

2020-2021

UC San Diego

Undergraduate

Research

Directory

Directory Notes

Originally Published April 2022

Photos: Sharon (Wan-Hsuan) Lin conducting lab work (Cover Page), 3D model of two cell lines' male X chromosome submitted by Jiang Zichen (p. 5), Rachel Luu (p. 7), Malia Henry, Jeffrey Xing, Noura, Mohamed, Kaitlin Clemmer, Sapra Mehta, & Minh Le (p. 15), Jacob Ayers shows an example of an Audiomoth in its case. Ten of these devices were spread out over the Scripps Coastal Reserve to record various species, such as the endangered California Gnatcatcher (p. 20), Jair Cortes clamming for samples (p. 41), Cindy Tran and Hank Baker (PhD candidate) electrofishing for Tui Chub samples at Mammoth Creek (p. 78)

The data in this directory represent information available at the time of publication based on voluntary submissions made by program coordinators and undergraduate students. We know this listing is not comprehensive and we welcome information regarding other undergraduate research programs and student projects from the aforementioned timeframe.

The students listed completed research at any time between September 2020 and August 2021. For students in formal research programs, their research may have started prior and/or extended beyond the dates associated with the directory and/or their program participation. The students may have unlisted accomplishments that occurred or will occur outside the time frame for this year's directory.

Directory Notes

Programs and scholarships identified in this directory were available between September 2020 and August 2021 . They may or may not be available in subsequent years. The numbers of students listed for each program are based on 2020-2021 data. Descriptions and logos used are reprinted with permission from the programs. Photos are used with permission from those in them.

Please report any errors to Dr. Marie Sheneman at msheneman@ucsd.edu

Acknowledgements

We would like to acknowledge the invaluable support our program staff have received from Chancellor Pradeep Khosla, Executive Vice Chancellor Elizabeth Simmons, Vice Chancellor of Student Affairs Alysson Satterlund, and Assistant Vice Chancellor for Student Retention and Success Maruth Figueroa. We are grateful that they and our faculty mentors and other partners in promoting undergraduate research maintained the university's commitment to student centered research during this most unusual year.

Undergraduate Research

By Dr. David Artis

Once again, our university community celebrates those undergraduates who continued to conduct research in a period of challenge and change. With invaluable guidance and instruction from faculty moderators and dedicated staff, these students not only carried out tasks assigned to them but contributed their insight and creativity, often moving projects forward and assisting in the generation of new knowledge in meaningful ways. Many of them have earned acknowledgements from their mentors by being included in publications or representing their respective labs or other workspaces in conferences professional meeting at UC San Diego and far beyond our campus.

These young scholars deserve to take pride in their achievements. This directory serves in part to broadcast them to our wider community and to place work at the center of the university's mission.

Additionally, this collective statement also makes clear something the students themselves might not fully appreciate: the degree to which they are redefining what is a research experience. In these listings, you will find students who took a research approach to examining the world inside and outside the traditional academic space, sometimes to disadvantaged communities or to distressed

Undergraduate Research

By Dr. David Artis

distressed physical environments. They have also introduced ideas associated with professional and commercial fields into their work. They are campus leaders in reaching across disciplinary lines to find collaborators and mentors.

In 2021, Academic Enrichment Programs, the office that managed many of the programs highlighted here went through an extensive introspective process and emerged as the Undergraduate Research Hub. Our new name reflects our aspiration to be a locus that is student-centered and research-oriented, a valuable resource for students, faculty members, external donors, and other partners. We are grateful for the support we receive from Chancellor Khosla, Executive Vice Chancellor Simmons, Vice Chancellor, Student Affairs Alysson Satterlund, and Assistant Vice Chancellor Student Retention and Success Maruth Figueroa. We remain dedicated to increasing the ways undergraduate research.

Dr. David Artis

Dean of Undergraduate Research Advancement



Table of Contents

Fast Stats

7

Publications and Awards

8

Spotlights

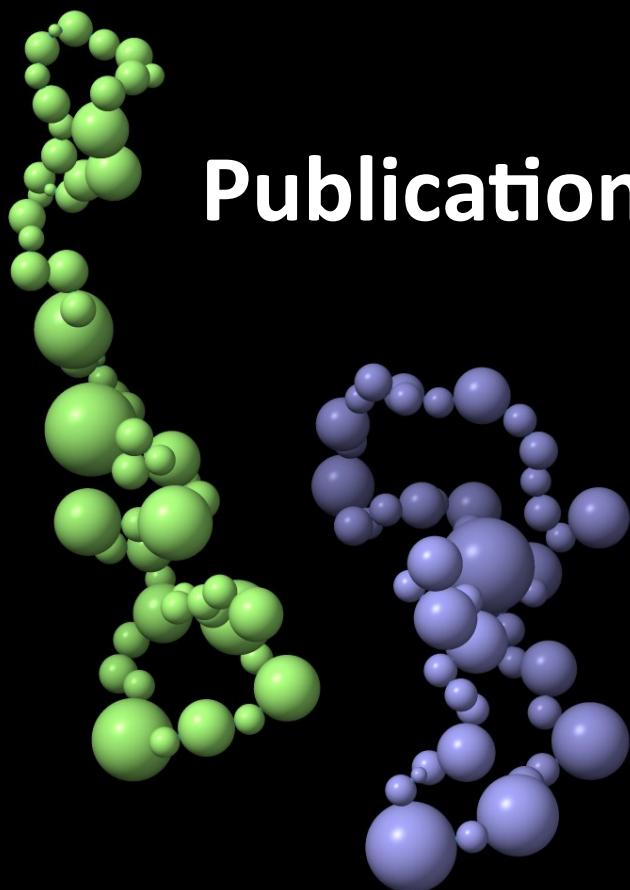
16

Programs

23

Undergraduate Researchers

44



Fast Stats

168

Undergraduate researchers are listed in this directory

150

Students gave over 150 conference presentations

9

Students listed here published a peer-reviewed journal article

Majors represented in this directory



■ Biological Sciences (30%)

■ Computer Science and Engineering (22%)

■ Social Sciences (18%)

■ Physical Sciences (16%)

■ Arts and Humanities (7%)

■ Data Science (3%)

■ Health Sciences (2%)

■ SIO (1%)

Publications

and

Awards





Peer-Reviewed Publications

Sohan Ghosh

Siegert, T., **Ghosh., S.**, Mathur, K., Spraggon, E., & Yeddanapudi, A. (2021). Nucleosynthesis constraints through gamma-ray line measurements from classical novae. A hierarchical model for the ejecta of ^{22}Na and ^7Be . *Astronomy & Astrophysics*, 650.

<https://doi.org/10.1051/0004-6361/202140300>

Hope Leng

Kudryashev, J. A., Waggoner, L. E., **Leng, H. T.**, Mininni, N. H., & Kwon, E. J. (2020). An activity-based nanosensor for traumatic brain injury. *ACS Sensors*, 5(3), 686-692.

<https://doi.org/10.1021/acssensors.9b01812>

Sapna Mehta

Mehta, S., & Kuo, D. J. (2020). To test or not to test: Genetic cancer predisposition testing in paediatric patients with cancer. *Journal of Medical Ethics*, 47(12).

<https://doi.org/10.1136/medethics-2020-106656>



Peer-Reviewed Publications

Shawn Ogden

Kelley, S. T., Liu, W., Quintana, P. J. E., Hoh, E., Dodder, N. G., Mahabee-Gittens, E. M., Padilla, S., **Ogden, S.**, ... Matt, G.E. (2021). Altered microbiomes in thirdhand smoke-exposed children and their home environments. *Pediatric Research*.
<https://doi.org/10.1038/s41390-021-01400-1>

Cameron Ormiston

Taub, P. R., Zadourian, A., Lo, H. C., **Ormiston, C. K.**, Golshan, S., & Hsu, J. C. (2021). Randomized trial of ivabradine in patients with hyperadrenergic postural orthostatic tachycardia syndrome. *Journal of The American College Of Cardiology*, 77(7): 861-871.
<https://doi.org/10.1016/j.jacc.2020.12.029>

Jerry Wu

Miller, K. L., Xiang, Y., Yu, C. Pustelnik, J., **Wu, J.**, ... Chen, S. (2021). Rapid 3D BioPrinting of a human iPSC-derived cardiac micro-tissue for high-throughput drug testing. *Organs-on-a-Chip*, 3, 100007.
<https://doi.org/10.1016/j.ooc.2021.100007>



Peer-Reviewed Publications

Wenqian Yang

Barbosa da Silva, E., Rocha, D.A., Fortes, I.S., **Yang, W.**, Monti, L., Siqueira-Neto, J.L. ... Ferreira, R. S. (2021). Structure-based optimization of quinazolines as cruzain and TbrCATL inhibitors. *Journal of Medical Chemistry*, 64(17), 13054-13071.

<https://doi.org/10.1021/acs.jmedchem.1c01151>

Emmie Yao

Zhong, Z., Deng, X., Wang, P., Yu, C., Kiratitanaporn, C., Wu, X., Schimelman, J., Tang, M., Balayan, A., **Yao, E.**, ... Chen, S. (2021). Rapid bioprinting of conjunctival stem cell microconstructs for subconjunctival ocular injection.

Biomaterials, 267, 120462.

<https://doi.org/10.1016/j.biomaterials.2020.120462>

Zhong, Z., Balayan, A., Tian, J., Xiang, Y., Hwang, H. H., Wu, X., Deng, X., Schimelman, J., Sun, Y., Ma, C., Dos Santos, A., You, S., Tang, M., **Yao, E.**, ... Chen, S. (2021). Bioprinting of dual ECM scaffolds encapsulating limbal stem/progenitor cells in active and quiescent statuses. *Biofabrication*, 13(4).

<https://doi.org/10.1088/1758-5090/ac1992>



Award Recipients

Jacob Ayers

- NSF REU Film Competition, 3rd Place

Kartik Choudhary

- NSF Graduate Research Fellowship

Nadia Haghani

- 2020 Society for Advancement of Chicanos/Hispanos and Native Americans National Research Conference, Poster Presentation Award in Life Sciences /Microbiology

Katherine Izhikevich

- Gary C Reynolds Scholarship



Award Recipients

Minh Le

- 2021 UC San Diego ACSSA 15th Annual Undergraduate Research Symposium in Chemistry, Outstanding Poster Award
- 2021 SoCal Undergraduate Chemistry Research Symposium, Outstanding Poster Award

Hope Leng

- 2021 NSF Graduate Research Fellowship

Megan Li

- 2020 Undergraduate Space Research Award, Honorary Mention

Rachel Luu

- 2020 Louis Stokes Midwest Regional Center of Excellence Annual Conference, People's Choice Award



Award Recipients

Bailey Man

- COVID-19 Data Challenge, 2nd Place Retail & Leisure

William OFarrill

- CSU Sally Casanova Pre-Doctoral Award

Xavier Perez

- 2021 Koret UC LEADS Research & Leadership Symposium, Top Honors Winner, Engineering & Computer Sciences

Cameron Ormiston

- NIH Postbaccalaureate Intramural Research Training Award
- 2021 NIH Academy Enrichment Program Scholar

Eleanor Quirk

- Summer 2021 The Future of Chemistry Scholarship for Women



Award Recipients

Ruby Rios Ramirez

- 2020 Society for Advancement of Chicanos/Hispanos and Native Americans in Science Research Conference, Travel Award

Elanor Sievers

- 2021 SoCal Undergraduate Research Symposium, Poster Award
- 2021 UC San Diego ACSSA 15th Annual Undergraduate Research Symposium in Chemistry, Poster & Video Awards

Wenqian Yang

- Chemistry and Biochemistry Department, Library Award

Student Spotlights



Malia Henry



International Studies (Economics)

Currently, there are no school-wide, virtual orientations that spotlight diverse communities at our university. As a result, many students and faculty are unaware of the various identities and backgrounds their counterparts hold. I decided to get involved in undergraduate research to analyze the impacts of a “cultural awareness” orientation module on higher education. The main goals of my research project were to: (1) Positively spotlight minority communities (2) Create a platform for minority alumni voices (3) Provide guidance for incoming students (4) Promote cultural awareness and encourage students to gain greater consciousness of the cultural issues that affect higher education.

