



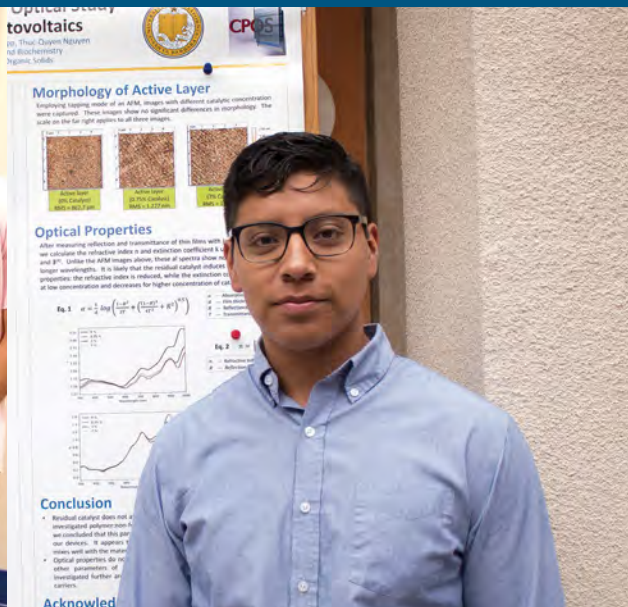
UNIVERSITY
OF
CALIFORNIA

Leadership Excellence
through Advanced
Degrees (UC LEADS)

ANNUAL REPORT 2018-2019

Preparing Promising Scholars for Graduate Education in Science,
Technology, Engineering and Mathematics (STEM)

SINCE 2000



Optical Study of Poly(vinylidene fluoride) (PVDF) thin films

Dr. Thuan-Cayem Nguyen
of Biochemistry
Nguyen, Soluble

Morphology of Active Layer

Employing tapping mode of an AFM, images with different catalytic concentration were captured. These images show no significant difference in morphology. The scale on the far right applies to all these images.

Optical Properties

After measuring reflection and transmittance of thin films, we calculated the refractive index n and extinction coefficient k using n and k . Unlike the AFM images above, these plots show longer wavelengths. It is likely that the optical material induces properties: the refractive index is reduced, while the extinction coefficient is increased and decreases for higher concentration of catalyst.

Fig. 1 $n = \frac{1}{2} \left(\frac{R_{\text{TE}} + T_{\text{TE}}}{R_{\text{TM}} + T_{\text{TM}}} \right)^{1/2}$

Fig. 2 $k = \frac{1}{2} \left(\frac{R_{\text{TE}} - T_{\text{TE}}}{R_{\text{TM}} - T_{\text{TM}}} \right)^{1/2}$

Conclusion

- Refractive index does not change significantly with catalyst concentration.
- Extinction coefficient increases with the catalyst concentration.
- Optical properties depend on the catalyst concentration. We will investigate further on this.

Acknowledged



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A man's profile is visible on the left side of the image, wearing a blue and white striped shirt. The background is a solid blue color. The text is positioned on the right side of the image.

PREPARING PROMISING SCHOLARS

FOR GRADUATE SCHOOL AND BEYOND

The **University of California Leadership Excellence through Advanced DegreeS (UC LEADS)** program engages and educates California's future leaders by preparing promising students for advanced education in science, technology, mathematics, and engineering (STEM). UC LEADS identifies exceptional UC undergraduate students with great potential to succeed in these disciplines, but who have experienced situations or conditions that have adversely impacted their advancement in their field of study. UC LEADS Scholars embark upon a two-year program of scientific research and graduate school preparation guided by faculty mentors and UC LEADS staff. By providing valuable educational experiences for a diverse pool of graduate applicants, the UC system empowers a new generation of leaders.

THE YEAR IN REVIEW

A MESSAGE FROM THE DIRECTOR



This year, we sent a survey to UC LEADS alumni, gathering education and career updates, as well as program feedback. An overwhelming majority of alumni asked for ways to remain engaged with UC LEADS and praised UC LEADS with making a critical impact on their future. We responded to this feedback with an effort to invite alumni to remain involved. Most campuses now invite alumni to workshops, panels, and networking events with their scholars. We also invited alumni in academic careers to serve as poster judges at the 2019 Symposium at UC Santa Cruz.

