthand research, write the report, and present with the support and guidance of my mentor. Some of my great learning lessons included conducting a literature review by finding relevant articles. I also learned how to conduct interviews to set boundaries between a researcher and participants. Another thing I learned was that recruiting participants can be challenging when the population is small. Therefore, learning how to use snowballing sampling procedures to get the needed participants was significant. Additionally, my mentor introduced me to basic MAAXQDA as an analysis program to visualize my data. Finally, learning and improving my writing, confidence, and presentation skills was a wonderful experience. Overall, the OUR experience has changed my perception of college and motivated me to pursue graduate studies.

# 2022-2023 O.U.R. Grant Winners

## Kimberlie Travelstead

When I transferred to Lamar University, I knew that taking advantage of every opportunity I could participate in would help give me a sound footing in pursuing my dreams. OUR grant and the fellowship that goes along with it have done just that for me.

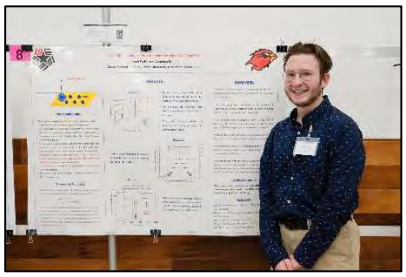
It was great to be able to choose my own research topic, and I discovered that other students were eager to support and encourage my ideas as I explored an aspect of an earlier study that had remained unexplored. The scientific method is a fantastic procedure, and it often yields results that raise new queries. It is essential to have access to the right mentor if you want to keep the project exciting. Dr. Hoch, who I selected as my mentor, was the ideal fit for me. Since he continuously considers my input and has an excellent flair for turning a developing idea into a masterpiece, I like studying with him.



## Nicholas Wade and Joshua Mallari

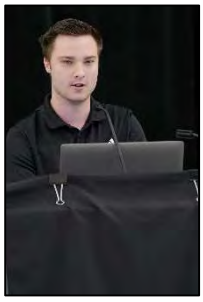
We both enjoyed our time as O.U.R. grant recipients and we believe that our research was a meaningful experience despite it not being within our field of expertise. This research experience elevated our knowledge of the fundamentals of electrical engineering and gave us a newfound level of respect for the field. We greatly appreciated the opportunity provided by the O.U.R. grant funds as it made this wonderful experience possible for us. Additionally, we want to give thanks for the opportunity that our mentor, Dr. Stefan Andrei, provided for us as well as the plethora of guidance he was able to provide whilst on our research journey. It was an enlightening experience to be able to enjoy the presentations and posters of the other O.U.R. grant fellows during EXPO 2023 as we were able to glean a lot about the other fields and practices presented at the conference.

# 2022-2023 O.U.R. Grant Winners



## Jonah Watts

The Lamar O.U.R. Program has helped me develop essential research skills that I will be able to utilize for the rest of my career. I have been able to explore a new field that I never would have even thought of and have learned a tremendous amount throughout the process. I would like to thank Dr. Bogdana Bahrim for being an amazing mentor and guiding me throughout this research. I am forever grateful for this amazing experience.



## Colby White

I am truly thankful to both my mentor, Dr. Ashwini Kucknoor, and to the Lamar University Office of Undergraduate Research for providing me with a valuable and memorable research experience. I enjoyed the experience this academic year immensely. The skills and knowledge I gained were invaluable, and I feel like it really helped me grow both personally and academically. I would highly recommend it to anyone who is interested in exploring their field of study in a deeper way. The opportunities for growth and discovery are endless, and the impact it can have on your future career is immeasurable.

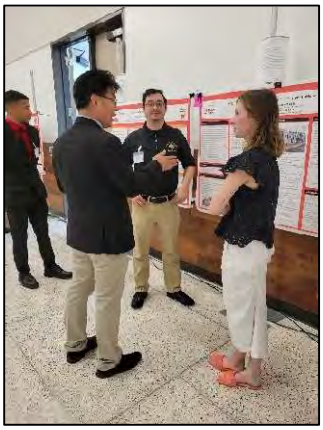
## Lexus Wilkerson

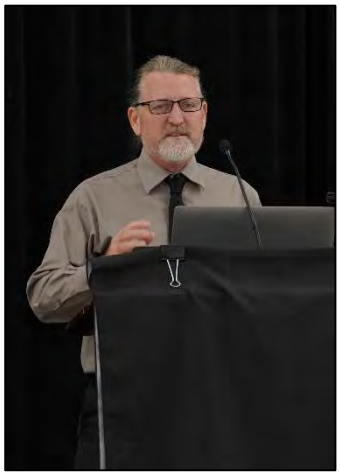
The O.U.R. Grant has allowed me to work closely with my mentors, Dr. Agim Kukeli and Dr. Dan French to produce a quality research project. Although my research did not require materials, the grant allows me the ability to travel and present our research at conferences. Above all, the Office of Undergraduate Research provided many workshops and panels that were very helpful in learning how to research at a university level.

## Lily Yoder

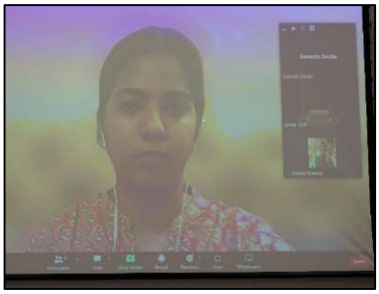
Participating in undergraduate research has greatly shaped my time here at Lamar. I am grateful to Dr. Bahrim and Ms. Erwin for their guidance as always, and I am especially thankful to my mentor Dr. Kirk who encourages me and has taught me everything I know about the research process.

# EXPO 2023 – April 14, 2023



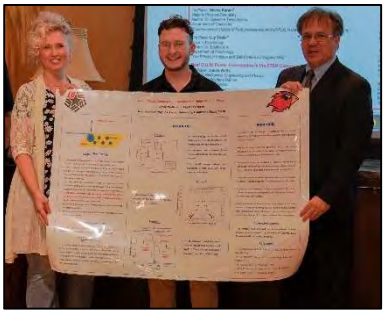




# EXPO 2023 – April 14, 2023





# EXPO Awards Ceremony – April 28, 2023

# EXPO 2023 Winners

## O.U.R. Sponsored Awards and Prizes

### Best O.U.R. Research Project in the STEM Category

1st Place: **Amber Maredia**
Major in Biology
Mentor: Dr. Ian Lian
Department of Biology
*"Effect of DMP Plasticizer on the Cell Migration of HaCaT and NIH-3T3 Cell Lines."*

2nd Place: **Kimberlie Travelstead**
Major in Environmental Science
Mentor: Dr. Matthew Hoch
Department of Biology
*"Micro-invertebrate Aerial Dispersal on the Chenier Ridge-Looking for Tardigrades in the Wind."*