During the summer, I was able to conduct various interviews with some of UC San Diego’s Black alum and analyzed various documents on cultural awareness programs implemented throughout the United States. I believe the most interesting thing I was able to undertake was the creation of an artificial intelligence agent for my module. I also utilized various forms of video and audio to create an interactive program. In the future, I plan to conduct research on issues that influence policy, specifically regarding disadvantaged communities. There are various racial inequities found in American public policy, and I would like to develop solutions to housing disparities, education gaps and poverty within the Black community.



Kaitlin Clemmer

Literature/Writing & Japanese Studies

I conducted an academic discussion surrounding male homosexual representative media in Japan concentrating on hetero-normative consumerist patterns and reason for consumption and how these ultimately create a deficit in theoretical work analyzing the impact and influence LGBTQ+ media has on the perception of non-hetero-normative relations in society.

The origin of my interest in this topic is from a discussion during a UD class about the “glocalization” of Hello Kitty. The disjointed reaction of her design and her possible political commentary on women’s voices within social spheres made me question politicized bodies within popular media and how other minority groups are represented and affected. I thought upon the global disconnect in both perception and presence of non-hetero-normative bodies in sociopolitical and sociocultural spheres caused by the ever-present systemic oppression and violence of erasure. This train of thought led me to the possible positive and detrimental ideologies residing within the Japanese powerhouse market of male homosexuality and its growing global outreach.

While I began this project focusing on male homosexual representative media, I have expanded my research to include both male and female homosexual representative media. The most exciting part of this research project and its growing size is being able to shine a light on not just male homosexuality but all identities in the spectrums of gender and sexuality research.

Minh Le

Human Biology and Pharmacological Chemistry

Biomolecules sample a range of conformational states to perform their cellular functions and a molecular-level description of these states is necessary to fully understand their biological roles. My project attempts to develop methodologies that allow investigators to probe the dynamic, transient conformational states of molecules by coupling molecular dynamics (MD) simulations with cryo-EM to explore the conformational space sampled by biomolecules of interest and develop cryo-EM data processing strategies.

I initially became interested in my project because it allows me to combine my love for biochemistry with my budding interest in computational science. The interdisciplinary nature of my project lets me use creative strategies to solve long-standing questions in the sciences. Furthermore, I'm enheartened that my work on this project and my other projects can lead to significant contributions to the fields of medicine and pharmacology.

My current experience in research allows me to gain critical laboratory skills while allowing me to broaden my horizons. Although I can't tell you whether I'll have a PhD, MD/DO, a PharmD, or some combination of the above, I know that in 10 years I'll be just as curious about the world as I am now.



A portrait of Sapna Mehta, a woman with long, dark, wavy hair, smiling. She is wearing a green top and a necklace. The background is a blurred outdoor scene with trees.

Sapna Mehta

Global Health

[My study] is researching the knowledge, attitudes and factors associated with pediatric oncology genetic cancer predisposition testing. We survey patients and families as they go through genetic counseling and testing to see if their cancer is genetically predisposed.

When I was conducting research, I did not realize that it would be so helpful to my future goals. I pivoted my career path from pre-medicine towards the business side of healthcare including biopharmaceutical product and market strategy. When I first switched into this field, my research experience helped me understand the inner workings of clinical trials which helped me get my foot in the door and contribute at a biotechnology company within the clinical development/operations side. This helped me understand what it takes to make a biopharmaceutical product including all of the clinical trials involved before.

My research set a perfect foundation for me as I was intimately involved with the research for one project to understand how it can work on a larger scale with data analysis, logistics, IRB approval, site/patient collecting, etc. As a current healthcare consultant, that ground-level experience definitely set me up for success.

Jeffrey Xing

Computerized and the Arts (Music) & Psychology with a Specialization in Sensation and Perception



Broadly, my research interest centers around understanding the aesthetic sensibilities of non-human animals. My work specifically focuses on how songbirds construct their vocalizations (birdsongs) to attract mates, and if the aesthetic value within their vocalizations can be decoded with theories rooted in how human music attracts its listeners. I conduct my research mostly by computational analyses of birdsong recordings, and I am gradually expanding to working with birds in behavioral experiments.

My interest in research began with my experiences in the music department. There, I was exposed to experimental music that played around with its listener's perception, and questioned how we listen, why we listen, and what does it mean to listen. Upon realizing how advances in auditory sciences supported the creation of these interesting music, I knew that I wanted to be part of the science that inspires the arts, and hence I sought out opportunities to do so in the psychology department. ... my now P.I. recommended me on a project in uncovering the musicality of songbirds, and I was really excited about it because it aligned with my belief that there is beauty in everything and not just in what can be traditionally conceived as art, and I wanted to communicate that through my work. As I started to take charge of the project, I infused more of my artistic sensibilities into it, and now it has evolved into an exploration on what beauty means to animals other than ourselves.



Noura Mohamed

Chemistry and Biochemistry

Growing up in the Middle East, I was obsessed with this horror series by an Egyptian author. It was my first book to read, at least the first one not produced by Disney, and with no pictures in it. The main character (and the real author) was a physician who also taught at the school of medicine, Cairo University. So he used to pepper his stories with so many interesting facts about science, scientists, and the human body. I became so fascinated to the point where I could no longer picture any version of my future that didn't involve science.

My project at Schöneberg Lab focuses on epilepsy. Those with drug-resistant epilepsy are directed to the ketogenic diet, which consists of eating primarily fat and protein, and limiting carb consumption. A single slip in the food regimen renders the patient at a substantially higher risk of having a seizure, seen as a general rise in the number of seizures per day, as well as in seizure severity. Adults, much less children, will find it difficult to adhere to such a rigid lifestyle. My project's purpose is to figure out how β -hydroxybutyrate, the major metabolite in the ketogenic diet, protects against epileptic pathology, such as those caused by mutations in the OPA1 and SCNA1 genes.

The overall project I'm currently working on takes time, maybe years, and I don't know for a fact that at the end we will be able to help the millions afflicted with epilepsy, but the possibility of doing that is worth it, and in the meantime, I get to do everything in my power to make sure we end up helping them.

A man with long, wavy blonde hair and glasses is looking at the camera. He is wearing a dark grey jacket over a light blue shirt and has a green lanyard around his neck. He is holding a small, green, rectangular electronic device in his right hand. The background shows an outdoor setting with a dirt path, green vegetation, and a cloudy sky. A large, curved structure is visible in the upper left corner.

Research

Programs



The California Louis Stokes Alliance for Minority Participation in Science, Engineering and Mathematics

The UC San Diego Summer CAMP is a 10-week, full-time research experience for undergraduates, supported by the California Louis Stokes Alliance for Minority Participation in Science, Engineering, and Mathematics grant from the National Science Foundation (NSF). The objective of the program is to provide students with the skills to pursue research careers and to stimulate serious consideration of graduate study.

1

Student

Creating Scientists to Address Cancer Disparities Program

Creating Scientists to Address Cancer Disparities Program is a National Cancer Institute-funded eight-week summer program run by Dr. Vanessa Malcarne (SDSU) and Dr. Georgia Robins Sadler (UC San Diego). The program teaches students how disparities can influence the outcomes of cancer. Students learned the scientific process in bio-behavioral science labs and a theoretical understanding of the development and sustainment of cancer disparities. Students also gained experience in conducting in-depth analysis of scientific literature and preparing an abstract and poster for national conferences.

16
Students

The Creating Scientists to Address Cancer Disparities Program helped me discover my passion for science. This program helped me discover that I want to pursue a career focused cancer research.
-Hiela Manely



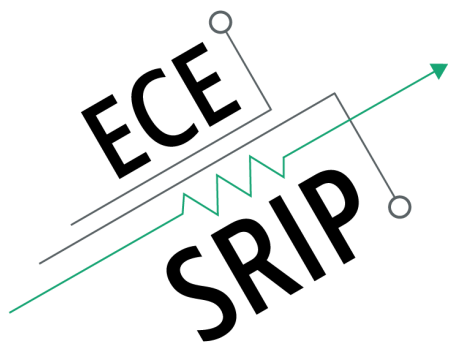
CSE Early Research Scholars Program

The UCSD Computer Science and Engineering Early Research Scholars Program (CSE-ERSP) is a team-based research apprentice experience for computer science and engineering majors in their second year of the program. Students learn about research in computer science and then propose and carry out an independent research project over the course of an academic year.

49
Students

The most valuable part of participating in ERSP was presenting our work at the end of the spring quarter because I was able to show off our year-long research to the class. In addition, being able to see our research on the poster gave me a sense of accomplishment.

- Ronaldo Garcia-Hernandez



ECE Summer/Spring Research Internship Program

Students in the [ECE Spring/Summer Research Internship Program](#) (ECE SRIP) have the opportunity to observe and participate in the activities of a research group under the supervision of the PI or a member of his/her lab group. The program includes an enrichment component for students consisting of workshops on research communication, research writing, and other pertinent topics.

122
Students

I learned about Kalman Filters, spectral analysis, python coding, wave dynamics, research papers, and much more! The work I did this summer will greatly help me in my studies and research which will help me to pursue research positions in the future.

-Nicholas Rowlett



Engineers for Exploration Research Experience for Undergraduates

Engineers for Exploration (E4E REU) is a one of kind program promoting multidisciplinary and collaborative research projects with the broad goals of protecting the environment, studying wildlife, uncovering mysteries related to cultural heritage, and providing hands-on learning experiences for undergraduate students. We team student engineers with scientists from a wide range of disciplines to create innovative technologies that are deployed around the world.

70
Students

I improved my leadership skills by banding together a team of peers to construct software that can be used to segment vocalizations of interest from audio recordings. The program also provided me with an opportunity to perform fieldwork in nature, something that I have wanted to do ever since I was a child watching nature documentaries.

-Jacob Ayers



Faculty Mentor Program

The Faculty Mentor Program (FMP) helps students of all majors build valuable relationships with UC San Diego faculty, develop research skills, and envision a future in graduate or professional school. The program is open to students with sophomore, junior, or senior standing, and research is conducted fall, winter, and spring quarters.

82
Students

What I loved about [FMP] is that it not only connected me with my current mentor, but I also got to learn so much about the different fields of research being conducted across campus and how interdisciplinary many topics are.

- Flora Wong

Genentech Scholars Program

The Genentech Scholars Program is a 10-week full-time summer research program that is a sister program to the UC Scholars Program; the program's objectives are to provide skills to become research scholars, stimulate students' serious consideration of graduate study, and increase learning and networking opportunities. The Genentech Foundation seeks to support students in life science and technology fields who may have faced barriers to engaging in research in the past.

7

Genentech
Scholars

I've gained a lot of experience in managing my own independent project. I've gotten to develop a project proposal, experimental procedures, experimental set-ups MATLAB scripts for data analysis, and figures for papers on my own.

- Khang Hoang

Halicioğlu Data Science Institute Undergraduate Scholarship Program

The [Halicioğlu Data Science Institute](#) Undergraduate Research Scholarship Program awards \$2,500 to each student project. The yearlong fellowships focus on providing hands-on training to emerging data science talent. Each researcher works with a mentor to develop analytical skills, data science portfolios, and foster novel data-driven approaches to problem solving. The research program is geared to producing results, with students submitting final reports highlighting accomplishments.

30-60
Students

MADURA Program

The UC San Diego MADURA (Mentorship for Advancing Diversity in Undergraduate Research on Aging) Program is funded by the NIH National Institute on Aging. It aims to improve diversity in Aging and Alzheimer's Disease research and clinical professions, by providing research placements and mentorship for undergraduates from groups who are under-represented in MSTEM studies.