This feedback also prompted the decision to hold a UC LEADS Alumni Reunion. In fact, we will host two reunions in the summer of 2020 in celebration of the 20th anniversary of UC LEADS. Our 20th anniversary will also make the 2020 UC LEADS Koret Research and Leadership Symposium quite special. The 2020 Symposium will be hosted at UC Irvine in March 2020. One highlight will be the inaugural ceremony for the Graduate Deans' Leadership Award, recognizing extraordinary leadership exhibited by students during their tenure as UC LEADS scholars.

I cannot thank enough the UC LEADS Coordinators, who support these scholars with open hearts and innovative ways to enhance their programming. I also would like to thank the faculty who give their time and mentorship at the UC LEADS Symposium and in their labs. It is through dedicated faculty participation that the scholars see role models in academia, learn the culture and expectations of graduate school, and explore their own leadership potential.

Michele Johnson
UC LEADS Statewide Director

LEADERSHIP IN SCHOLARSHIP

IMPACT THROUGH SCHOLARLY CONTRIBUTIONS

These 2018-2019 UC LEADS Scholars are already making an impact through their scholarly publication contributions:

Mayia Vranas | UC Berkeley

Ruiz, A., Nagarajan, V., **Vranas, M.**, Lopez, G., McCandless, G.T., Kimchi, I., Chan, J.Y., Breznay, N. P., Frano, A., Frandsen, B.A., & Analytis, J.G. (2020) High-temperature magnetic anomaly in the Kitaev hyperhoneycomb compound β -Li₂IrO₃. *Physics Review B*. 101(7): 075112. doi: 10.1103/PhysRevB.101.075112

Anthony Garcia | UC Merced

Mao Z., Vang H., **Garcia A.**, Tuoheti A., Stokes B.J., Nguyen S.C. (2019) Carrier Diffusion – The Main Contribution to Size-Dependent Photocatalytic Activity of Colloidal Gold Nanoparticles. *ACS Catalysis*, 9:4211-4217.

Tamunotubo George | UC Merced

Martin D.W., **George T.**, Blanchette F. (2019) Simulations of clean drops rising into a layer of dissolved surfactant. *American Physical Society*, 4(1): 014302. doi: 10.1103/PhysRevFluids.4.014302
URL: <https://link.aps.org/doi/10.1103/PhysRevFluids.4.014302>

Hyeyeon Hwang | UC Davis

Laufer B.I., **Hwang H.**, Vogel Ciernia A., Mordaunt C.E., LaSalle J.M. (2019) Whole genome bisulfite sequencing of Down syndrome brain reveals regional DNA hypermethylation and novel disorder insights. *Epigenetics*. 14(7):672-684. doi: 10.1080/15592294.2019.1609867.

Vogel Ciernia A., Laufer B.I., **Hwang H.**, Dunaway KW, Mordaunt CE, Coulson RL, Yasui DH, LaSalle JM. (in press) Epigenomic Convergence of Neural-Immune Risk Factors in Neurodevelopmental Disorder Cortex. *Cerebral Cortex*. doi: 10.1093/cercor/bhz115.

Lekha Priya Patil | UC Berkeley

Hearst, M., Pedersen, E., **Patil, L.P.**, Lee, E., Laskowski, P., & Franconeri, S. (2019) An evaluation of semantically grouped word cloud designs. *Institute of Electrical and Electronics Engineers Transactions on Visualization and Computer Graphics*.

URL: <https://ieeexplore.ieee.org/document/8665933>

Arismel Tena Meza | UC Berkeley

Tena Meza, A., Wurm, T., Smith, L., Kim, S. W., Zbieg, J.R., Stivala, C E., & Krische, J.K. (2018) Amphiphilic π -allyliridium C,O-benzoates enable regio- and enantioselective amination of branched allylic acetates bearing. *Journal of American Chemical Society*. 140(4): 1275-1279. doi: 10.1021/jacs.7b13482

Christian, A. H., Jia, S., Cao, W., Zhang, P., **Tena Meza, A.**, Sigman, M. S., Chang, C. J., & Toste, F. D. (2019) A Physical Organic Approach to Tuning Reagents for Selective and Stable Methionine Bioconjugation. *Journal of the American Chemical Society*. 141(32): 12657–12662.