3rd Place: **Heena Karani**
Major in Physical Chemistry
Mentor: Dr. Sylvestre Twagirayezu
Department of Chemistry
*"Conformational Studies of Perfluorooctanoic Acid (PFOA) in the Presence of Molecular Helicity."*

4th Place: **Colby White**
Major in Biology and Nursing
Mentor: Dr. Ashwini Kucknoor
Department of Biology
*"Tetraspanin Gene Knock-down and Exosome Formation in Tritrichomonas foetus, a Cattle Pathogen."*

### Best O.U.R. Research Project in the HASBSEB Category

1st Place: **Cindy Sosa Castro**
Major: American Sign Language Teaching
Mentor: Dr. Millicent M. Musyoka
Department of Deaf Studies and Deaf Education
*"Capturing the stories of Deaf Individuals on College and Career Aspirations to Improve Advising and Mentoring."*

2nd Place: **Madison Smith**
Major in Speech and Hearing Sciences
Mentors: Dr. Lekeitha R. Morris and Dr. Millicent M. Musyoka
Department of Speech and Hearing Sciences
*"Speech-Language Pathology Graduate Students' Knowledge, Attitudes, and Perceptions Regarding Deaf Culture."*

# EXPO 2023 Winners

## Best O.U.R. Oral Presentation in the STEM Category

1st Place: **Heena Karani**
Major in Physical Chemistry
Mentor: Dr. Sylvestre Twagirayezu
Department of Chemistry
*"Conformational Studies of Perfluorooctanoic Acid (PFOA) in the Presence of Molecular Helicity."*

2nd Place: **Lily Yoder**
Major in Psychology
Mentor: Dr. Edythe Kirk
Department of Psychology
*"The Effects of Fatigue and Self-Esteem on Suggestibility."*

## Best O.U.R. Poster Presentation in the STEM Category

1st Place: **Jonah Watts**
Major in Mechanical Engineering and Physics
Mentor: Dr. Bogdana Bahrim
Department of Physics
*"Local Effects Induced by K Adatoms on Noble Metal Surfaces."*

2nd Place: **Amber Maredia**
Major in Biology
Mentor: Dr. Ian Lian
Department of Biology
*"Effect of DMP Plasticizer on the Cell Migration of HaCaT and NIH-3T3 Cell Lines."*

**Kimberlie Travelstead**
Major in Environmental Science
Mentor: Dr. Matthew Hoch
Department of Biology
*"Micro-invertebrate Aerial Dispersal on the Chenier Ridge-Looking for Tardigrades in the Wind."*

## Best O.U.R. Oral Presentation in the HASBSEB Category

1st Place: **Cindy Sosa Castro**
Major: American Sign Language Teaching
Mentor: Dr. Millicent M. Musyoka
Department of Deaf Studies and Deaf Education
*"Capturing the stories of Deaf Individuals on College and Career Aspirations to Improve Advising and Mentoring."*

## Best O.U.R. Poster Presentation in the HASBSEB Category

1st Place: **Aniya Crawford, Ethan Honza, and Haley Perkins**
Majors in American Sign Language
Mentors: Dr. Zanthia Smith and Mr. Douglas Williams
Department of Deaf Studies and Deaf Education
*"Leveling Up: Obstacles to Sign Language Interpreting Certification Advancement."*

# EXPO 2023 Winners

## Non-O.U.R. Sponsored Awards and Prizes

### Best STEM Presentation in the Early Stage

1st Place: **Elie Germain**
Co-authors: Jake Woods and Jack Holtham
Major in Construction Management
Mentors: Dr. Seokyon Hwang and Dr. Minkyum Kim
Reese Construction Management Program
*"Impact of the Transition from Diesel-Powered to Battery-Powered Heavy Construction Equipment on Environment, Safety, and Economy."*

**Elie's testimonial: "***I am thrilled and honored to be standing here today as the first-place winner of the STEM poster presentation. It is truly a privilege to be recognized among many talented peers and to have the opportunity to share my work with all of you."*

### Best HASBSEB Presentation – Early Stage

1st Place: **Natalie Bean**
Major in Nursing
Mentor: Dr. Gina Hale
Joanne Gay Dishman School of Nursing
*"Firearm Safety Education and Injury Prevention in Healthcare."*

**Natalie's testimonial: "***My experience at EXPO 2023 was my first time doing a poster presentation. I am very grateful to my mentor, Dr. Hale, who helped me with everything. Our project was a summary of current literature on firearm safety in healthcare, and I don't think I would have known where to begin without her guidance. I would also like to thank Dr. Bahrim and the Office of Undergraduate Research for providing me with this opportunity. I had a fantastic time giving my presentation and plan to participate again next year!"*

### Best STEM Presentation – In-progress and Advanced


1st Place: **Arizbeth Lopez Garcia** and **Sindi Castillo**
Majors in Biology
Mentor: Dr. Maryam Vasefi
Department of Biology
"Neuroprotective Effect of CBD on β-Amyloid Toxicity."

**Sindi's testimonial:** *"It has been an honor to present my research at the 2023 EXPO and share the results of an ongoing project. Not only did it allow me to gain experience in presenting, but I was able to share knowledge on possible future directions in treating Alzheimer's Disease. I am grateful to have had an amazing coauthor, Arizbeth, and a supportive mentor, Dr. Vasefi."*


2nd Place: **Jordan Whelply and Natalie Messer**
Co-authors: Luke Hunt
Majors in Construction Management
Mentors: Dr. Seokyon Hwang and Dr. Minkyum Kim
Reese Construction Management Program
*"Investigating the Potential of 3D Printing Technology for Affordable Housing."*

**Jordan's testimonial:** *"During the research process, both Dr. Hwang and Dr. Kim gave us valuable direction and feedback on our work that enabled us to complete the project. At the expo I had the opportunity to discuss our project with visitors, professors, and judges. The expo was a valuable experience, and I would like to thank all those involved in putting it together. I am very grateful for being recognized and receiving an award for our hard work."*

# EXPO 2023 Winners


**Katie Page and Grafton Conger**
Co-authors: Nathan Vincent, Brandy Mejia, Michael Segura, Grayson Wehking, and Devon Carter
Majors in Mechanical Engineering
Mentor: Dr. Jenny Zhou Department of Mechanical Engineering
*"Stirling Engine Kart Frame Analysis."*

**Grafton's testimonial**: *"Our team was able to learn how to properly do research in the design and building of a stirling engine as well as work on the analysis of the frame to make sure that it would be able to withstand the adjustments that were being made to it. Through coming together as a team, we were able to overcome the big learning curves we had as a group to be able to succeed on our project with the research we were able to do."*

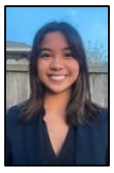
## Best HASBSEB Presentation – In-progress and Advanced