27

Students



McNair Scholars Program

The McNair Program, named after physicist Dr. Ronald E. McNair, is a federal TRIO program funded by the U.S. Department of Education to provide low-income, first generation college students, and students from groups underrepresented in graduate education, with doctoral study preparation.

32
Scholars

I enjoyed my time in the McNair program as I was able to gather experience in working in a research lab. The program helped me strengthen my communication skills and gain an understanding of what it means to do research full time.

- Erick Cervantes



UC San Diego MRSEC REU

Sponsored by the NSF, the [MRSEC REU](#) program provides full-time summer undergraduate research opportunities at the forefront of materials science and engineering. Participants in our highly collaborative and interdisciplinary program, which focuses on predictive assemblies and engineered living materials, will be fully immersed in the research laboratories of any one of our 20 MRSEC faculty as they engage in projects with a focus in either or both experiment and theory.

10

Students

NSF REU Program on Designing for Safety and Safety by Design

The overarching goal of this [NSF REU Summer Program](#) is to immerse students in a meaningful and highly interdisciplinary research environment within the structural engineering domain and to teach them that design does not end with construction. Instead, designing for safety embodies: quantifying potential load conditions, damage mechanics, and uncertainties; monitoring for anomalies during operations; processing this information through cyber-modeling via digital surrogates; and translating the information to actionable knowledge for improving current and future system designs.

12
Students

I conducted research and developed several skills required to work in a research lab. I also was able to get an insight on how Master and PhD students conduct research and how graduate studies would be in a UCSD research lab.

- Yash Mhaskar



STARTneuro Program

STARTneuro, funded by a NIH BP-ENDURE grant, trains, mentors, and funds diverse transfer students as they enter neuroscience research. The program provides a 10-week summer research training program and facilitates lab placements with faculty mentors during the school year.

STARTneuro is a collaboration between the Division Biological Sciences and the Undergraduate Research Hub.

10

Students

Summer Training Academy for Research Success

The [Summer Training Academy for Research Success](#) (STARS) program is an eight-week summer research academy for community college students, undergraduate students, recent college graduates, and masters students. Opened to all disciplines, STARS offers student participants a rigorous research opportunity with esteemed UC San Diego faculty, informative transfer and graduate school preparation workshops, and educational, cultural, and social activities in sunny San Diego.

83
Students

I enjoyed and learned a lot by joining STARS program in summer 2021. During this program I focused on Image processing and learning R language along with practicing on giving how to give a professional presentation.

- Romina Shirazi



Triton Research & Experiential Learning Scholars

The Triton Research & Experiential Learning Scholars (TRELS) program is sponsored by the Council of Provosts of the Undergraduate Colleges at UC San Diego and the Undergraduate Research Hub. TRELS empowers students to pursue intellectual opportunities beyond the classroom, by providing support in the form of funding and mentorship.

236

Awards given to 169
unique students

The TRELS program allowed me to experience research for the first time in my life. ... I now know that those in research come from a wide variety of backgrounds and identities which really comforts me and makes me feel more included.

- Chloe Le

UC LEADS

The [UC LEADS program](#) prepares promising undergraduate students for advanced education in STEM. This program is designed to identify educationally or economically disadvantaged undergraduates who are likely to succeed in graduate school, and to provide these students with undergraduate educational experiences that will prepare them to assume positions of leadership in industry, government, public service, and academia following completion of a doctoral STEM degree.

10
Students

With this experience, I learned how to read research literature, plan a research project, and how to overcome all the different obstacles that arise while doing research. This experience shed light on what it is like doing research in the area of autonomous systems, and what it is like to do research as an undergraduate student here at UCSD.

- Daniel Maldonado Naranjo



UC Scholars

The UC Scholars Program is an 8-week, full-time summer research experience for undergraduates, supported by UC San Diego's Office of Student Affairs and Undergraduate Research Hub. The program provides students with the skills to become research scholars, stimulates students' serious consideration of graduate study, and increases learning and networking opportunities for students committed to pursuing either a professional or academic research career.

18
Scholars

The UC Scholars Program allowed to discover my passion in research. It helped being more academically engaged, willing to take on challenges and greatly benefitted me in regards to getting a clear goal in college.

- Yidi Gao



Undergraduate Research Scholarships

In UC San Diego's [Undergraduate Research Scholarship](#) (URS) program, several different donor-funded scholarships (listed on next page) are available across multiple research areas. Undergraduate students use the funds for a research project to be completed over the summer under the guidance of a UC San Diego faculty mentor.

94
Awards

I loved the experiences that this summer provided me, and my research allowed me to understand and examine the changes needed to help advance the treatment of the transgender community within the sphere of healthcare.

- Brooklyn Moore



Undergraduate Research Scholarships

- Chancellor's Research Scholarship for Arts and Humanities
- Chancellor's Research Scholarship for Social Sciences
- David Marc Belkin Memorial Research Scholarship for Environment and Ecology
- David Jay Gambee Memorial Research Scholarship for Governance and Social Impact Projects
- Doris A. Howell Foundation Research Scholarship for Women's Health
- Eureka! Scholarship for Biological Sciences Majors
- Springboard Eureka! Scholarship for Biological Science Majors (Hong Kong)
- Frances Hellman Research Scholarships for Physics
- HIV Institute - Transgender/ Gender Non-Binary Community Health Research Scholarship
- Julia Brown Research Scholarship for Health and Medical Professions
- Ledell Family Research Scholarship for Science and Engineering
- NEW Scholars Program
- Philip and Elizabeth Hiestand Scholarship for Cross-Disciplinary Research in SIO and Engineering
- Robert C. Dynes and Ann Parode Dynes Research Scholarships for Physics
- Starbucks Sustainable Solutions and Learning Opportunities Research Scholarship

Youth Enjoy Science: Multidisciplinary Educational Approach to Reducing Cancer Disparities

Youth Enjoy Science: Multidisciplinary Educational Approaches to Reducing Cancer was a National Cancer Institute-funded program through their Youth Enjoy Science initiative. Through classroom and laboratory activities, students learned about cancer, the development and exacerbation of cancer disparities associated with bio-behavioral factors, and possible resolutions to these disparities. Students also gained experience in conducting in-depth analysis of scientific literature and preparing an abstract and poster for national Conference.

Dr. Sadler's program has helped me apply my knowledge I have learned at UCSD and expanded upon it. I now have the skills needed to further explore the health's disparities my community faces and make a positive impact.

- Rowan Ustoy

Undergraduate Researchers



Undergraduate Researchers

Arts & Humanities

Kali Boston

Theatre

Project: Breathable Streets

Mentors: Patrick Anderson, PhD, Caroline Collins, PhD, Christina Aushana

Sabrina Chen

Literature/Writing

Program: Honors Program (Literature)

Project: Crows and Other Animalistic Tendencies

Mentor: Lily Hoang, MFA

Conference Presentation: 2021 UC San Diego Undergraduate Research Conference

Kaitlin Clemmer

Literature/Writing, Japanese Studies

Project: Male Homosexual Representation in Japanese Animated Media: Problematic Fetishization, Heteronormative Framing, and the Dismantling of the “Other”

Mentor: Christena Turner, PhD

Conference Presentation: 2021 UC San Diego Undergraduate Research Conference

Marisa DeLuca

Visual Arts (Studio)

Programs: TRELS (Fall, Winter, Spring), Honors Program (Visual Arts)

Project: Or No Side: Memories of a Gentrified Community

Mentor: Monique van Genderen, MFA

Conference Presentation: 2021 UC San Diego Undergraduate Research Conference

Tianrui Huang

Philosophy, Economics

Program: TRELS (Spring)

Project: The Subjectivity and Objectivity in New Reporting

Mentor: Monique Wonderly, PhD

Elizabeth E. Ingram

Literature/Writing

Programs: Honors Program (Literature), URS (Chancellor’s Research Scholarship for Social Sciences)

Project: Quick Escape: Use of Inclusive Language and Coordination of Bias Reporting Mechanisms Creates a Better User Experience

Mentor: Leslie Carver, PhD

Conference Presentation: 2021 UC San Diego Summer Research Conference

Undergraduate Researchers

Denia Marquez

Philosophy

Program: McNair

Project: Addiction, Attachment and the Ethics of Grief in Recovery

Mentor: Monique Wonderly, PhD

Conference Presentations: 2021 UC San Diego Online Undergraduate Research Symposium, 2021 UC San Diego Summer Research Conference

Sara Santibanez

Visual Arts (Studio)

Program: TRELS (Summer)

Project: Access Art San Diego- A public Service

Mentor: Leslie Carver, PhD

Conference Presentation: 2021 UC San Diego Summer Research Conference

Kristina Stahl

Art History/Studio Art

Program: TRELS (Summer)

Project: Museums & Justice: An Exploration of Power, Privilege, & Protest

Mentor: Grant Kester, PhD

Conference Presentations: 2021 UC San Diego Undergraduate Research Conference

Phoenix Wang

Philosophy, Clinical Psychology

[Read Student Spotlight Here](#)

Program: TRELS (Fall, Winter)

Project: A Tale of Two Senses of Moral Responsibility: Incurable Psychopathic Wrongdoing

Mentor: David Brink, PhD

Conference Presentations: 2021 American Philosophical Association Pacific Division Meeting, 2021 UC San Diego Undergraduate Research Conference

Jeffrey Xing

Interdisciplinary Computerized Arts (Music), Psychology (Sensation and Perception)

Programs: UC Scholars, Honors Program (Psychology), HDSI Scholarship

Project: Songbirds as Composers: Understanding Animal Communication with Music and Auditory Aesthetics

Mentors: Tim Sainburg, Timothy Gentner, PhD

Conference Presentation: 2021 UC San Diego Undergraduate Research Conference

Undergraduate Researchers

Biological Sciences

Stefani Acosta

Human Biology

Program: Creating Scientists to Address Cancer Disparities Summer Program

Project: Reasons why Hispanic Communities in Border Cities Have Higher Rates of Blood Cancer Diagnosis vs. Non-Border Cities

Mentors: Georgia Robins Sadler, PhD, Vanessa Malcarne, PhD

Conference Presentation: 2021 UC San Diego Summer Research Conference

Natalia Avina Ochoa

Molecular and Cell Biology

Project: Investigating the Effect of the Tumor Microenvironment in T Cell Gene Expression in Pancreatic Ductal Adenocarcinoma (PDAC)

Mentors: Steven Zhao, PhD, Susan Kaech, PhD

Conference Presentation: 2020 Annual Biomedical Research Conference for Minority Students

Gabriella Busco

Physiology and Neuroscience, Public Health (Epidemiology)

Program: FMP

Project: Body Image, Mental Health, And Quality of Well-Being: A Cross-Sectional Study of Young Adults in a College Setting

Mentor: Job Godino, PhD

Conference Presentation: 2021 UC San Diego Online Undergraduate Research Symposium

Caitlyn Callaway

Human Biology

Program: McNair

Project: D1 and D2 Medium Spiny Neuron Activity in the Cdk5 Parkinson's Disease Tremor Model

Mentor: Kuo-Fen Lee, PhD

Conference Presentations: 2021 UC San Diego Online Undergraduate Research Symposium, 2021 UC San Diego Summer Research Conference

Jasmine Castellanos

Biology (California State University, Fullerton)

Program: STARS

Project: Machine learning model predicts the level of open chromatin from genetic variants

Mentor: Graham McVicker, PhD

Conference Presentation: 2021 UC San Diego Summer Research Conference

Undergraduate Researchers

Anu Chaparala

General Biology

Program: FMP

Project: A Comprehensive Literature Review of Alpha-Pyrrolidinovalerophenone (α -PVP) aka "Flakka" in its Surveillance, Presentation, and Treatment in Emergency Medicine

Mentors: Gary Vilke, MD, Edward Castillo, PhD

Conference Presentation: 2021 UC San Diego Online Undergraduate Research Symposium

Natalie Chavarria

Human Biology

Program: TRELS (Winter, Spring)

Project: Analyzing the Benefits of the Market Match Program and the Incorporation of CalFresh Benefits at San Diego Farmers Markets

Mentor: Leslie Lewis, PhD

Conference Presentation: 2021 UC San Diego Online Undergraduate Research Symposium

Madison Chew

Human Biology

Program: TRELS (Fall, Winter)

Project: Reporting Confirming and Disconfirming Evidence in Discrimination Cases

Mentor: Gail Heyman, PhD

Shiantel Chiang

Neurobiology

Program: Maryam Ahmadian Fellowship

Project: The Role of Gut Microbial Bile Acid Deconjugation on PCOS

Mentor: Amir Zarrinpar, MD

Conference Presentation: 2021 UC San Diego Summer Research Conference

Christopher Contreras

Neurobiology

Program: TRELS (Winter, Spring)

Project: To what extent does instructor behavior around structuring student discussions affect the variability of noise during discussions?