URL: <https://doi.org/10.1021/jacs.9b04744>



2019 KORET UC LEADS RESEARCH AND LEADERSHIP SYMPOSIUM

MARCH 2, 2019 | UC SANTA CRUZ

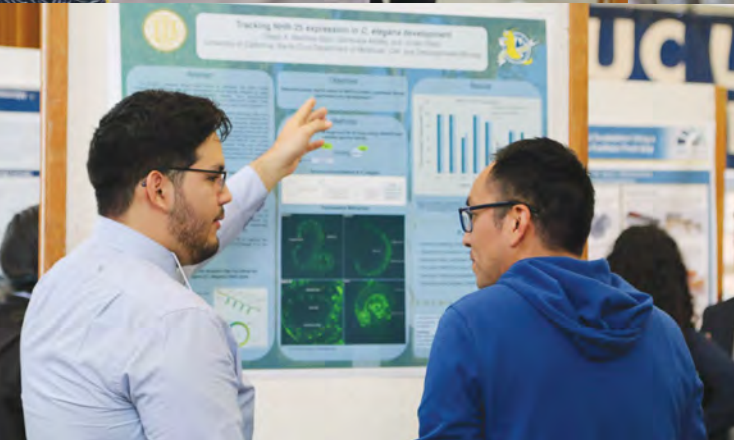
The 2019 Koret UC LEADS Research and Leadership Symposium was held at UC Santa Cruz in the beautiful College 9/10 Multipurpose Room and Bhojwani Dining Room. We had 89 scholars presenting their research posters to peers and faculty judges, and the updated judging procedures lead to a smooth determination of award winners in record time. UC LEADS alumni Angela Brooks, Assistant Professor of Biomolecular Engineering at UC Santa Cruz, and Kirsten Howley, a Physicist at Lawrence Livermore National Laboratory, gave wonderful keynote addresses in the morning and evening, which were both highly rated by Symposium attendees.

The afternoon agenda featured a panel of UC LEADS alumni discussing the broad scope of career possibilities using their STEM degrees after graduation. This was followed by a networking session with alumni and faculty, and then a discussion about about graduate school with the UC LEADS Campus Coordinators. UC Berkeley Coordinators Diana Lizarraga and Christian Noble presented an activity on leadership skills. As always, we ended the evening with awards and a celebration of all the scholars' hard work.