1st Place: **Benjamin Porter**
Major in Communications in Film
Mentor: Prof. Andre Favors
Department of Communication and Media
*"A Rhetorical Analysis of the Uses of Parody and Intertextuality in Epic Games' Nineteen Eighty-Fortnite Advertisement."*

**Benjamin's testimonial**: *"I'm thankful for the wonderful opportunity to present in front of a large audience. It's an experience that not many get the chance to try. I'd like to thank my mother and Mr. Favors."*

2nd Place: **Jasmine Garcia**
Major in History
Mentor: Dr. Jeff P. Forret
Department of History
*"Richard Falcon: A Forgotten Figure in the Chicano Movement."*

**Jasmine's testimonial**: *"Presenting at Expo was a great experience. I had most of my research done ahead of time since this was a HIST 3390 research paper. My research is something I am really passionate about, and I really appreciate my mentor for pushing me to present my work at the Expo. I really liked the guest speakers and having the chance to talk to professors about their experience post doctorates at the round table talk. The Expo was a great first steppingstone to further advance in my presentation skills and to eventually present my work at other events."*



**Alexa Heng**
Major in Computer Science
Mentor: Dr. Jennifer Fagen
Department of Sociology, Social Work, & Criminal Justice
*"Understanding Victims of Sexual Assault: Deconstructing Emotional Manipulation Tactics Perpetrated Against Asian American Women."*

**Alexa's testimonial**: *"Presenting at EXPO was also a nervous experience for me, but I was greeted with a supportive panel of judges who asked questions and really liked my topic. I would like to thank Dr. Fagen and Lamar's Office of Undergraduate Research for pushing and supporting me to excel. I can't wait to see how my research develops in the next year!"*

# EXPO 2023 Winners

## Graduate Level Research - Awards and Prizes

### Best Graduate Level Poster

1st Place: **Chandan Chaudhari**
Co-authors: Sudhakar Ravuri and Swikar K C
Graduate Student in Mechanical Engineering
Mentor: Dr. Xianchang Li
Department of Mechanical Engineering
*"Development of an Effective Ejector-Pump System to Enable Sustainable Sediment Removal for Port and Other Coastal Infrastructures."*

**Chandan's testimonial**: *"Working under the mentorship of Dr. Xianchang Li at Lamar University has been an exceptional experience that has ignited my passion for research. I had the privilege of presenting my work at an EXPO, where I received valuable feedback from experts in the field. The event was a commendable and inspiring opportunity. Overall, this experience has been transformative and will undoubtedly shape my future endeavors."*

2nd Place: **Nischal Kharel**
Graduate Student in Mechanical Engineering
Mentor: Dr. Xuejun Fan
Department of Mechanical Engineering
*"Deformation of a N-layer Strip Subjected to Temperature Change."*

**Nischal's testimonial**: *"I am excited to share my experience and the award I received at EXPO 2023. Collaborating with my mentor Dr. Xuejun Fan on the research project was an incredible journey that broadened the boundaries of my knowledge. Presenting the findings at the EXPO was a truly exhilarating experience, as it allowed me to share my hard work with a diverse audience of professionals and receive valuable feedback. I had a good opportunity to view my research from some unique perspectives that I hadn't considered before through the queries and response of visitors. I am grateful to the Office of Undergraduate Research for the opportunity and growth that this experience has brought, and I look forward to further contributing to the research community."*

### Best Graduate Level Talk

1st Place: **Sumit Khadka**[1]
Co-authors: Sean Guthrie[1] and Junjie Li[2]
Graduate Student in Physics
Mentor: Dr. Byron Freelon
[1]Department of Physics, University of Houston
[2]Brookhaven National Laboratory
*"Ultrafast Photoinduced Lattice Dynamics on MoTe2 Investigated by Megaelectron Volt Ultrafast Electron Diffraction (MeV UED) System."*

**Sumit's testimonial**: *"The MeV UED technique provides improved temporal resolution and access to higher order diffraction, which enabled me to study the sub-femtosecond photoinduced dynamics on MoTe2 to reveal its various properties for electronic and optical applications. This research was made possible with invaluable guidance from Dr. Byron Freelon, and resources from the University of Houston, and Brookhaven National Laboratory. I extend my appreciation to Lamar University for allowing me to present at EXPO 2023, which provided valuable feedback for my future research endeavors."*

# EXPO 2023 Winners

## Partnership with O.U.R.

## in offering student recognitions at EXPO 2023

### The Center for History and Culture of Southeast Texas and the Upper Gulf Coast presents the Judith Linsley Award to:

**Kimberlie Travelstead** - *"Micro-invertebrate Aerial Dispersal on the Chenier Ridge-Looking for Tardigrades in the Wind."*

**Benjamin Porter** - *"Undivided Interests."*

**Chandan Chaudhari** and **Sudhakar Ravuri** - *"Development of an Effective Ejector-Pump System to Enable Sustainable Sediment Removal for Port and Other Coastal Infrastructures."*

### LGBTQ+ Initiatives Committee presents the Lavender Award to:

**Halli Blank** - *"The Supreme Law of the Land Versus Public Opinion: A Scholarly Analysis of the Effects of Dobbs v. Jackson on the Future of Obergefell v. Hodges"*

**Alexa Heng** - *"Understanding Victims of Sexual Assault: Deconstructing Emotional Manipulation Tactics Perpetrated Against Asian American Women"*

# A big 'Thank You!' to all judges for assessing talks and poster presentations at EXPO 2023

Dr. Mehmet Akkurt, Department of Counseling

Dr. Bogdana Bahrim, Department of Physics

Dr. Cristian Bahrim, Department of Physics

Dr. Rebecca Boone, Department of History

Dr. Robert Kelley Bradley, Department of Industrial Engineering

Dr. Perumalreddy Chandrasekaran, Department of Chemistry and Biochemistry

Dr. Rafael De La Madrid, Department of Physics

Dr. Sushil Doranga, Department of Mechanical Engineering

Dr. Bianca Easterly, Department of Sociology

Mr. Andre Favors, Department of Communication

Dr. Lilian Felipe, Department of Speech and Hearing

Dr. Ozge Gunyadin, Department of Chemistry and Biochemistry

Dr. Gina Hale, Department of Nursing

Dr. Liv Haselbach, Center for Resiliency

Dr. Ping He, Department of Mechanical Engineering

Dr. Matthew Hoch, Department of Biology

Mr. Paul Howell, Department of Business

Dr. Seokyon Hwang, Department of Construction Management

Dr. Alyse Jordan, Mary and John Gray Library

Dr. Shannon Jordan, Department of Health and Kinesiology

Dr. Minkyum Kim, Department of Construction Management

Dr. Edythe Kirk, Department of Psychology

Dr. Ashwini Kucknoor, Department of Biology

Dr. Agim Kukeli, Department Business

Dr. Ian Lian, Department of Biology

Dr. Mark Mengerink, Department of History

Dr. Nicki Michalski, Department of Communication

Dr. Lekeitha Morris, Department of Speech and Hearing

Dr. Millicent Musyoka, Department of Deaf Studies and Deaf Education

Dr. Benjamin Park, Special Guest from the Department of History at Sam Houston State University