Mentor: Melinda Owens, PhD

Jair Cortes

Environmental Systems (Ecology, Behavior & Evolution)

Project: Assessing San Diego's Clam Aquaculture Market

Mentor: Theresa Talley, PhD

Conference Presentation: 2021 UC San Diego Summer Research Conference

Undergraduate Researchers

My research experience was very educational and provided different field work experiences. I gained a greater understanding of local marine ecology and the interconnected relationships between human and marine communities and economies. -Jair Cortes

Jehan Ezzulddin

Human Biology

Program: TRELS (Fall), URS (Chancellors)

Project: Relationship Between Social Determinants of Health and Allostatic Load

Mentor: Sandra Daley, MD

Conference Presentation: 2021 UC San Diego Summer Research Conference

Xiomara Gaeta Agreda

General Biology

Program: Creating Scientists to Address Cancer Disparities Program

Project: Factors contributing to poor cervical cancer outcomes in Latinas in the United States

Mentors: Georgia Robins Sadler, PhD, Vanessa Malcarne, PhD

Conference Presentation: 2021 UC San Diego Summer Research Conference

Geenee Gonzales

Kinesiology (San Diego State University)

Program: Creating Scientists To Address Cancer Disparities Program

Project: The Impact of Obesity on Breast Cancer Risk and Survival Among Asian American Women

Mentors: Vanessa Malcarne, PhD, Georgia Robins Sadler, PhD, France Nguyen-Grozavu, PhD

Conference Presentation: 2021 UC San Diego Summer Research Conference

Nadia Haghani

General Biology

[Read Student Spotlight Here](#)

Program: FMP

Project: A closer look at cuticle-resident microbes and their impact on *Caenorhabditis elegans* physiology

Mentors: Molly Matty, PhD, Sreekanth Chalasani, PhD

Conference Presentations: 2020 Society for Advancement of Chicanos/Hispanos and Native Americans in Science National Research Conference, 2020 Salk Science at the Seaside, 2021 UC San Diego Online Undergraduate Research Symposium, 23rd International *C. elegans* Conference

Award: 2020 Society for Advancement of Chicanos/Hispanos and Native Americans in Poster Presentation Award, Life Sciences/Microbiology

Undergraduate Researchers

Joshua Hartman

Human Biology

Program: Creating Scientists to Address Cancer Disparities

Project: Factors associated with increased risk of multiple myeloma in the African American community

Mentors: Leslie Crews, PhD, Georgia Robins Sadler, PhD

Conference Presentation: 2021 UC San Diego Summer Research Conference

Victoria Herrera

Human Biology

Program: Creating Scientists Program to Address Cancer Disparities

Project: How Issues in Dermatology Education and Literature may cause Disparities in Skin Cancer Patients of Hispanic and African Descent

Mentors: Georgia Robins Sadler, PhD, Vanessa Malcarne, PhD

Conference Presentation: 2021 UC San Diego Summer Research Conference

Jan Hsiao

Biology (Bioinformatics)

Program: URS (Eureka!)

Project 1: Identification of Ultrasound-Sensitive Ion Channels in Bioluminescent Dinoflagellates

Project 2: TRP ion channel diversity and evolution highlights molecular sensors in animal diversification and biology

Mentors: Sreekanth Chalasani, PhD, Eric Edsinger

Conference Presentation: 2021 UC San Diego Summer Research Conference

Nkechinyere Iroanusi

Human Biology

Programs: FMP, TRELS (Summer)

Project 1: Trends in Marijuana Use Before and After Recreational Legalization in California

Mentor: Edward Castillo, PhD

Project 2: What Does Compassion Mean to Uninsured and Under-Resourced Communities of Color?

Mentor: Elaine Tanaka, MD

Conference Presentation: 2021 UC San Diego Summer Research Conference

Undergraduate Researchers

Mianjel Jack

Neuroscience (Xavier University of Louisiana)

Program: STARS

Project: The Neural Basis of Infants' Preference for Helpers

Mentor: Lindsey Powell, PhD

Conference Presentation: 2021 UC San Diego Summer Research Conference

Zichen Jiang

Biology (Bioinformatics)

Program: FMP

Project 1: Analysis of the male X chromosome's 3D structure and gene expression

Mentors: Ferhat Ay, PhD, Abhijit Chakraborty, PhD, Joaquin Reyna

Project 2: Unmatched Somatic Variant Calling

Mentors: Marcos Diaz Gay, Ludmil Alexandrov

Dalia Koujah

Physiology and Neurosciences

Program: Youth Enjoy Sciences

Project: Barriers to Breast Cancer Screening for Arab American Women

Mentors: Georgia Robins Sadler, PhD, Vanessa Malcarne, PhD

Conference Presentation: 2021 UC San Diego Summer Research Conference

Minh Le

Microbiology, Pharmacological Chemistry

Programs: FMP, Division of Physical Sciences

Summer Research Award, Charles L. Perrin

Summer Research Fellowship, Honors Program

(Chemistry, Biochemistry), D. E. Shaw Research

Science and Engineering Undergraduate

Fellowship

Project: Elucidating dynamics from cryo-EM data

Mentors: Mark Herzik, PhD, Kelly McGuire, PhD

Conference Presentations: 2021 UC San Diego

Online Undergraduate Research Symposium,

2021 UC San Diego ACSSA 15th Annual

Undergraduate Research Symposium in

Chemistry, 2021 SoCal Undergraduate

Chemistry Research Symposium

Awards: 2021 UC San Diego ACSSA 15th Annual

Undergraduate Research Symposium in

Chemistry Outstanding Poster Award, 2021

SoCal Undergraduate Chemistry Research

Symposium Outstanding Poster Award

Undergraduate Researchers

Chloe Le

General Biology

Program: TRELS (Summer)

Project: Inclusivity at UCSD: Exploring the relationship between teacher identity and course content

Mentor: Christoforos Mamas, PhD

Conference Presentation: 2021 UC San Diego Summer Research Conference

Michelle Liu

Molecular and Cell Biology

Program: URS (Ledell Family Research Scholarship for Science and Engineering)

Project: Optimizing a chemical-genetic approach to define substrates of PKC α in Alzheimer's Disease

Mentors: Anne Hiniker, PhD, MD, Farbod Shavarebi

Conference Presentation: 2021 UC San Diego Summer Research Conference

Shina Luu

General Biology, Global Health

Program: FMP

Project: TikTok on Public Health Dissemination: Clinical Trials

Mentor: Georgia Robins Sadler, PhD

Conference Presentation: 2021 UC San Diego Online Undergraduate Research Symposium

Ishta Madan

Molecular and Cell Biology

Program: TRELS (Fall, Winter, Spring)

Project 1: Regulation of Nuclear Properties in the *Drosophila* Heart

Project 2: Effect of LamC Overexpression on nuclear size and DNA changes with age in *Drosophila*

Mentors: Natalie Kirkland, PhD, Adam Engler, PhD

I learned how to use several applications on the lab's remote desktop, such as live heart analysis software (SOHA), image analysis software (fiji), and statistical software (Prism) to collect data from images and movies of the heart.

– Ishta Madan

Katya Marchetti

Neurobiology

Program: URS (Eureka!)

Project: Investigating the Role of Erythroblast Transformation Specific (ETS1/ETS2/ETV2) Genes in Hypoplastic Left Heart Syndrome

Mentors: Stacey Glasgow, PhD, Paul Grossfeld, MD, Karen Ocorr, PhD

Undergraduate Researchers

URS, Eureka! was a great way to immerse myself into a project that I was passionate about and build connections with scientists and staff members at UCSD, as well as collaborate with other undergraduate scientists.

- Katya Marchetti

Ola Mostafa

Molecular and Cell Biology

Program: UC Scholars

Project: Investigating the Driving Factors of PD-1 Clustering

Mentor: Enfu Hui, PhD

Conference Presentation: 2021 UC San Diego Undergraduate Research Conference

Gautam Narayan

Neurobiology

Program: UC Scholars

Project: Theta oscillations and the modulation of time cell sequences in the CA1 layer during a spatial alternation task

Mentor: Stefan Leutgeb, PhD

Conference Presentation: 2021 UC San Diego Undergraduate Research Conference, 2021 UC San Diego Summer Research Conference

Ida Nikjeh

Neurobiology

Program: Creating Scientists to Address Cancer Disparities Program

Project: The lack of diversity in genomic research and stem cell treatments usage due to a deficiency of stem cell donors

Mentors: France Nguyen-Grozavu, PhD, Georgia Robins Sadler, PhD

Conference Presentation: 2021 UC San Diego Summer Research Conference

Brenda Ochoa

Molecular and Cell Biology

Program: Creating Scientists to Address Cancer Disparities Program

Project: Addressing Environmental Health Disparities in Hispanic Children Diagnosed With Pediatric Acute Lymphoblastic Leukemia

Mentors: Georgia Robins Sadler, PhD, Vanessa Malcarne, PhD, Bing Ren, PhD

Undergraduate Researchers

Shawn Ogden

Biology (San Diego State University)

Program: Youth Enjoy Science

Project 1: Effects of the gut microbiome on polycystic ovarian syndrome: relationship to uterine cancer deaths in African American women

Project 2: Researchers Need a Well-Developed Method to Increase African American Participation in Clinical Trials

Mentors: Scott Kelley, PhD, Georgia Robins Sadler, PhD, Vanessa Malcarne, PhD

Conference Presentation: 2020 International Cancer Education Conference

Publications: Kelley, S. T., Liu, W., Quintana, P. J. E., Hoh, E., Dodder, N. G., Mahabee-Gittens, E. M., Padilla, S., Ogden, S., ... Matt, G.E. (2021). Altered microbiomes in thirdhand smoke-exposed children and their home environments. *Pediatric Research*. <https://doi.org/10.1038/s41390-021-01400-1>

Koujah, D., Gonzalez, E., Ogden, S.M., Le, N., Pham, H., Sadler, G.R. (2021, August). Everything you need to know about genomic databases but didn't know who to ask. *Desire Health Magazine*.