SCENE AND HEARD THE 2019

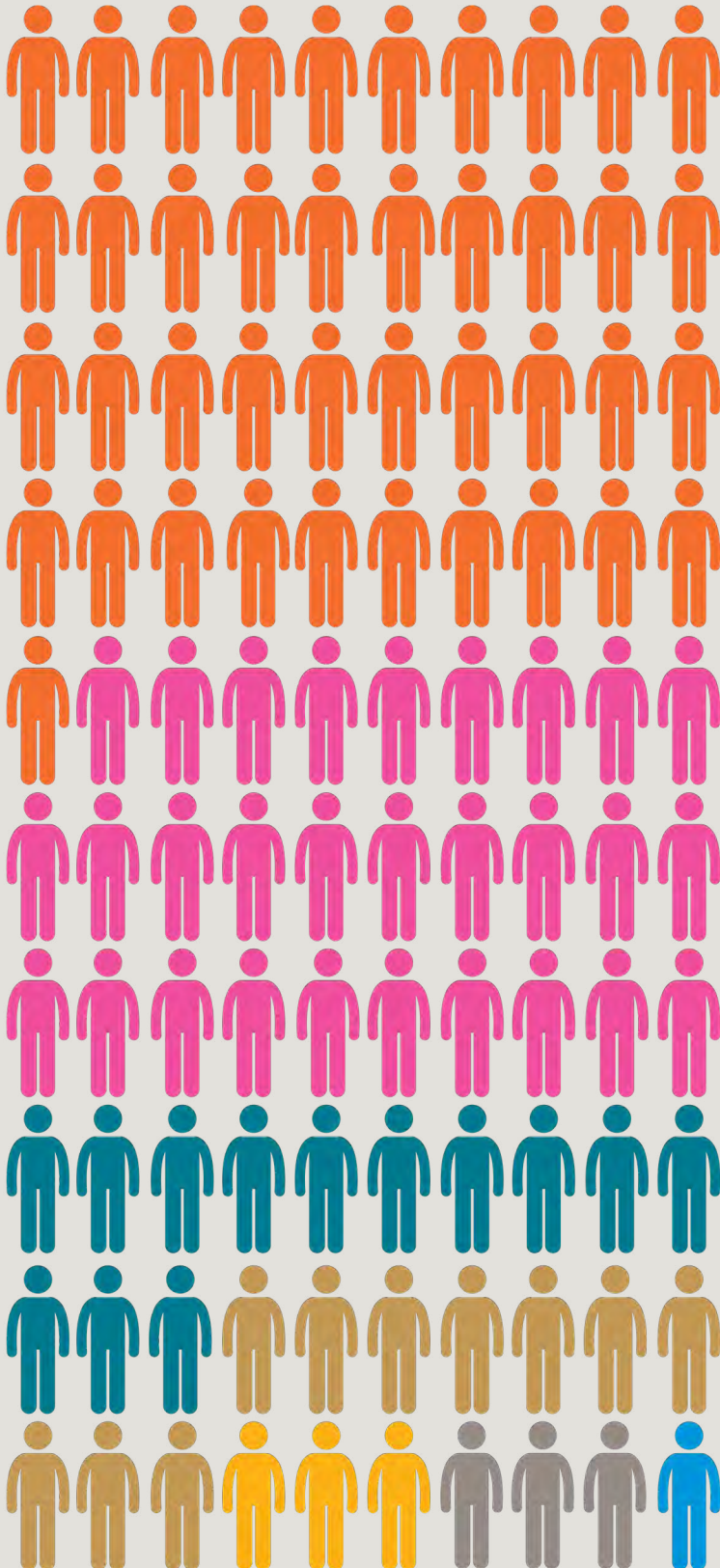
KORET
FOUNDATION



UC LEADS RESEARCH AND LEADERSHIP SYMPOSIUM



PROGRAM IMPACT SUMMARY



UC LEADS SCHOLARS ARE DIVERSE

To date, 1,061 Scholars have participated in the UC LEADS program. This population consists of 53% first generation college students (14% unknown), and 52% underrepresented minorities. This year, the gender field broadened so that the population is now recorded as 50.3% women, 49.6% male, and 0.1% another gender.

41% Chicanx/Latinx

29% Asian/Pacific Islander

13% White/Caucasian

10% African-American/Black

3% More than one

3% Other/Unknown

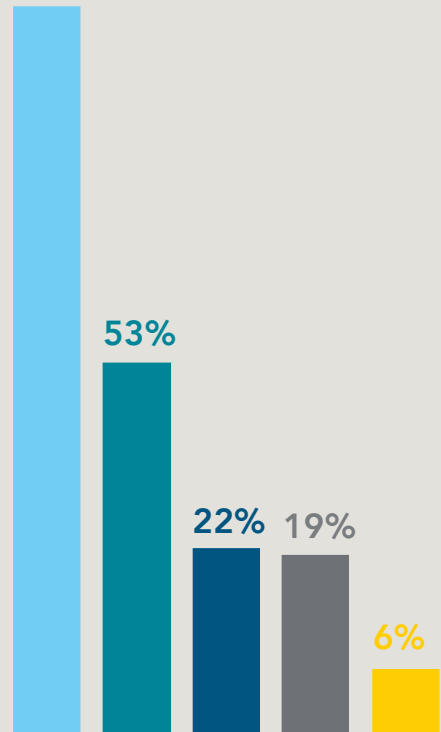
1% American Indian/Alaska Native

UC LEADS SCHOLARS GO TO GRADUATE SCHOOL

An impressive **98%** of UC LEADS Scholars graduate with their undergraduate degree. Of the **932 Scholars** who have graduated, **676 (73%)** have either earned or are earning degrees in a master's or doctoral program.

- Graduate Degree Completed
- Working/Education on Hold
- Currently Enrolled in Graduate School
- Unknown

932
ALUMNI



Of the **676 Scholars** who matriculated into graduate school, **47%** enrolled in a UC graduate program, and **53%** enrolled in graduate programs outside of the UC system.

Thirty-five UC LEADS alumni are now working as **tenure track faculty**, including eight within the UC system. Another **11** are employed in non-tenure track faculty positions and **12** hold other academic career positions.

Others work around the world as industry and government scientists, teachers, medical doctors, and entrepreneurs.