Mr. Ken Poston, Department of History

Ms. Elizabeth Sanders, Mary and John Gray Library

Dr. Thinesh Selvaratnam, Department of Civil and Environmental Engineering

Dr. Cengiz Sen, Department of Physics

Dr. Stuart Wright, Department of Sociology

Dr. Qiang Xu, Department of Mechanical Engineering

Dr. Chun-Wei Yao, Department of Mechanical Engineering

Dr. Derizhan Yavas, Department of Mechanical

Dr. Jenny Zhou, Department of Mechanical Engineering

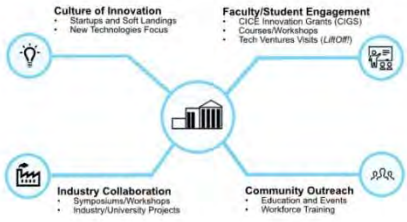
**A big 'Thank You!' and gratitude to our special guests for attending EXPO 2023. The activities and products presented by their companies offer valuable resources to our students and faculty. Thank you, Dr. Kelley Bradley for your assistance in bringing a booth component that offered a great showcase of nearby industries for the first time to EXPO!**

**Kaylynn Johnston**, *Senior Technology Engineer*
**Dale Clark,** *Technical Manager*
**Noah Benedict,** *Technology Engineer*
**The Goodyear Tire & Rubber Company**
11357 IH 10, Beaumont, TX 77705
phone.409.794.5749
https://www.goodyearchemical.com/

**Robert "Tank" Gross,**
*Systems & Reliability Account Manager*
**Victor Vuong,** *Solution Architect*
**Scallon Controls**
https://www.scalloncontrols.com/

**Martin Schutte,** *President*
**Lift-Off Pipe Supports**
Lake Charles, LA.
Phone (337) 515-8590
https://liftoffpipe.com/

**Tejus Mane,** *Commercialization Associate*
**The Entrepreneurship Institute at Lamar University**
5091 Rolfe Christopher Dr.
Beaumont, TX 77710
https://www.lamar.edu/commercializationcenter/




**Dr. Alyse Jordan,** *Head of Research, Engagement, & Learning Services*
**Elizabeth Sanders,** *REL Librarian*
**Mary and John Gray Library of Lamar University**
https://www.lamar.edu/library/index.html

# Student Spotlight

## David Matherne

### Lamar Student Representative at the 2023 Undergraduate Research Day at the Capitol in Austin

Every two years, when the House is in session, public universities are invited to showcase undergraduate research, with a poster presentation at the Capitol in Austin. The event is called Undergraduate Research Day (UGRD) and is hosted at the Capitol in Austin by the Council of Public University Presidents & Chancellors (CPUPC). This year's event was on April 11, 2023. *CPUPC is a council comprised of the chief executive officers of the Texas public general academic universities, system offices, health-related institutions, and the three two-year state colleges in the Houston area.*

Each state university in Texas runs a selection process for choosing one student representative to join the event in Austin. At Lamar University, the Advisory Board of the Office of Undergraduate Research (O.U.R.) does the selection. Out of five finalists, the Advisory Board of O.U.R. picked David Matherne, a biology major, with the physics project: "Modelling Fast Interplanetary Magnetic Clouds", mentors Dr. Evgeny Romashets and Dr. Cristian Bahrim. This was a project completed under the Summer Undergraduate Research Fellowship (S.U.R.F.) program in 2022. David's research offers a new model in the field of Geospace science for the propagation of interplanetary magnetic clouds through Heliosphere with a geomagnetic impact on Earth.

At this event, David was accompanied by Dr. Jerry Lin, the Associate Provost for Research and Sponsored Programs at Lamar, and Dr. Cristian Bahrim, Director of O.U.R. and David's mentor. David Matherne presented his research to professors, administrators from public universities, and peers from 75 schools in Texas.

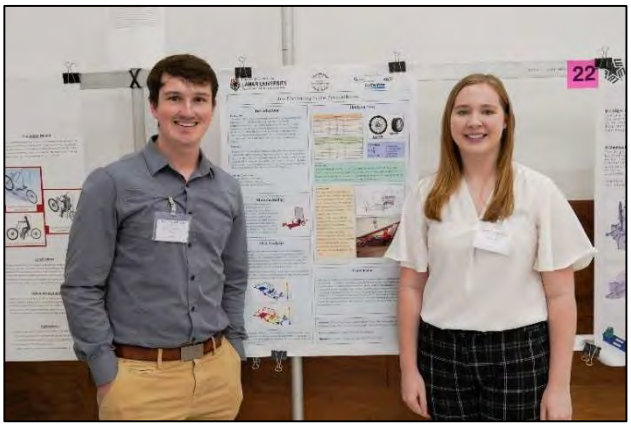
David is an outstanding student who worked very hard to build a strong research project under the S.U.R.F. 2022 program. David successfully presented preliminary results at two venues before going to Austin: The First Texas Environmental Health Association (TEHA) conference hosted in Round Rock, on Oct. 19, 202, and organized by the Environmental Health Specialties, Inc., where he received the award for Best Presentation, and on Nov. 5, 2022, at the 10th Texas STEM conference, where David was awarded first place for Best Undergraduate Research Poster.

*David's Testimonial* "My experience at the Texas Undergraduate Research Day at the Capitol was not only enjoyable, but also incredibly valuable. It was an amazing opportunity for me to meet and interact with highly influential individuals such as politicians and heads of research at various universities. During the event, I was given the chance to present my research to them and also listened to the research projects of other students from different Texas universities. Aside from the research-related activities, I also got the chance to explore the Capitol and observe congressional sessions, which was truly an enriching experience. Additionally, I took some time to tour around the adjacent parks, which provided me with a sense of relaxation and rejuvenation amidst a busy schedule. During my stay in Austin, I was able to savor the local cuisine and enjoy the facilities provided by the University of Texas, which was just a stone's throw away from my hotel. All these experiences have left me feeling grateful for the opportunity to participate in this event, and I extend my thanks to Lamar University, the Office of Undergraduate Research, and especially to Dr. Bahrim for enabling me to participate in this enriching experience that will undoubtedly help me in my future academic pursuits."