Chagolla, P., Espinoza, A., Ustoy, R., Ogden, S.M., Cancino, P., Lee, N., & Sadler, G.R. (2021, June). Becoming your best self: Exercise can help. *Desire Health Magazine*. <https://dhmi.org/becoming-your-best-self-ucsd-students-health-section/>

Ustoy, R., Ogden, S.M., Trinh, S., Padilla, A., Cancino, P., Chagolla, P., & Sadler, G.R. (2021, March). Worry about breast cancer? Why not worry about lung cancer? *Desire Health Magazine*, 14-19. <https://dhmi.org/march-april-2021/>

Ogden, S.M., Morales, J., Chagolla, P., Skipwoth, M.A., & Sadler, G.R. (2021, February). Save your life or the life of someone you love. *Desire Health Magazine*, 9-14. <https://dhmi.org/january-february-2021/>

Skipworth, M.A., Ogden, S.M., Chagolla, P., Leal, A., Lee, N., Binda, A., Morales, J., & Sadler, G.R. (2020, December). Black lungs matter. *Desire Health Magazine*, 18-20. <https://dhmi.org/november-december-2020/>

Andrea Padilla

General Biology

Program: Youth Enjoy Science

Project 1: End of life and dying conversations: The power of religion and spirituality for U.S. Latinx advanced cancer patients and their loved ones

Project 2: The Power Religion and Spirituality Hold in the Dying Process for Latinx Advanced Cancer Patients and Their Loved Ones

Mentors: Georgia Robins Sadler, PhD, Veronica Cardenas, PhD

Conference Presentation: 2021 UC San Diego Summer Research Conference

Undergraduate Researchers

Mitchell Pernia

Biology (San Diego State University)

Program: Creating Scientist to Address Cancer Disparities Program

Project: A comparison of the oral microbiome of children exposed to thirdhand-smoke and adult smokers as a risk factor for oral cancer

Mentors: Vanessa Malcarne, PhD, Georgia Robins Sadler, PhD, France Nguyen-Grozavu, PhD

Conference Presentation: 2021 UC San Diego Summer Research Conference

Vivian Phan

Human Biology

Program: TRELS (Summer)

Project: Using Single Nucleus Epigenomics to Study Heart Failure

Mentor: Sebastian Preissl, PhD

Conference Presentation: 2021 UC San Diego Summer Research Conference

Stacy Pittman

Physiology and Neuroscience

Project: Lifestyle Medicine Education: Building Healthy Habits of Exercise and Nutrition through Innovative Lecture/Study Interventions with College Students

Mentor: Claire Meaders, PhD

Dustin Pwee

Human Biology

Project 1: A novel class of TMPRSS2 inhibitors potentially block SARS-CoV-2 and MERS-CoV viral entry and protect human epithelial lung cells

Project 2: Proteolytic signatures to differentiate eosinophil- and neutrophil-driven asthma

Mentor: Anthony O'Donoghue, PhD

Publication: Mahoney, M., Damalanka, V. C., Tartell, M. A., Chung, D. h., Lourenço, A. L., Pwee, D., ... Janetka, J. W. (2021) A novel class of TMPRSS2 inhibitors potentially block SARS-COV-2 and MERS-COV viral entry and protect human epithelial lung cells. *Proceedings of the National Academy of Sciences*, 118(43). <https://doi.org/10.1073/pnas.2108728118>

Emanoelle Querido

Neurobiology and Public Health

Project: Detecting FOXG1 in Brain Organoids

Mentor: Angels Almenar, PhD

Undergraduate Researchers

I learned how to be a better scientist from designing good experiments, organizing for a productive field season, collecting samples, and writing and presenting about scientific work.
- Cindy Tran

Harriet Song

Molecular and Cell Biology

Programs: TRELS (Winter, Spring), URS (Eureka! Research Scholarship for Biological Sciences Majors)

Project 1: The effect of the Amino-Terminal Fragment (ATF) on the activity and inhibition of urokinase-type plasminogen activator (uPA)

Project 2: The linker's effect on the activity of murine urokinase-type plasminogen activator (muPA)

Mentors: Constanza Torres Paris, Elizabeth Komives, PhD

Conference Presentation: 2021 UC San Diego Undergraduate Research Conference

Bettina Suarez

Biology

Program: Creating Scientists to Address Cancer Disparities

Project: Factors explaining higher rates of breast cancer in Hispanic women in the United States than Hispanic women in Mexico

Mentors: Georgia Robins Sadler, PhD, Vanessa Malcarne, PhD

Conference Presentation: 2021 UC San Diego Summer Research Conference

Luisa Taverna

Biology, Philosophy (Emory University)

Programs: STARS, DBMI Summer Internship

Project: Genetic Diversity and Association Studies in LatinX populations using All of Us Research Cohort

Mentor: Lucila Ohno-Machado, PhD, MD

Cindy Tran

General Biology

Program: URS (Eureka!)

Project 1: Behavioral Syndromes in Tui Chub and its Ecological Impacts

Project 2: Flying Plankton: Dispersal Syndromes in Aquatic Microbes

Mentor: Jonathan Shurin, PhD

Conference Presentations: 2021 UC San Diego Undergraduate Research Conference, 2021 UC San Diego Summer Research Conference

Undergraduate Researchers

Diane Tran

Human Biology

Program: Creating Scientists to Address Cancer Disparities Program

Project: Factors Contributing to Low Rates of End-of-Life (EOL) Care Use in Asian American Cancer Patients

Mentors: Georgia Robins Sadler, PhD, Vanessa Malcarne, PhD, Veronica Cardenas, PhD

Conference Presentation: 2021 UC San Diego Summer Research Conference

Joshua Tran

Human Biology

Program: Creating Scientists to Address Cancer Disparities

Project: Cumulative exposure: Could the effect of harmful microbiome exposures negatively impact African-American women with breast cancer?

Mentors: Georgia Robins Sadler, PhD, Vanessa Malcarne, PhD, Jack Gilbert, PhD

Conference Presentation: 2021 UC San Diego Summer Research Conference

Ann Truong

Human Biology

Program: FMP

Project: COVID-19: Lasting Symptoms and Effects on the Cardiovascular System

Mentor: Faith Quenzer, DO

Conference Presentation: 2021 UC San Diego Online Undergraduate Research Symposium

Brandon Tsai

General Biology

Program: TRELS (Spring)

Project: Coevolution of Morphological Traits on Threespine Stickleback

Mentor: Diana Rennison, PhD

Conference Presentations: 2021 UC San Diego Undergraduate Research Conference, 2021 UC San Diego Online Undergraduate Research Symposium

Rowan Ustoy

General Biology

Program: Multidisciplinary Educational Approach to Reducing Cancer Disparities

Project: Examining diet change as a contributing factor of higher cancer rates in Puerto Rican U.S. migrants

Mentor: Georgia Robins Sadler, PhD

Conference Presentation: 2021 UC San Diego Summer Research Conference

Publications: Chagolla, P., Espinoza, A., Ustoy, R., Ogden, S.M., Cancino, P., Lee, N., & Sadler, G.R. (2021, June). Becoming your best self: Exercise can help. *Desire Health Magazine*.

<https://dhmi.org/becoming-your-best-self-ucsd-students-health-section/>

Ustoy, R., Ogden, S.M., Trinh, S., Padilla, A., Cancino, P., Chagolla, P., & Sadler, G.R. (2021, March). Worry about breast cancer? Why not worry about lung cancer? *Desire Health Magazine*, 14-19. <https://dhmi.org/march-april-2021/>

Undergraduate Researchers

Smriti Variyar

Molecular and Cell Biology, Chemistry

Program: UC Scholars

Project: Investigating the mechanism of mitotic checkpoint initiation

Mentor: Arshad Desai, PhD

Conference Presentation: 2021 UC San Diego Summer Research Conference

Danny Yu

Molecular and Cell Biology

Program: FMP

Project: Using TikTok as a Public Health Dissemination Platform: The Analytics

Mentor: Georgia Robins Sadler, PhD

Conference Presentation: 2021 UC San Diego Online Undergraduate Research Symposium

Data Science

Isac Lee

Data Science

Program: FMP

Project: Financial Benefits and Inequities of Household Solar PV Support Programs

Mentor: Michael Davidson, PhD

Conference Presentation: 2021 UC San Diego Online Undergraduate Research Symposium

Bailey Man

Data Science

Programs: TRELS (Winter), HDSI Scholarship

Project 1: Cryosphere Visualization and Analysis

Mentor: Ilya Zaslavsky

Project 2: Dolphin Tracking and Cognition Detection

Mentor: Ilya Zaslavsky, PhD, Zhen Zhai

Conference Presentation: 2021 UC San Diego Undergraduate Research Conference

Award: COVID-19 Data Challenge, 2nd Place Retail & Leisure

Arjun Sawhney

Data Science

Project: Planning for a Just Renewable Energy Transition in India

Mentor: Michael Davidson, PhD

Conference Presentation: 2021 UC San Diego Undergraduate Research Conference

***I enjoyed my research experience conducting an independent study on India's clean energy transformation in the Davidson Lab at UCSD.
- Arjun Sawhney***

Undergraduate Researchers

Sam Schickler

Data Science

Program: HDSI Scholarship

Project: Comparing Machine Learning to Conventional Statistical Approaches for Classification of Neurons in 2p Microscopy Data

Mentor: Gal Mishne, PhD

Sirui Tao

Data Science, Statistics & Probability

Program: HDSI Scholarship

Project: Physion: Evaluating Physical Prediction from Vision in Humans and Machines

Mentor: Judith Fan, PhD

Computer Science & Engineering

Stephany Alonso

Materials Science and Engineering (UC Irvine)

Programs: STARS, DBMI Summer Internship

Project: Association of Obesity and Patient Recovery in Ambulatory Surgery

Mentor: Rodney Gabriel

Conference Presentations: 2021 Summer Internship Symposium and Career Conference, 2021 UC San Diego Summer Research Conference

Jacob Ayers

Electrical and Computer Engineering

[Read E4E Blog Post Here](#)

Program: E4E REU

Project: Automated Acoustic Species Identification

Mentors: Curt Schurgers, PhD, Ryan Kastner, PhD

Conference Presentation: 2021 International Conference on Machine Learning

Award: NSF REU Film Competition, 3rd place

[View Video Here](#)

Publication: Ayers, J., Jandali, Y., Hwang, Y. J., Steinberg, G., Joun, E., Tobler, M. ... Schurgers, C. (2021). Challenges in applying audio classification models to datasets containing crucial biodiversity information, *38th International Conference on Machine Learning*, 38.

Being able to participate in the STARS 2021 has been a rewarding experience because it has taught me that many of my anxieties facing graduate school are common and valid. This program has reaffirmed that graduate school is a possibility for someone like me.

- Stephany Alonso

Undergraduate Researchers

Nishant Balaji

Computer Engineering

Program: URS (Ledell Family Scholarship)

Project: Acoustic Species Identification

Mentor: Curt Schurgers, PhD

Conference Presentation: 2021 UC San Diego Summer Research Conference

Natalia Berrios-Rivera

Mechanical Engineering

Program: McNair

Project 1: Spatial Distribution of Faults and Fissures at the East Pacific Rise

Mentor: Ross Parnell-Turner, PhD

Project 2: Central Anomaly Magnetization High and Crustal Accretion at the East Pacific Rise

Mentor: Jeff Gee, PhD

Conference Presentations: 2021 UC San Diego Online Undergraduate Research Symposium, 2021 UCLA McNair Conference, 2021 UC San Diego Summer Research Conference

Anshul Birla

Computer Engineering

Program: FMP

Project 1: Identifying Trends Impacting Student Success

Mentor: Christine Alvarado, PhD

Project 2: Building Training Datasets for NLP Research

Mentor: Amarnath Gupta, PhD

Conference Presentation: 2021 UC San Diego Online Undergraduate Research Symposium

Stuart Boynton

Computer Engineering

Program: ECE SRIP

Project: Advanced Control and Optimization for Autonomous Vehicles in Mixed Traffic Systems

Mentor: Yang Zheng, PhD

Conference Presentation: 2021 UC San Diego Summer Research Conference

Kartik Choudhary

Nanoengineering

Program: FMP

Project: Comparison of the Mechanical Properties of a Semiconducting Polymer Deposited using Roll-to-Roll-Compatible Processes for low-cost development of flexible electronic materials

Mentor: Darren Lipomi, PhD

Award: NSF Graduate Research Fellowship

Samantha Fong

Mechanical Engineering

[Read Student Spotlight Here](#)