CAMPUS UPDATES



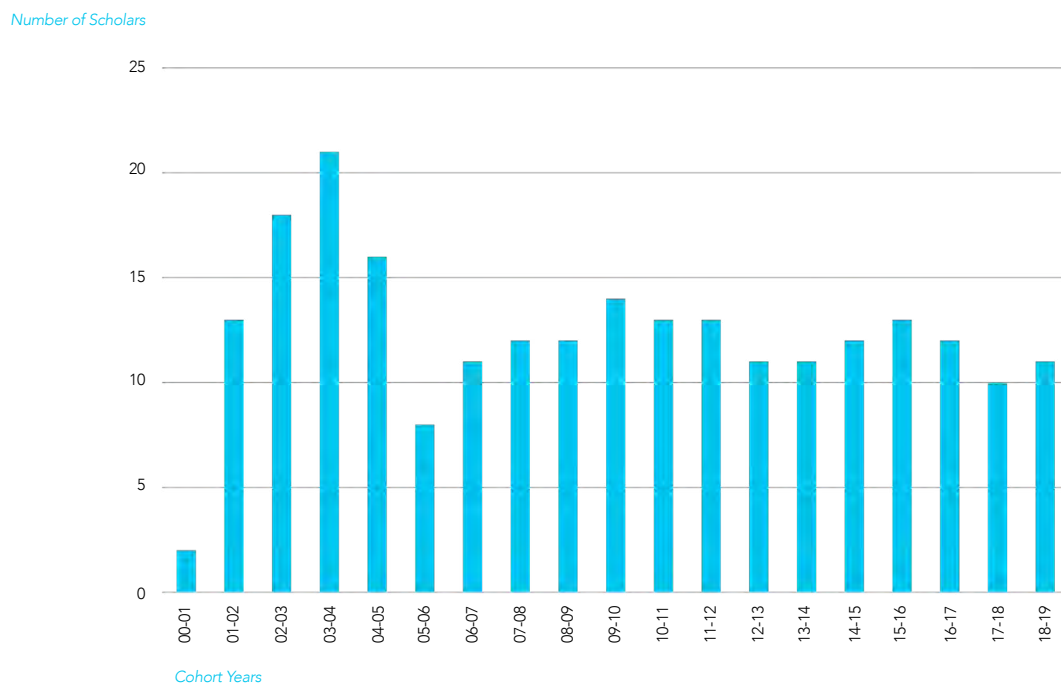
UC BERKELEY

YEAR IN REVIEW

UC LEADS is housed in the Cal NERDS STEM Student Center, which provides a welcoming and vibrant community for UC LEADS Scholars to study, get advising, print a poster, talk with graduate students, and build additional valuable skills. It serves as a hub for UC LEADS meetings, networking, and research poster preparation. Each UC LEADS Scholar received a graduate school toolbox filled with office supplies and organizational material to help them navigate their applications. Our coaches also provided one-on-one support to our scholars applying to graduate school.

We also hosted workshops and dinners that focused on mental health and wellness, diverse leadership, faculty research presentations, and STEM career trajectories. UC LEADS Alumni gave great talks on our campus; Dr. Crystal Bray – the role of a data scientist and STEM identity; Dr. Jose Antonio – imposter syndrome and resiliency in graduate school; and Dr. Ryan Miyakawa – entrepreneurship (HookTheory.com) and his role as a Materials Sciences Division Scientist at Lawrence Berkeley National Lab. Our campus is proud to have student club presidents and leaders representing our campus' Society of Physics Students (Mayia), Black Engineering and Science Student Association (Camille), Chem-Unity (Arismel), and Mariachi Luz de Oro (Andre). We also had five UC LEADS research poster award winners at the 2019 symposium. During two outreach events, we featured the labs and STEM research narratives of two UC LEADS alumni —Bonnie Lam, a Ph.D. student in Bioengineering, and Anthony Salazar, a Materials Sciences and Engineering Ph.D. student. We also had four student research publications.

Scholars supported by UC LEADS at UC Berkeley each year



SECOND YEAR SCHOLARS

Cindy Barrios (Molecular Environmental Biology) is taking a gap year before applying to STEM Ph.D. programs, while enhancing her coding skills and working as a Student Director at the Cal NERDS STEM Student Center at UC Berkeley. Her poster, *Metabolomics of Beetle-Associated Microbes Grown in Ecologically Relevant Media*, received top honors at the 2019 UC LEADS Symposium.