# Student Spotlight

## Grafton Conger

**How SURF program helped me to be a researcher…**




When starting at Lamar University, I was not sure how I wanted to get involved. In a general sense I knew that I wanted to be able to impact the community through engineering and volunteering in some aspect, and that is when I heard about the SURF program. I had the opportunity to do research with the help of my mentor Dr. Cristian Bahrim and my teammate Cindy Rodriguez. Hurricane Harvey had just been a few years earlier, and Imelda had happened even more recently at the time our idea came around. Cindy and I began to have meetings to discuss ways to make water evaporate faster in order to provide more space for future storm waters to go instead of just adding to water that was already there, like what happened with Harvey. When bringing the idea to Dr. Bahrim, he was extremely supportive and helped us refine our ideas to help us get ready to submit a project proposal for the program, which resulted in us receiving a grant. After completing our summer term in the program, we were able to find a way to increase the evaporation rate of water by over 20 percent using carbon nanoparticles that we manufactured ourselves (see the photo below). By doing this research, I learned how to properly document results, how the purchasing process worked in industry, how ideas on paper change in real life, and that big ideas can be challenging but are definitely possible, even with roadblocks like COVID-19 getting in the way. The SURF program really cultivated my wish to be able to make an impact on campus as well as the community. I went on to be President of Engineers Without Borders and Lead Engineering Ambassador for the College of Engineering. Through the skills that I learned in the SURF program I was able to finish multiple projects like the annual engineering haunted house through the knowledge I gained with purchasing through Lamar. I was also able to make a Thor hammer with my organization through the research skills that I had obtained. One of the biggest accomplishments though, would be winning the title of Grand Champion for the Senior Engineering Design Symposium with my senior design team. Through my experience with the SURF program, I was able to help keep things documented in an organized manner. Without the help of Dr. Bahrim's mentorship it would have been a lot harder to achieve the accomplishments that I have achieved during my time at Lamar.

# Student Spotlight

## Chloe Smith

### The most awarded HASBSEB S.U.R.F. student in 2022


My experience with the Summer Undergraduate Research Fellowship (SURF) program has been invaluable. As a two-time recipient of the SURF award in 2021 and 2022, I was able to gain critical knowledge and research experience in my field of study, speech-language pathology.

With the help of my mentors, Dr. Harn and Dr. Morris, I was able to delve into the world of research and learn so much about the field. During my time in the program, I was able to analyze relevant data and gain hands-on experience in the research process. This experience helped me build confidence and resilience as a researcher and as a future speech-language pathologist.

One of the highlights of my SURF experience was presenting a poster at the Texas Speech-Language-Hearing Association (TSHA) Conference in Fort Worth. The Office of Undergraduate Research (OUR) graciously provided the travel support to make my attendance possible. It was an honor to share my research with a wider audience, including professionals in my field. Additionally, it was a fantastic opportunity to receive feedback and learn about other research in speech-language pathology.

Thanks to the previous SURF winners' research and presentations being available on the OUR website, I was able to create powerful and informative PowerPoints that helped me present my work in the best possible light. The resources provided were immensely helpful, and I could not have presented my research as well as I did without them.

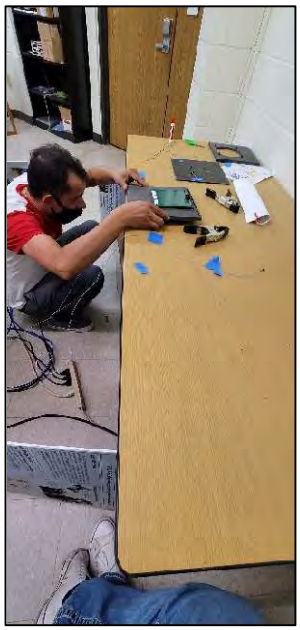
The SURF program has been an unforgettable experience for me, and I would highly recommend it to anyone interested in research. The program provided me with the opportunity to gain experience in my field of study, learn from experienced mentors, and present my work at a conference. Thanks to the SURF program and the OUR, I am now more passionate about speech-language pathology and excited to continue my education at Lamar's Speech-Language Pathology graduate program.

# Student Spotlight

## Jacob Smith – SURF 2022

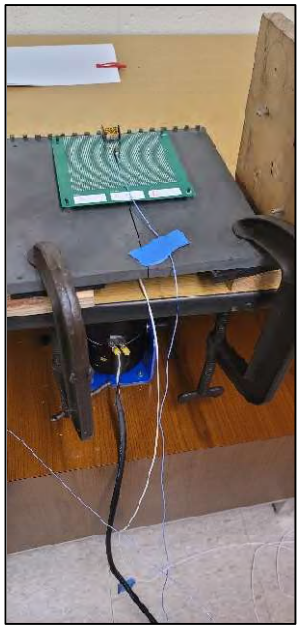
**Mechanical Engineer 1 at Newport News Shipbuilding's Nuclear Reactor Propulsion Department**

My experience with SURF and OUR in general has been an interesting experience, but it has helped tremendously for my career. My background is in mechanical engineering and my research topic was over electrical, electronics, and electromechanical components, which is a country mile away from what I know. It caused me to do even more personal research to understand the basics for the highly specific and niche research topic. At the time, our research was groundbreaking – no one had published what my mentor, Dr. Doranga, was working on.



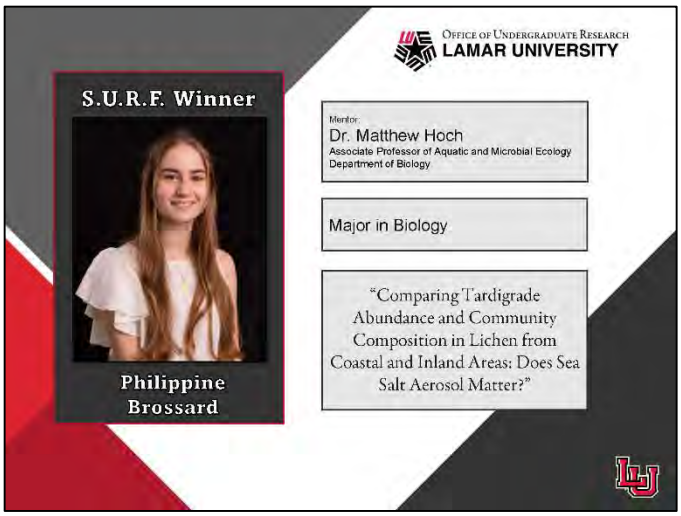
Doing research in engineering is daunting. Doing research while being an undergraduate is daunting, even more so if you're just starting to take upper-level classes. But it prepared me somewhat for the industry, but most importantly, for the real world.

This research opened a new realm of possibilities for me as it ended up influencing my career choices and my senior design project. Being able to talk about my experiences and hold up my own while talking with other professionals has solidified that the OUR and SURF programs work and benefit the student.