Program: FMP

Project: Simulation and Analysis of Additively Manufactured Prosthetic Devices

Mentor: Albert Lin

Conference Presentation: 2021 UC San Diego Online Undergraduate Research Symposium

Undergraduate Researchers

Declan Freeman-Gleason

Electrical and Computer Engineering

Program: E4E REU

Project: E4E Baboons On the Move

Mentors: Curt Schurgers, PhD, Ryan Kastner, PhD

Ronaldo Garcia-Hernandez

Computer Science

Program: CSE ERSP

Project: Understanding and Aiding Non-Native English Speakers Learning Computer Science

Mentor: Adalbert Gerald Soosai Raj, PhD

Yidi Gao

Aerospace Engineering

Program: TRELS (Fall), UC Scholars

Project: Thermal Switch Design for Lunar/Martian Missions

Mentor: Carlos Coimbra, PhD

Conference Presentations: 2021 UC San Diego Summer Research Conference, 2021 8th International Conference on Electronics Engineering and Technology

Brandon Ho

Computer Engineering

Program: ECE SRIP

Project: A Miniaturized Wireless Data Streaming System for In-vivo Vagus Sentinels

Mentor: Imanuel Lerman, MD, Yifeng Bu

Conference Presentation: 2021 UC San Diego Summer Research Conference

Khang Hoang

Bioengineering (Biotechnology)

Program: Genentech

Project: Stimulated Raman Spectroscopy Imaging of Lipid Metabolism Alteration in Amyotrophic Lateral Sclerosis

Mentor: Lingyan Shi, PhD

Conference Presentation: 2021 UC San Diego Summer Research Conference

Melissa Ignacio

Computer Science

Program: CSE ERSP

Project: Non-native English Speaking Students in Computer Science

Mentor: Adalbert Gerald Soosai Raj, PhD

Rishaan Kenkre

Bioengineering (Bioinformatics)

Program: Creating Scientists to Address Cancer Disparities Program

Project: Racial, ethnic and socioeconomic disparities to access cancer targeted therapies using real-world evidence analysis

Mentors: Olivier Harismendy, PhD, Vanessa Malcarne, PhD, Georgia Robins Sadler, PhD

Conference Presentation: 2021 UC San Diego Summer Research Conference

Undergraduate Researchers

Angelina Le

Computer Engineering

Program: CSE ERSP

Project: Non-native English speaking students in Computer Science

Mentor: Adalbert Gerald Soosai Raj, PhD

Hope Leng

Bioengineering (Biotechnology)

[Read Student Spotlight Here](#)

Project: Engineering an Activity-Based Nanosensor for the Rapid Diagnosis of Traumatic Brain Injury

Mentors: Ester Kwon, PhD, Julia Kudryashev

Conference Presentation: 2021 UC San Diego Undergraduate Research Conference

Award: 2021 NSF Graduate Research Fellowship

Publication: Kudryashev, J. A., Waggoner, L. E., Leng, H. T., Mininni, N. H., & Kwon, E. J. (2020). An Activity-Based Nanosensor for Traumatic Brain Injury. *ACS Sensors*, 5(3), 686-692. <https://doi.org/10.1021/acssensors.9b01812>

Sharon (Wan-Hsuan) Lin

NanoEngineering

Program: TRELS (Spring)

Project: The Freshman Handbook to Solid-State Batteries

Mentor: Shirley Meng, PhD

Adolfo Lopez Miranda

Mechanical Engineering

Program: CW3E Internship Program

Project: Developing telemetry systems for stations in the Hydroclimate Network

Mentors: Douglas Alden, Ava Cooper, Anna Wilson

Rachel Luu

Mechanical Engineering

[Read Student Spotlight Here](#)

[Read Research Spotlight Here](#)

Programs: McNair, TRELS (Fall)

Project: Bioinspiration of the Equine Hoof

Mentor: Marc Meyers, PhD

Conference Presentations: 2020 Louis Stokes Midwest Regional Center of Excellence Annual Conference, 2021 UCLA National McNair Conference, 2021 UC San Diego Summer Research Conference

Award: 2020 Louis Stokes Midwest Regional Center of Excellence Annual Conference, People's Choice Award

Daniel Maldonado Naranjo

Mechanical Engineering

Programs: STARS, UC LEADS

Project: Integrating Simulink Models to Reachability Analysis

Mentor: Sylvia Herbert

Conference Presentation: 2021 UC San Diego Summer Research Conference

Undergraduate Researchers

Yash Mhaskar

Mechanical Engineering (Controls and Robotics)

Program: NSF REU Program on Designing for Safety and Safety by Design

Project: Smart K-tapes and EMG Sensors

Mentor: Ken Loh, PhD

Katie Miyamoto

Electrical Engineering

Program: HDSI Scholarship

Project: Aye-Aye Sleep Monitoring Project

Mentors: Curt Schurgers, PhD, Ryan Kastner, PhD, Nathan Hui

Judy Mohamad

Mechanical Engineering

Program: STARS

Project: Pneumatically actuated soft robot feet

Mentor: Emily Lathrop

Conference Presentation: 2021 UC San Diego Summer Research Conference

Tuyetthuc Nguyen

Mechanical Engineering (California Polytechnic State University - San Luis Obispo)

Program: E4E REU

Project: Aye-Aye Sleep Monitoring

Mentors: Ryan Kastner, PhD, Curt Schurgers, PhD, Nathan Hui

Xavier Perez

Electrical Engineering

[Read Spotlight Here](#)

[Read Engineering Spotlight Here](#)

Programs: TRELS (Fall, Winter, Spring), STARS, UC LEADS

Project: Low-Cost Home-Made Recording Chambers for Zebra Finch Birds

Mentor: Vikash Gilja, PhD

Conference Presentation: 2021 Koret UC LEADS Research & Leadership Symposium

Award: 2021 Top Honors Winner in the Engineering & Computer Sciences category, 2021 Koret UC LEADS Research & Leadership Symposium

Eleanor Quirk

Chemical Engineering

Program: TRELS (Spring)

Project: Nucleotide Adsorption onto TiO₂ Nanoparticles: A Quantitative Insight on Electrostatic Interactions

Mentors: Izaac Sit, Vicki Grassian, PhD

Conference Presentations: 2021 UC San Diego Online Undergraduate Research Symposium, 2021 UC San Diego Undergraduate Research Conference, 2021 Spring American Institute of Chemical Engineers Projects Showcase, Nano and Chemical Engineering Day Innovation Competition

Award: 2021 The Future of Chemistry Scholarship for Women

Undergraduate Researchers

Anthony Quiroga

Computer Science

Programs: TRELS (Summer), CSE ERSP

Project 1: Expanding Hardware Continuous Integration on Tock

Project 2: Classification of Interactions through Proximity Data

Mentor: Pat Pannuto, PhD

Conference Presentation: 2021 UC San Diego Summer Research Conference

Tanner Ragan

Mechanical Engineering (UC Merced)

Program: STARS

Project: Flow Characterization of Plasma Actuated Flat Plate

Mentors: Oliver Schmidt, Brandon Yeung

Conference Presentation: 2021 UC San Diego Summer Research Conference

Nicholas Rowlett

Electrical Engineering

Programs: ECE SRIP, E4E REU

Project: Smartfin

Mentor: Nathan Hui

Conference Presentation: 2021 UC San Diego Summer Research Conference

***I really enjoy working at the lab!
It's an exciting environment and no
two days are ever the same.***

- Meghan Shen

Meghan Shen

NanoEngineering

Program: TRELS (Fall)

Project 1: Broadband UV-VUV Laser Pulses for Efficient X-Ray Generation

Mentor: Tenio Popmintchev, PhD

Project 2: Advanced Electrode Material Synthesis and High Energy Battery Development

Mentor: Shirley Meng, PhD, Yixuan Li

Undergraduate Researchers

Romina Shirazi

Biomedical Engineering

Program: STARS, DBMI Summer Internship

Project: Predicting the Outcome of Spine Surgeries using Image Processing and Machine Learning

Mentor: Shamim Nemati, PhD

Conference Presentations: 2021 DBMI Summer Internship Symposium, 2021 UC San Diego Summer Research Conference

Amita Stowitts

Computer Science, Environmental Systems

Program: CSE ERSP

Project: Non-Native English Speaking Students in Computer Science

Mentors: Adalbert Gerald Soosai Raj, PhD

Ananya Thridandam

Mechanical Engineering

Program: URS (Philip and Elizabeth Hiestand)

Project: Renewable Energy Resource Assessments in the Western United States

Mentor: Michael Davidson, PhD

Conference Presentations: 2021 UC San Diego Undergraduate Research Conference, 2021 UC San Diego Summer Research Conference

Elizabeth Tran

Computer Science

Program: CSE ERSP

Project: Permission Request on Websites

Mentors: Ariana Mirian, Gautam Akiwate, Geoff Voelker, PhD

Jerry Wu

Bioengineering (Biotechnology)

Program: UC Scholars

Project: 3D Bioprinted hiPSC-derived Cardiac Micro-Tissues to Investigate Nanoparticle Cardiotoxicity

Mentor: Shaochen Chen, PhD

Conference Presentation: 2021 UC San Diego Summer Research Conference

Publication: Miller, K. L., Xiang, Y., Yu, C. Pustelnik, J., Wu, J., ... Chen, S. (2021). Rapid 3D BioPrinting of a human iPSC-derived cardiac micro-tissue for high-throughput drug testing. *Organs-on-a-Chip*, 3, 100007. <https://doi.org/10.1016/j.ooc.2021.100007>

Undergraduate Researchers

Emmie Yao

NanoEngineering

Program: URS (Ledell Science and Engineering Scholarship)

Project: 3D Bioprinting of Corneal Stem Cells

Mentors: Alis Balayan, Zheng Zhong, Shaochen Chen, PhD

Conference Presentation: 2021 UC San Diego Summer Research Conference

Publications: Zhong, Z., Deng, X., Wang, P., Yu, C., Kiratitanaporn, C., Wu, X., Schimelman, J., Tang, M., Balayan, A., Yao, E., ... Chen, S. (2021). Rapid bioprinting of conjunctival stem cell micro-constructs for subconjunctival ocular injection. *Biomaterials*, 267, 120462. <https://doi.org/10.1016/j.biomaterials.2020.120462>

Zhong, Z., Balayan, A., Tian, J., Xiang, Y., Hwang, H. H., Wu, X., Deng, X., Schimelman, J., Sun, Y., Ma, C., Dos Santos, A., You, S., Tang, M., Yao, E., ... Chen, S. (2021). Bioprinting of dual ECM scaffolds encapsulating limbal stem/progenitor cells in active and quiescent statuses. *Biofabrication*, 13(4). <https://doi.org/10.1088/1758-5090/ac1992>

Public Health

Ailyn Alicea

Public Health

Program: Creating Scientists to Address Cancer Disparities Program

Project: Why are Hispanic smokers are less likely to be advised to quit compared to white smokers? Cultural and Institutional Factors

Mentors: Georgia Robins Sadler, PhD, Vanessa Malcarne, PhD, David Strong, PhD

Conference Presentation: 2021 UC San Diego Summer Research Conference

I gained insight into other research topics and the diversity within this scientific community. I enjoyed learning the science of public health and how we must advocate as researchers.