Silvia Miramontes-Lizarraga (Applied Mathematics) is now a School of Information master's graduate student at UC Berkeley, with a concentration in Data Science, and a research assistant in the Computation Research Division at Lawrence Berkeley National Lab. Her poster, *Efficient Graph-Based Algorithm Applied to Cell Detection*, received top honors at the 2019 UC LEADS Symposium.

Yasmeen Musthafa (Physics) did her second summer research at UC Irvine. She presented a poster at the 2019 UC LEADS Symposium titled *Phase Retrieval in Lensless Coherent Diffractive Imaging*. She graduated in spring 2019 and was accepted as a Plasma Physics Ph.D.

student at UC Irvine in the lab of UC LEADS Alumnus and Physics Professor Dr. Franklin Dollar.

Lekha Patil (Applied Mathematics) did her second summer research at UC Los Angeles. She presented a poster at the 2019 UC LEADS Symposium titled *Automatically Explaining Source Code with Insightful Sentences in Stack Overflow*. She graduated in spring 2019 and is currently working as a community services case manager at a social justice oriented non-profit. She will apply to Math Ph.D. programs in the fall of 2020.

Brandon Tran (Physics and Applied Mathematics) did his second summer research at UC Irvine. He presented a poster at the 2019 UC LEADS Symposium titled *Optical Visualization of Individual Carbon Nanotubes through Fluorescent Labeling*. He graduated in spring 2019 and was accepted as an Electrical Engineering & Computer Sciences Ph.D. student at UC Berkeley with Dr. Ali Javey, where his focus will be on wearable sweat sensors.



FIRST YEAR SCHOLARS

Evelyn Deagueros (Physics) did her first summer research at UC Berkeley. She presented a poster at the 2019 UC LEADS Symposium titled *Synthesis and Characterization of BaTiO₃ and BaZrO₃ Thin Films*. She applied to graduate school in the fall of 2019 and will graduate in 2020.

Alexis Andre Duran Palacios (Physics) presented a poster at the 2019 UC LEADS Symposium titled *Growth Mechanism and Electronic Behavior of Gallium Monochalcogenide Nanowires*. He is also a talented musician and leader in UC Berkeley's Mariachi Band, Luz de Oro, where he organizes mentoring opportunities for high school students. In the fall of 2019, he graduated and applied to graduate school programs.

Camille Harris (Computer Science) presented a poster at the 2019 UC LEADS Symposium titled *Comparison of Fairness Measurement Tools for Machine Learning Algorithms*. During a semester abroad in Japan, she studied "Musical Chord generation using machine learning." Camille was also President of the UC Berkeley Black Engineering and Science Student Association. She applied to graduate school in the fall of 2019 and will graduate in 2020.

Emily Hill (Computer Science and Cognitive Science) received top honors at the 2019 UC LEADS Symposium for her poster, *Coding Practices*. Emily also is a Student Director at the Cal NERDS Student STEM center, where she helps teach UX Design workshops and helps with the food pantry. Her research expertise is in human-computer interaction. She applied to graduate school in the fall of 2019 and plans to graduate in 2020.

Arismel Tena Meza (Chemistry) received an honorable mention at the 2019 UC LEADS Symposium for her poster, *Proteomic Investigations with Oxaziridine Reagent for Profiling Methionine Residues in Cancer Cell Lines*. She also co-founded a club to support non-dominant students in Chemistry, and traveled to Maryland to participate in the AAUW National Conference for College Women Student Leaders. In the fall of 2019, she graduated and applied to graduate school programs.

Mayia Vranas (Physics) received top honors at the 2019 UC LEADS Symposium for her poster, *Spin-Glass Behavior in β -Li₂Ru_xIr_{1-x}O₃*. Mayia utilized her leadership skills as the President of the UC Berkeley chapter of the Society of Physics Students (SPS), as well as an Associate Zone Counselor for the National SPS Council. The UC Berkeley Department of Physics presented Mayia with an award in recognition of her impact. In the fall of 2019, she graduated and applied to graduate school programs.

ALUMNI SPOTLIGHT

MAHA HAJI

UC LEADS 2009-2011

B.S., Mechanical Engineering

M.S., Oceanographic Engineering

Ph.D., Mechanical and Oceanographic Engineering

After graduating from UC Berkeley, Maha went on to attend MIT for graduate school where she received a Master's in Oceanographic Engineering and a Ph.D. in Mechanical and Oceanographic Engineering, jointly from Woods Hole Oceanographic Institute. After graduation, she worked as a design engineering consultant at a company called ATA Engineering. Since August 2019, she has returned to academia as a joint research fellow between MIT and Cornell. In July of 2021 she will be joining Cornell as an Assistant Professor in Mechanical Engineering.