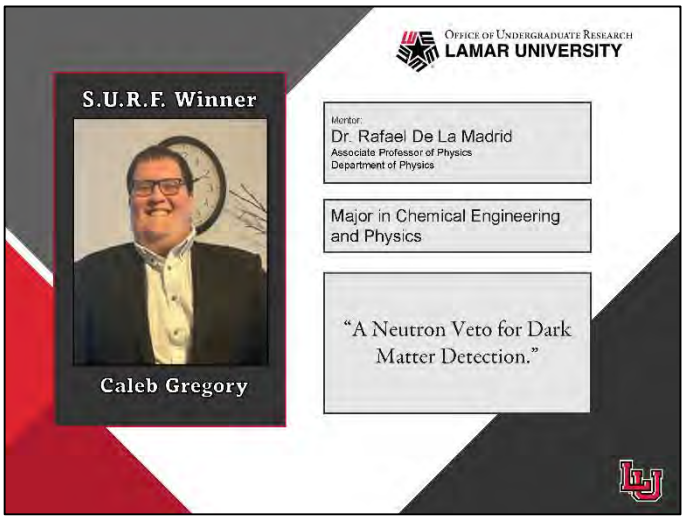
On top of all the technical skills, meeting the other fellows and developing relationships with Dr. Bahrim and Ms. Jenna Erwin, we had the opportunity to practice presenting and conducting in professional seminars, conferences, and meetings with peers and people who understood the entire circumstances that are involved.