- Ailyn Alicea

Undergraduate Researchers

Anthony Cirilo

Public Health

Program: Youth Enjoy Science

Project: Allostatic Load in Pediatric Cancer Survivors: Predicting Future Adverse Health Outcomes

Mentors: Suzi Hong, PhD, Georgia Robins Sadler, PhD

Conference Presentation: 2021 UC San Diego Summer Research Conference

Hiela Manely

Public Health

Program: Creating Scientists to Address Cancer Disparities

Project: Barriers to Breast Cancer screening faced by Immigrant Muslim women in the United States

Mentors: Georgia Robins Sadler, PhD, Vanessa Malcarne, PhD

Conference Presentation: 2021 UC San Diego Summer Research Conference

Donna Pham

Public Health

Project: Placentas of Women with CHD Demonstrate Pathological Signs of Maternal Vascular Malperfusion

Mentors: Ana Rodriguez, PhD, Mana Parast, MD, PhD

Physical Sciences

Paola Anguiano Quiroz

Pharmacological Chemistry

Program: Creating Scientists to Address Cancer Disparities

Project: Factors Explaining why Hispanic Women Diagnosed with Breast Cancer in the United States have a Higher Risk of Mortality

Mentors: Georgia Robins Sadler, PhD, Vanessa Malcarne, PhD

Conference Presentation: 2021 UC San Diego Summer Research Conference

Carissa Avina-Beltran

Physics (San Francisco State University)

Program: STARS

Project: Dust from a destroyed planet obscuring the Sun-like star TYC 8830 410 1

Mentor: Carl Melis, PhD

John Brown

Biochemistry

Program: TRELS (Spring)

Project: Study of Chaperone Activity of Insulin-Degrading Enzyme Using Amyloid- β^2 and HIV-1 p6

Mentor: Lalit Deshmukh, PhD

Undergraduate Researchers

Erick Cervantes

Biochemistry/Chemistry

Program: McNair

Project: Synthesis of Anti-Cancer Chemical Groups

Mentor: Dionicio Siegel, PhD

Conference Presentations: 2021 UC San Diego Online Undergraduate Research Symposium, 2021 UC San Diego Summer Research Conference

Simon Danitz

Physics (Materials Physics)

Program: TRELS (Summer)

Project: Characterization of Stretchable Hydrogel Electrolytes for Zinc-Air Batteries

Mentors: Zheng Chen, PhD, Guorui Cai, PhD

Conference Presentation: 2021 UC San Diego Summer Research Conference

Haifeng Ding

Physics

Programs: FMP, Honors Program (Marshall College Physics)

Project: Improving Di-Higgs Sensitivity at Future Hadron Colliders with Machine Learning

Mentor: Javier Duarte, PhD

Conference Presentations: 2021 National Council on Undergraduate Research Conference, 2021 UC San Diego Online Undergraduate Research Symposium

Sohan Ghosh

Physics (Astrophysics)

Program: FMP

Project: Reducing Archival Brown Dwarf/Cool Star Spectral Data

Mentor: Adam Burgasser, PhD

Conference Presentation: 2021 UC San Diego Online Undergraduate Research Symposium

Publication: Siegert, T., Ghosh, S., Mathur, K., Spraggon, E., & Yeddanapudi, A. (2021).

Nucleosynthesis constraints through gamma-ray line measurements from classical novae. A hierarchical model for the ejecta of ^{22}Na and ^7Be . *Astronomy & Astrophysics*, 650.

<https://doi.org/10.1051/0004-6361/202140300>

Prothit Halder

Mathematics—Computer Science

Program: CSE ERSP

Project: Discrete Network Simulation for Topology Verification

Mentors: George Porter, PhD, Alex Snoeren, PhD

Undergraduate Researchers

Tiffany Hamilton

Chemistry

Programs: Chemistry and Biochemistry Physical Sciences Undergraduate Summer Research Award, Chemistry and Biochemistry Perrin Fellowship

Project 1: Exploration of a Redox-Neutral Mitsunobu Catalyst

Mentor: Emmanuel Theodorakis, PhD

Project 2: Total Synthesis of Chlorotonil A

Mentors: Alexander Braddock, Emmanuel Theodorakis, PhD

Conference Presentation: 2021 UC San Diego ACSSA Undergraduate Research Symposium

The Perrin Fellowship and Physical Sciences Undergraduate Summer Research Award have given me the opportunity to focus on my research full-time, and this valuable time spent in the laboratory has extended my education far beyond the classroom. - Tiffany Hamilton

Natalia Henriquez Sanchez

Physics (Materials Physics)

Program: FMP

Project 1: Using CMB Measurements to Understand Dark Matter Density and Statistical Methods to Forecast Uncertainties in Parameter Values

Mentors: Tongyan Lin, PhD, Jung-Tsung Li

Project 2: SpeX Archive Reduction to Build a Catalog of Low-Mass Star and Brown Dwarf Spectra

Mentor: Adam Burgasser, PhD

Conference Presentations: 2021 UC San Diego Summer Research Conference, 2021 California Alliance for Minority Participation Symposium, 2021 UC San Diego Online Undergraduate Research Symposium

Helen Hernandez

Biochemistry

Program: Creating Scientists to Address Cancer Disparities Program

Project: Identifying the Protective Factors for Pediatric Brain Cancer Within Minority Versus White Non-Hispanic Infants and Children.

Mentors: Georgia Robins Sadler, PhD, Vanessa Malcarne, PhD

Conference Presentation: 2021 UC San Diego Summer Research Conference

Undergraduate Researchers

Katherine Izhikevich

Mathematics—Computer Science

Project: Evaluating the impact of the Early Research Scholars Program

Mentor: Christine Alvarado, PhD

Publication: M. Ziv, L. Izhikevich, K. Ruth, K. Izhikevich, Z. Durumeric. (2021). ASdb: A System for Classifying Owners of Autonomous Systems. In ACM Internet Measurement Conference.

Award: Gary C Reynolds Scholarship

Amaya Mendez-Molina

Pharmacological Chemistry

Program: Creating Scientists to Address Cancer Disparities

Project: Cultural Barriers of Cancer Care for Indigenous Oaxacan Women

Mentors: Georgia Robins Sadler, PhD, Vanessa Malcarne, PhD

Conference Presentation: 2021 UC San Diego Summer Research Conference

Viena Le

Chemistry

Program: Creating Scientists to Address Cancer Disparities Program

Project: Factors Explaining High Cervical Cancer and Low Screening Rates Among Victims of Sexual Abuse

Mentors: Georgia Robins Sadler, PhD, Vanessa Malcarne, PhD, Frances Nguyen-Grozavu, PhD

Conference Presentation: 2021 UC San Diego Summer Research Conference

Noura Mohamed

Chemistry and Biochemistry

Program: TRELS (Summer)

Project: Spatial Regulation of Glycolytic Enzymes on Mitochondria in Mammalian Neurons

Mentors: Gulcin Pekkurnaz, PhD, Haoming Wang

Conference Presentation: 2021 UC San Diego Summer Research Conference

Megan Li

Physics (Astrophysics)

Program: TRELS (Fall, Spring)

Project: Active Galactic Nuclei

Mentor: Karin Sandstrom, PhD

Conference Presentation: 2021 UC San Diego Undergraduate Research Conference (Plenary Speaker)

Award: 2020 Undergraduate Space Research Award, Honorary Mention

Tai Nguyen

Physics

Program: URS (Frances Hellman Scholarship)

Project: Finn/hls4ml merge

Mentor: Javier Duarte, PhD

Undergraduate Researchers

In the UC Scholars program, I was able to get a first glance of the feeling of doing research. I realized that math research is a process that requires passion, patience, and some inspirations.
—Yixuan Peng

Rocco Novello

Physics (Astrophysics)

Program: FMP

Project: The Coolest Stars in the Universe

Mentor: Adam Burgasser, PhD

Conference Presentation: 2021 UC San Diego Online Undergraduate Research Symposium

Yixuan Peng

Applied Mathematics

Program: UC Scholars, Honors Program (Mathematics)

Project: Analysis of Return Time in Diffusion Map

Mentor: Alex Cloninger, PhD

Ruby Rios Ramirez

Biochemistry

Program: ADVANCE Undergraduate Institute Scholar Stanford Bioscience

Project: Monitoring Swallow Activity with Multi-Electrode Electromyography

Mentors: Gladys Ornelas, Todd Coleman, PhD

Conference Presentation: 2020 Society for Advancement of Chicanos/Hispanos and Native Americans in Science National Research Conference

Award: 2020 Society for Advancement of Chicanos/Hispanos and Native Americans in Science Research Conference Travel Award

Rahul Sehgal

Biochemistry

Program: TRELS (Summer)

Project: Science vs. the World: Breaking Down the Knowledge Barrier between Science Researchers and the General Public

Mentor: Michael Burkart, PhD

Conference Presentation: 2021 UC San Diego Summer Research Conference

Undergraduate Researchers

Elanor Sievers

Biochemistry/Chemistry

Program: URS (Ledell Family Research Scholarship for Science and Engineering)

Project: Determining the structure of a cysteine-less intein and improving its splicing efficiency using NMR spectroscopy and splicing assays.

Mentors: Raymond Berkeley, Galia Debelouchina, PhD

Conference Presentations: 2021 UC San Diego Summer Research Conference, 2021 SoCal Undergraduate Research Symposium, 2021 ACSSA Undergraduate Research Symposium

Awards: 2021 SoCal Undergraduate Research Symposium Poster Award, 2021 ACSSA Undergraduate Research Symposium Poster & Video Awards

Andy Tran

Biochemistry

Program: 2021 Undergraduate Summer Research Award - Student Success Center

Project: Using divalent metal ions in splicing group II intron E.c15

Mentors: Jason Hingey, Navtej Toor, PhD

Sally Trinh

Biochemistry and Cell Biology

Program: Creating Scientists to Address Cancer Disparities

Project: The key determinants of a survivorship care model

Mentor: Georgia Robins Sadler, PhD

Conference Presentations: 2021 UC San Diego Summer Research Conference, 2020 International Cancer Education Conference

Flora Wong

Biochemistry/Chemistry

Program: FMP

Project: Heterochromatin Protein 1 and Cell Proliferation

Mentor: Willis Li, PhD

Conference Presentation: 2021 UC San Diego Online Undergraduate Research Symposium

Undergraduate Researchers

Wenqian Yang

Pharmacological Chemistry

Project: Structure-activity relationships of curcumin-like compounds as possible treatments for Human African trypanosomiasis

Mentors: Ludovica Monti, PhD, Conor Caffrey, PhD

Conference Presentation: 2021 ACSSA 15th Annual Undergraduate Research Symposium in Chemistry

Award: Chemistry and Biochemistry Department, Library Award

Publication: Barbosa da Silva, E., Rocha, D.A., Fortes, I.S., Yang, W., ... Ferreira, R. S. (2021). Structure-based optimization of quinazolines as cruzain and TbrCATL inhibitors. *Journal of Medical Chemistry*, 64(17), 13054-13071. <https://doi.org/10.1021/acs.jmedchem.1c01151>

Ethan Yi Sheng Zhu

Biochemistry and Cell Biology

Program: Youth Enjoy Science

Project 1: Diverse Biobank Contributions Unlock Potential Biological Disparities in Colorectal Cancer and Beyond

Project 2: Help Us Help You: How Racially and Ethnically Diverse Biobank Contributions Enable Stronger Basic Biology Research

Mentors: Georgia Robins Sadler, PhD, Maximiliano D'Angelo, PhD

Conference Presentations: 2021 UC San Diego Summer Research Conference, 2020 International Cancer Education Conference

SIO

Veronica Berta

Oceanic and Atmospheric Sciences

Program: McNair

Project: Estimating Amine in Single Particle AMS Measurements

Mentor: Lynn Russell, PhD

Conference Presentations: 2021 UC San Diego Online Undergraduate Research Symposium, 2021 UC San Diego Summer Research Conference

Barbara Saucedo

Marine Biology

Program: TRELS (Summer)

Project: Optimizing fluorescent tagging of active microbial cells in deep-sea subseafloor sediments

Mentors: Douglas Bartlett, PhD, Luke Fisher, Alvaro Plominsky, PhD

Conference Presentation: 2021 UC San Diego Summer Research Conference

Undergraduate Researchers

Social Sciences

Leilani Camacho

Cognitive Science (Neuroscience)

Project: COVID-19 Vaccine Attitudes among Inland Empire Uninsured and MediCal Recipients