“ UC LEADS enabled me to have my first true research experience. I continue to draw upon the research skills I learned at UC LEADS. I was able to join a lab and see how research is conducted, lead a project, present my work at a number of conferences. UC LEADS allowed me to interact with other undergraduate researchers as well, a network I still very much maintain and has helped me professionally!

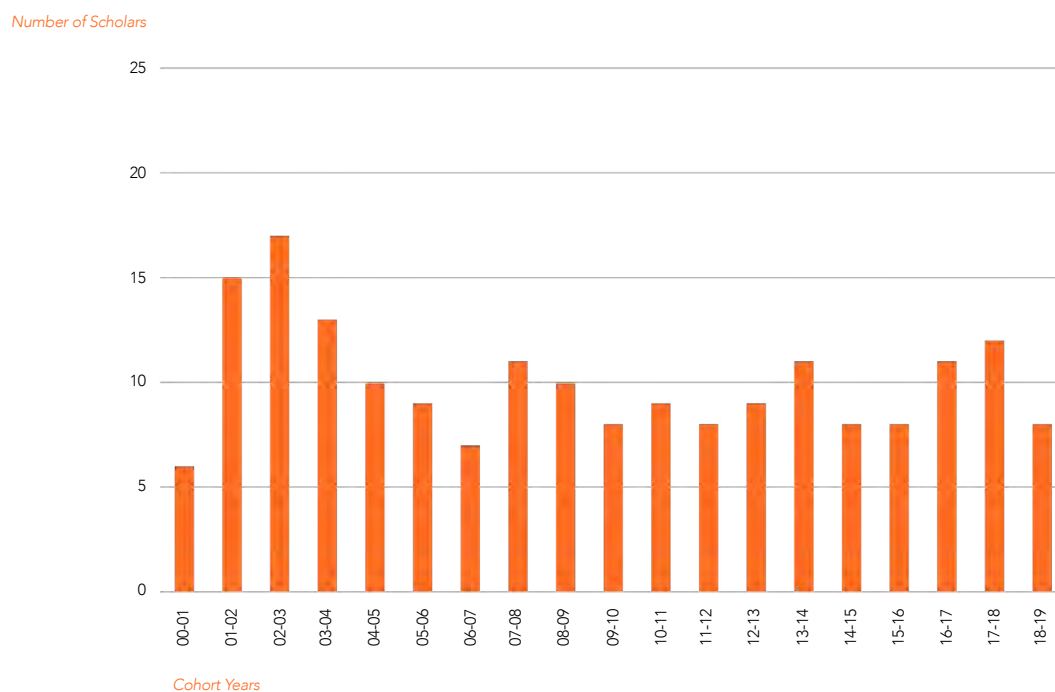


UC DAVIS

YEAR IN REVIEW

Every year, the UC LEADS scholars continue to be quite impressive. Their resilience and passion to make their experiences at UC Davis as fulfilling as possible are remarkable. The theme of this cohort was research, research, and more research! Each of the scholars were afforded additional projects in their labs as a result of their fast-learning and demonstrated skills. These scholars were so deeply immersed in their research projects that they were able to document ongoing progress and new findings almost each quarter. For example, it was thrilling to see **Emmanuel Vazquez**, Civil Engineering major, be asked to jump in on a different but related project by his PI's colleague this past summer, where he worked on two projects simultaneously, and did so with ease. Meanwhile, **Tina Nguyen**, a Marine and Coastal Sciences major, was exploring new research interests as a result of her second summer experience at UCSB. Though she continued to work in the same lab at Davis, she found herself opening up to broader graduate programs and schools because of her newly discovered research interests. **Karen Cornejo**, a Neurology, Physiology, and Behavior major, continued to delve into her research project and did so with even greater depth as her PI works collaboratively with her second summer PI with whom she worked at Berkeley. **Gloria Navarro**, a Mechanical Engineering major, enjoyed having a different research experience and project at another campus, which she was eager to add to her portfolio. Her time at UCLA was productive and provoked an expansion of her graduate program aspirations. Once again, this academic year was a success, and we look forward to what 2019-2020 will bring to our scholars.