# 2023 SURF Winners



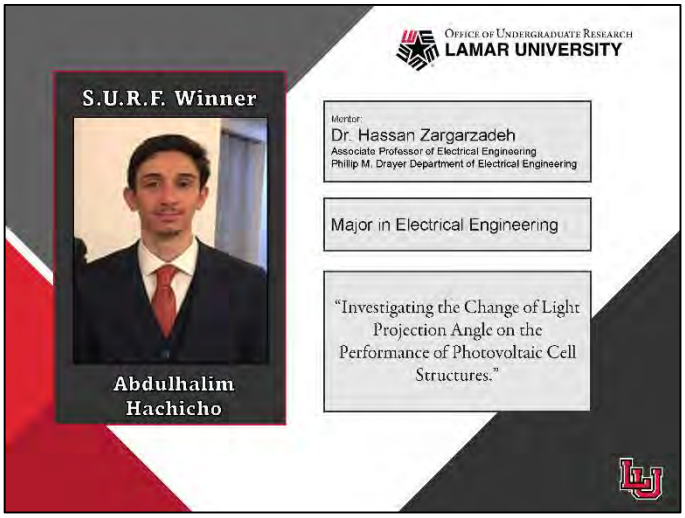




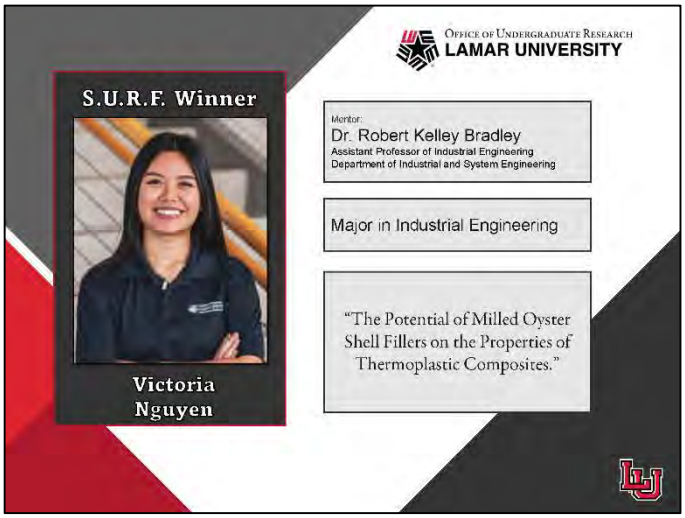



# 2023 SURF Winners

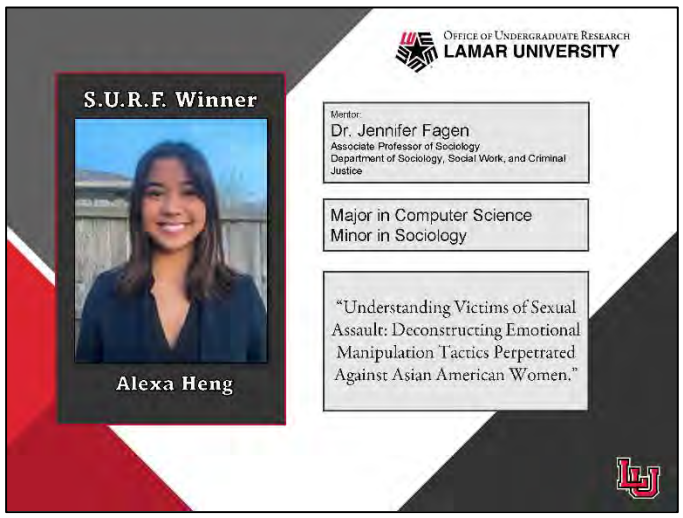




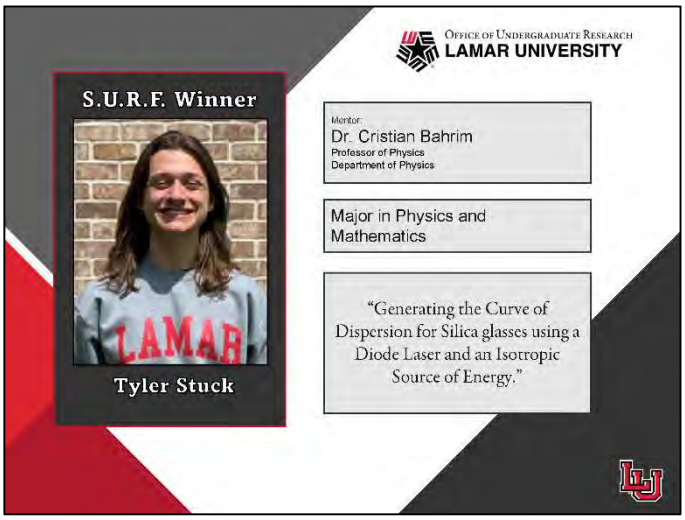




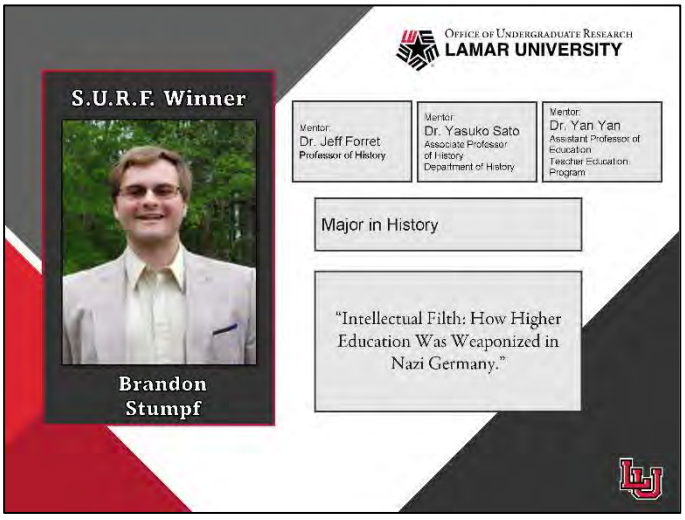

# 2023 SURF Winners





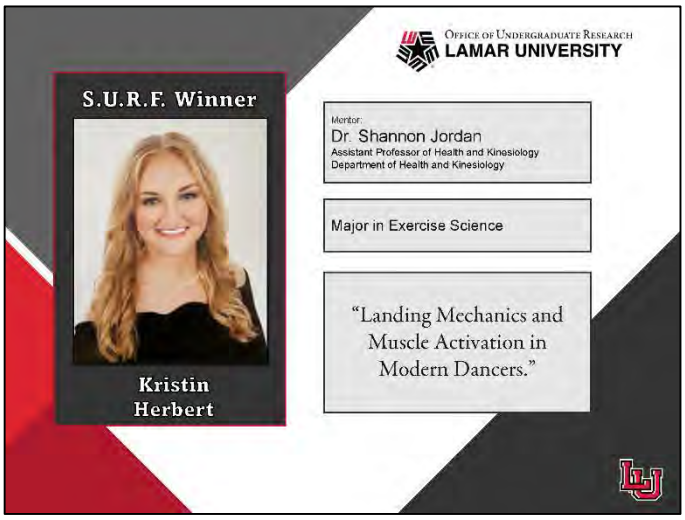




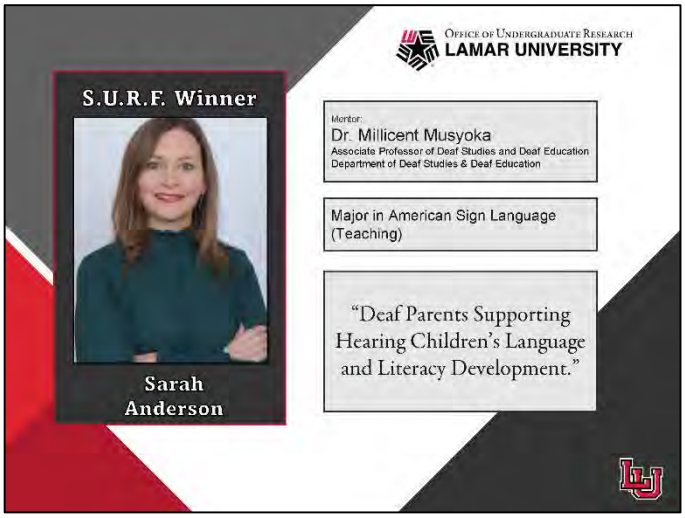



# 2023 SURF Winners

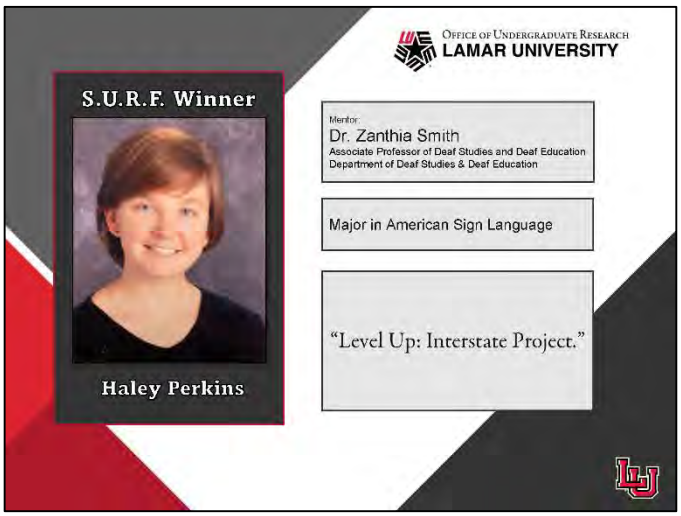




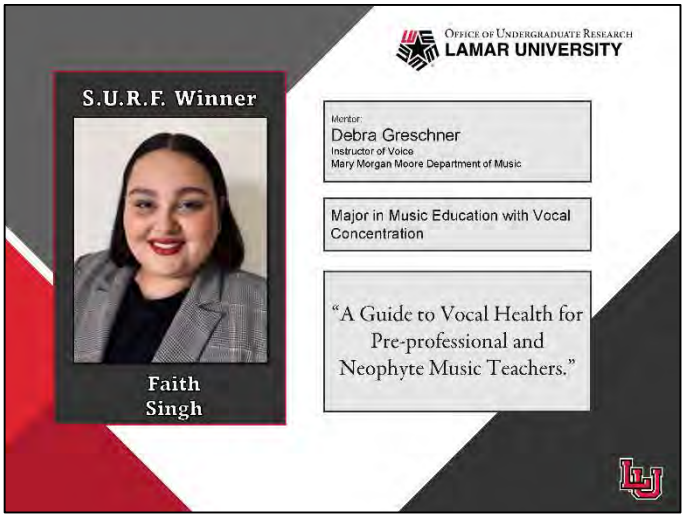





# 2023 SURF Winners









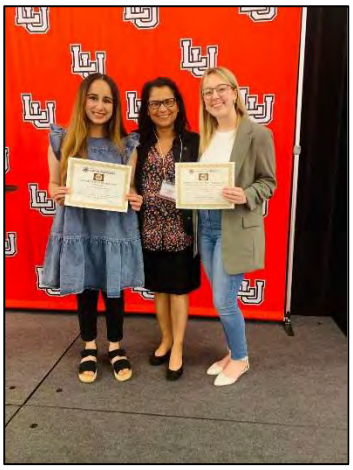
# 2023 Faculty Mentor Award Winners

## HASBSEB Faculty Mentor Award Winner

## Dr. Mamta Singh

**Associate Professor of Teacher Education**

*"Dr. Singh offered great advice both in education and research and has shown me everything I needed to know and more. She made me feel smart, even though I made a few blatantly obvious mistakes. She was always diligent in responding to my questions and concerns. When I had personal issues arise during our study, she made sure I put myself first and took time out of her busy schedule to help me stay on track. "*




"I consider mentoring to be an evolutionary process, always adapting to meet the educational and research needs of students' demands of society and the constantly changing parameters and horizon of knowledge. The process of research is a collaborative one; the instructor and students forming a partnership in investigating and discovering current views and trends in the field. Both the mentor and the students learn from each other. I genuinely have a passion for undergraduate research and mentoring."