Mentor: Deborah Lefkowitz, PhD

Conference Presentation: 2021 UCR's Center for Health Disparities Research 2nd Annual Symposium

Given that the research was funded by the NIH, I was able to network and learn so much about grant writing, and what a large community it takes to make qualitative research successful.
- Leilani Camacho

Andrea Contreras

Human Developmental Sciences

Program: Creating Scientists to Address Cancer Disparities

Project: Survival rate disparities between osteosarcoma and Ewing's sarcoma in pediatric patients

Mentors: Georgia Robins Sadler, PhD, Vanessa Malcarne, PhD

Conference Presentation: 2021 UC San Diego Summer Research Conference

Jordan Gomezpadilla

Cognitive and Behavioral Neuroscience

Program: Creating Scientists to Address Cancer Disparities

Project: Factors Associated with the Higher Incidence Rate and Lower Survival Rate of Non-Hispanic White Men Diagnosed with Glioblastomas

Mentors: Georgia Robins Sadler, PhD, Vanessa Malcarne, PhD

Conference Presentation: 2021 UC San Diego Summer Research Conference

Tekin Gunasar

Cognitive Sciences

Program: HDSI Scholarship

Project: Reducing Facial Recognition Bias with the Use of Synthetic Training Data with GANs

Mentor: Rafael Martins de Moraes

Undergraduate Researchers

Ryan Hajj

Cognitive Behavioral Neuroscience

Program: TRELS (Summer)

Project: COVID-19 Survivors and Long Term Cognitive Issues

Mentor: Robert Rissman, PhD

Conference Presentation: 2021 UC San Diego Summer Research Conference

Jaden Huynh

Psychology (Cognitive and Behavioral Neuroscience), International Studies (Business)

Program: Creating Scientists To Address Cancer Disparities

Project: Does psychiatric illness predict lower cancer survival rates?

Mentors: Georgia Robins Sadler, PhD, Vanessa Malcarne, PhD, France Nguyen-Grozavu, PhD

Conference Presentation: 2021 UC San Diego Summer Research Conference

Brooke Johnson

Global Health

Programs: TRELS (Spring), BUMMP Research Apprenticeship Program

Project: Identification of Novel Jumbophages in Cheese

Mentors: Christina Saak, PhD, Rachel Dutton, PhD

Conference Presentation: 2021 UC San Diego Undergraduate Research Conference

Megan Korhummel

Psychology (San Diego State University)

Program: Creating Scientists to Address Cancer Disparities Program

Project: Barriers to genetic testing in men with an increased risk for prostate cancer associated with BRCA1 and BRCA2 mutations

Mentors: Vanessa Malcarne, PhD, Georgia Robins Sadler, PhD

Conference Presentation: 2021 UC San Diego Summer Research Conference

Vy Le

Cognitive Behavioral Neuroscience, International Business

Program: FMP

Project: Facebook

Mentor: Georgia Robins Sadler, PhD

Conference Presentation: 2021 UC San Diego Online Undergraduate Research Symposium

Steve Anthony Maravillo

Education Sciences, Public Health

Program: TRELS (Fall, Winter)

Project: Effective Strategies for College and University Preparation for Latino Students in Public K-12 Educational Institutions in the San Bernardino City Unified School District

Mentor: Makeba Jones, PhD

Undergraduate Researchers

Guadalupe Marmolejo

Education Sciences

Program: TRELS (Summer)

Project: Bilingualism in the Latino Student Population

Mentor: Thandeka Chapman, PhD

Conference Presentation: 2021 UC San Diego Summer Research Conference

Sapna Mehta

Global Health

Program: TRELS (Winter, Spring)

Project: Implementation of Universal Cancer Predisposition Screening in the Pediatric Oncology Population

Mentor: Dennis Kuo, MD

Conference Presentation: 2021 UC San Diego Undergraduate Research Conference

Publication: Mehta, S., & Kuo, D. J. (2020). To test or not to test: Genetic cancer predisposition testing in paediatric patients with cancer. *Journal of Medical Ethics*, 47(12).

<https://doi.org/10.1136/medethics-2020-106656>

Olivia Michael

Cognitive Behavioral Neuroscience, Global Health

Project 1: Intern in Child and Adolescent Services Research Center. Project: An Analysis of Parent-Mediated ASD Interventions in Low-to-Middle Income Countries

Mentors: Lauren Brookman-Frazee, Cassandra Martinez

Project 2: Facilitating Caregiver Engagement in Parent-Mediated ASD Interventions in a Virtual Environment

Mentors: Colby Chlebowski, PhD, Cassandra Martinez

Martin Montiel

Psychology

Program: Creating Scientists to Address Cancer Disparities.

Project: Moving with the times: Alternative cancer treatments for Children.

Mentors: Vanessa Malcarne, PhD, Georgia Robins Sadler, PhD, David Strong, PhD

Brooklyn Moore

Political Science (International Relations)

Program: URS (HIV Institute - Transgender/ Gender Non - Binary Community Health Research Scholarship)

Project: Changing Treatment : A Look Into the Advancement for Transgender Healthcare Procedures

Mentors: Bob Leyh, Stephen Rawlings, MD, PhD

Undergraduate Researchers

Cameron Ormiston

Global Health

Conference Presentations: 2020 Society for Advancement of Chicanos/Hispanos and Native Americans in Science National Research Conference, 2020 Annual Biomedical Research Conference for Minority Students, 2020 Louis Stokes Midwest Regional Center of Excellence Annual Conference, 2021 Harvard College National Collegiate Research Conference, 2021 12th Annual Consortium of Universities Global Health Conference, 2021 Conference on Women and Gender, 2021 National Conference of Undergraduate Research, 2021 Johns Hopkins University National Undergraduate Humanities Research Symposium

Publications: Ormiston C. K., Ocher, R., & Taub, P. R. (2021) Impact of nutrition on biomarkers of cardiovascular health. In M. J. Wilkinson, M. S. Garshick, & P. R. Taub (Eds.), *Prevention and Treatment of Cardiovascular Disease* (pp. 29-45). https://doi.org/10.1007/978-3-030-78177-4_2

Taub, P. R., Zadourian, A., Lo, H. C., Ormiston, C. K., Golshan, S., & Hsu, J. C. (2021). Randomized trial of ivabradine in patients with hyperadrenergic postural orthostatic tachycardia syndrome. *Journal of The American College Of Cardiology*, 77(7): 861-871. <https://doi.org/10.1016/j.jacc.2020.12.029>

Awards: NIH Postbaccalaureate Intramural Research Training Award (IRTA), 2021 NIH Academy Enrichment Program Scholar

Armin Nouri

Cognitive Science (UC Davis)

Program: STARS

Project: Cross-Institutional Logging of Patient Data-sharing Consents on Blockchain Using Smart Contracts

Mentor: Tsung-Ting Kuo, PhD

Conference Presentation: 2021 UC San Diego Summer Research Conference

Naama Nunez

Sociology

Program: TRELS (Spring), Honors Program (Sociology)

Project: The relationship between familial socioeconomic status and children's experiences with COVID-19 induced online learning.

Mentor: Amy Binder, PhD

Conference Presentation: 2021 Undergraduate Research Conference

Amber O'Brien

Psychology

Program: Creating Scientists to Address Cancer Disparities

Project: Investigating the existence of disparities in quality of life among pediatric brain cancer survivors of low socioeconomic status

Mentors: Georgia Robins Sadler, PhD, Vanessa Malcarne, PhD

Conference Presentation: 2021 UC San Diego Summer Research Conference

Undergraduate Researchers

William OFarrill

Biological Anthropology (SFSU)

Program: STARS

Project: Vaccine Hesitancy

Mentor: Amy Non, PhD

Award: CSU Sally Casanova Pre-Doctoral Award

Mihaela Rascanu

Economics

Program: UC Scholars

Project: The Impact of the Egyptian Government's Energy Reforms

Mentor: James Rauch, PhD

Emma Scott

*Sociology (Culture and Communication),
Political Science (Data Analytics)*

Program: TRELS (Summer), Honors Program (Sociology)

Project 1: Memes and Misinformation during the 2020 US Presidential Election

Mentor: Margaret Roberts, PhD

Project 2: Lucrezia Marinella, Arcangela Tarabotti, and Artemisia Gentileschi: Diverging Social Spheres, Diverging Feminisms in Early Modern Italy

Mentors: Harvey Goldman, PhD, Jeffrey Haydu, PhD

Conference Presentations: 2021 UC San Diego Undergraduate Research Conference, 2021 UC San Diego Summer Research Conference

Veer Shah

Political Science, Anthropology

Project: Community Engagement & Social Media

Mentor: Bonnie Kaiser, PhD

Sukham Sidhu

Economics

Program: TRELS (Summer)

Project: California Punitive Damage Appeals: Award Reductions and Wealth

Mentor: Kwai Ng, PhD

Conference Presentation: 2021 UC San Diego Summer Research Conference

Haihan Tian

Economics, Data Analytics

Program: Honors Program (Economics), TRELS (Winter, Spring)

Project 1: Studying Chinese People's Attitudes Toward America and Japan

Project 2: Studying Chinese People's Choices on Smartphones

Mentor: Eli Berman, PhD

Conference Presentation: 2021 UC San Diego Undergraduate Research Conference

Undergraduate Researchers

Being a low-income student, having been awarded multiple TRELS awards allowed me to focus on advancing my academic prowess. As well as gaining ample experience toward graduate school and even my future career.
- Alan Tram

Alan Tram

Cognitive Science (Human Computer Interaction)

Program: TRELS (Fall, Summer)

Project 1: CAPS Redesign Project

Project 2: Co-Designing Digital Tools to Support Students' Social Challenges During and Beyond COVID-19

Mentor: Elizabeth Eikey, PhD

Conference Presentations: 2021 UC San Diego Undergraduate Research Conference, 2021 UC San Diego Summer Research Conference

Vianey Valdez

Human Developmental Sciences, Global Health

Program: TRELS (Summer)

Project: Identifying the Barriers UCSD Undergraduate Students Face in Obtaining Basic Needs Support

Mentor: Megumi Naoi, PhD

Conference Presentation: 2021 UC San Diego Summer Research Conference

Megan Wang

Psychology

Program: Honors Program (Psychology)

Project: Psych Honors Thesis

Mentor: Monica Sweet

Katrina Wanner

International Studies (Anthropology)

Program: TRELS (Summer)

Project: Climate Refugees and Accountability

Mentor: Nancy Postero, PhD

Conference Presentation: 2021 UC San Diego Summer Research Conference

Undergraduate Researchers

Justin Yang

Cognitive Science, Mathematics

Program: TRELS (Winter)

Project: Visual communication of object concepts at different levels of abstraction

Mentor: Judith Fan, PhD

Conference Presentation: 43rd Annual Meeting of the Cognitive Science Society, Underline Science Inc.

Publication: Yang, J., & Fan, J. (2021). Visual communication of object concepts at different levels of abstraction. *Proceedings of the 43rd Annual Meeting of the Cognitive Science Society*. https://cogtoolslab.github.io/pdf/yang_cogsci_2021.pdf

Mai Yang

General Linguistics, Cognitive Science (Language and Culture)

Program: Linguistics Field Research Mentorship Program

Project: Northern Toussian Balafon Surrogate Language

Mentors: Emily Clem, PhD, Anthony Struthers-Young

Alex Zhao

Political Science (Data Analytics), History (Law)

Program: McNair

Project: How A Public Health Crisis Reveals How Governance is Approached

Mentor: Kirk Bansak, PhD

Conference Presentations: 2021 UC San Diego Summer Research Conference, 2021 UC San Diego Online Undergraduate Research Symposium

I learned about how to do linguistics field research through doing transcriptions in Praat and ELAN. We analyzed the data we had and arranged them. I also learned more about the cultural, historical, and linguistic features of the language. - Mai Yang