Dr. Mamta Singh

**Undergraduate Students' Awards & Presentation:**

1. Eugenio, M. **& Singh, M. (2022).** 9th Annual Humanities, Arts, Social and Behavior Sciences, Education, and Business (HASBSEB), Saturday, November 19th, 2022, 8:30 a.m. - 5:00 p.m. ***1st Place in Oral Presentation Content & Presentation Style***
2. Checkley, C**. & Singh, M. (2022).** Genetic Technology and the use of an Oral Debate Method on Questioning Ethics in the Classroom. 9th Annual Humanities, Arts, Social and Behavior Sciences, Education, and Business (HASBSEB), Saturday, November 19th, 2022, 8:30 a.m. - 5:00 p.m. ***2nd Place in Oral Presentation***
3. Sloane, A. Thibodeaux, B. & **Singh, M. (2019).** FORCE & BRIDGE: Learning Through Design Thinking. 6th Annual Humanities, Arts, Social and Behavior Sciences, Education and Business (HASBSEB) Conference. Lamar University, November 23rd, 2019. ***1st Place in Oral Presentation***

# 2023 Faculty Mentor Award Winners

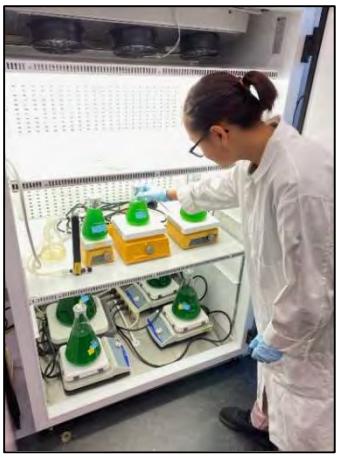
## STEM Faculty Mentor Award Winner

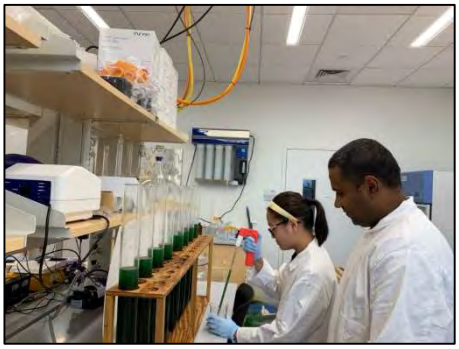
## Dr. Thinesh Selvaratnam

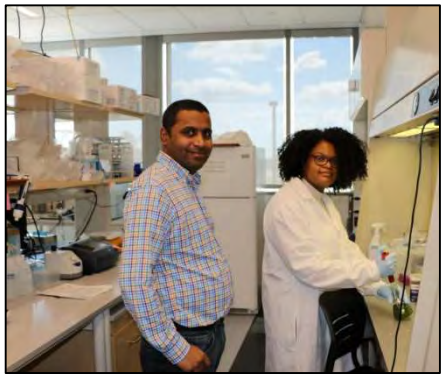
### Assistant Professor of Civil and Environmental Engineering

“Dr. Selvaratnam has every quality a student desires in a mentor. He pushes every student to be their best and goes out of his way to make assignments purposeful. I am very thankful that I have Dr. Selvaratnam as a mentor and look forward to learning more from him throughout my time at Lamar University."

"He is very dedicated to his research and to help his students find the best version of themselves. He will undoubtedly continue to inspire many students to participate in research as he has inspired me."







"Lamar University provided me with the perfect platform to develop and sustain high-quality undergraduate research activities over the past years. The energetic and enthusiastic student population here at Lamar made my job as a mentor easier. In addition, the support provided by the Office of Undergraduate Research, Civil and Environmental Engineering Department, and College of Engineering for impactful undergraduate research is greatly appreciated. "

Dr. Thinesh Selvaratnam

**Publications with undergraduate researchers (2020-2022)**

1. T. Selvaratnam, S. Pan, A. Rahman, **M. Tan**, H.L. Kharel, S. Agrawal, T. Nawaz, “Bioremediation of Raw Landfill Leachate Using Galdieria sulphuraria: An Algal-Based System for Landfill Leachate Treatment”, Water, 14 (2022) 2389.
2. T. Selvaratnam, H.L. Kharel, **M. Tan**, “Nutrient and Energy Recovery from Anaerobic Digester (AD) Centrate using an Algal System”, International Conference on Engineering, University of Jaffna, Sri Lanka, 2022.
3. A. Rahman, S. Pan, **C. Houston**, T. Selvaratnam, Evaluation of Galdieria sulphuraria and Chlorella vulgaris for the Bioremediation of Produced Water, Water, 13 (2021) 1183.
4. S. Pan, **K.L. Dixon**, T. Nawaz, A. Rahman, T. Selvaratnam, Evaluation of Galdieria sulphuraria for nitrogen removal and biomass production from raw landfill leachate, Algal Research, 54 (2021).
5. T. Nawaz, A. Rahman, S. Pan, **K. Dixon**, B. Petri, T. Selvaratnam, A Review of Landfill Leachate Treatment by Microalgae: Current Status and Future Directions, Processes, 8 (2020) 384.
6. L. Haselbach, N. Almeida, T. Selvaratnam, **D. Han**, Underground Aggregate Stormwater Infiltration Bed Case Study, International Low Impact Development Conference 2020, pp. 96-106.

# 2023-2024 LURA


**President:**

**Tyler Stuck**

Major: Physics and Math

**Event Coordinator:**

**Jacob Thompson**

Major: Biology

**Vice President:**

**Adeline Tran**

Major: Chemistry

**Recruitment Director:**

**Nikhil Patel**

Major: Biology

**Treasurer:**

**Rima Shaaban**

Major: Chemistry

**Communications Director:**

**Danielle Soileau**

Major: Biology

**Secretary:**

**Sergio Mendez**

Major: Biology

OFFICE OF UNDERGRADUATE RESEARCH
LAMAR UNIVERSITY

# 2023-2024 LURA

## Join our student organization:

## Lamar University Undergraduate Research Association (LURA)


LURA was founded in fall 2019 to fulfill the need for a community *by* and *for* undergraduate students to discuss, collaborate, and learn how effectively one can conduct research. The consistent quality and volume of research conducted by undergraduate students at Lamar University has made it clear that there is a need for an organization to act as a vital resource for building young researchers. Thus, LURA provides an academic forum that connects all level students from freshmen to seniors with their professors and mentors and facilitates communication between Lamar undergraduates and their peers around the nation**.**

**L.U.R.A. is a platform for offering panel discussions about**

· Research opportunities inside and outside Lamar,
· Better ways to deliver undergraduate research results in poster and oral presentations,
· Ways to perform peer-mentoring,
· Organizing workshops and panel discussions on various topics, including how to successfully apply to graduate schools.

LURA is the premier student organization at Lamar University for any undergraduate student interested in doing research. The Office of Undergraduate Research provides strong support and offers logistics to this student organization. Contact URALamar@gmail.com, visit the Office of Undergraduate Research — Science and Technology bldg., room 275 or L.U.R.A. Advisor Cristian Bahrim, Archer 100D.

**Cristian Bahrim - Director of O.U.R.**
**Office: Archer 100d, Phone: 409-880-8290,**
**E-mail: cristian.bahrim@lamar.edu**

**Ms. Jenna Erwin**
**Office – Stem 275, Phone 409-880-8430,**
**E-mail: jerwin6@lamar.edu**