Scholars supported by UC LEADS at UC Davis each year



SECOND YEAR SCHOLARS

Phung Quan (Chemical Engineering) did her second summer research at UC San Francisco. She presented a poster at the 2019 UC LEADS Symposium titled *Compartmentalized Self-Replication (CSR) Evolution of DNA Polymerases for Difficult Sequence Amplification*. She graduated in spring 2019 and was accepted as a Chemical Engineering Ph.D. student at UC Riverside. Phung was a go-getter who was very active in campus employment, especially jobs where she was able to help other students. In her final year, she worked for the Educational Opportunity Program (EOP) as a Peer Advisor and truly enjoyed helping other students find support and community on campus.

Erin de Leon Sanchez (Cell Biology) did her second summer research at UC Santa Barbara. She presented a poster at the 2019 UC LEADS Symposium titled *Physiological and Molecular Assessment of Thermal Tolerance of *Lytechinus Pictus**. She graduated in summer 2019 and is currently applying to graduate school. Meanwhile, she is working as a lab technician at UC Davis and continues to be proactive as an ambassador for the program. Erin often shares with prospective students how UC LEADS helped pave the way for the many opportunities she's been given related to her educational and career goals.

Hyecheon Hwang (Computer Science) did her second summer research at UC San Francisco. She presented a poster at the 2019 UC LEADS Symposium titled *Segregation of Phenotypes in Families with Cerebral Cavernous Malformation Type 1 – Common Hispanic Mutation*. She graduated in summer 2019 and is currently applying to graduate school. Meanwhile, she is working as a research assistant at UC Davis. As a first-generation student, Hyecheon has continued to take advantage of the many opportunities she's been awarded, most of which are based on her academic excellence and demonstrated research accomplishments.

Jenny Arabit (Chemical Engineering) did her second summer research at UC Berkeley. She presented a poster at the 2019 UC LEADS Symposium titled *Developing a Low-Cost Thermal Imager Using a Raspberry Pi*. She plans to graduate in spring 2020 and is currently applying to graduate school. As a fifth year, Jenny has made time to incorporate efforts to represent UC LEADS at College of Engineering events and served as an ambassador of the program to prospective students.



FIRST YEAR SCHOLARS

Karen Cornejo (Neurology, Physiology, and Behavior) did her first summer research at UC Davis. Her poster, *Evaluating the Molecular Determinants of Kv2-Dependent Induction of Neuronal Endoplasmic Reticulum-Plasma Membrane Junctions*, received an honorable mention at the 2019 UC LEADS Symposium. She plans to graduate in 2020.

Gloria Navarro (Mechanical Engineering) did her first summer research at UC Davis. She presented a poster at the 2019 UC LEADS Symposium titled *Understanding the Effects of Spinal Cord Injury on the Brain*. She plans to graduate in 2020.

Tina Nguyen (Marine and Coastal Sciences) did her first summer research at UC Davis. She presented a poster at the 2019 UC LEADS Symposium titled *Use of Immunohistochemistry for Investigating the Role of Na⁺/K⁺ ATPase for Osmoregulation in Euryhaline Fish*. She plans to graduate in 2020.

Emmanuel Vazquez Arreola (Civil Engineering) did his first summer research at UC Davis. He presented a poster at the 2019 UC LEADS Symposium titled *Characterizing Bond Failure in FRP-Concrete Composites*. He plans to graduate in 2020.

ALUMNI SPOTLIGHT

TIM WONG

UC LEADS 2002-2004
B.S., Computer Science
M.S., Computer Science

Tim Wong received his M.S. in Computer Science from UC Davis in 2006. Since then, he has pursued an R&D career in companies such as VMware, Yahoo!, IBM, and various startups in Silicon Valley. When Tim was serving as the VP of Engineering at WorkSpan, he actively promoted engineering research, diversity in leadership, and collaboration with University researchers and students. Tim is now a Principal Architect at Automation Anywhere focusing on improving work quality for humans by utilizing Robotic Process Automation.



“ Through the participation of the UC LEADS program, I have learned to seek, to appreciate, and most importantly, to enjoy solving hard scientific problems. It is through the process of discovering and solving very hard problems that I learned how to value the different opinions from a diverse team, to lead by setting good examples, and to acquire a deeper understanding of the field by pursuing an advanced degree.



UC IRVINE

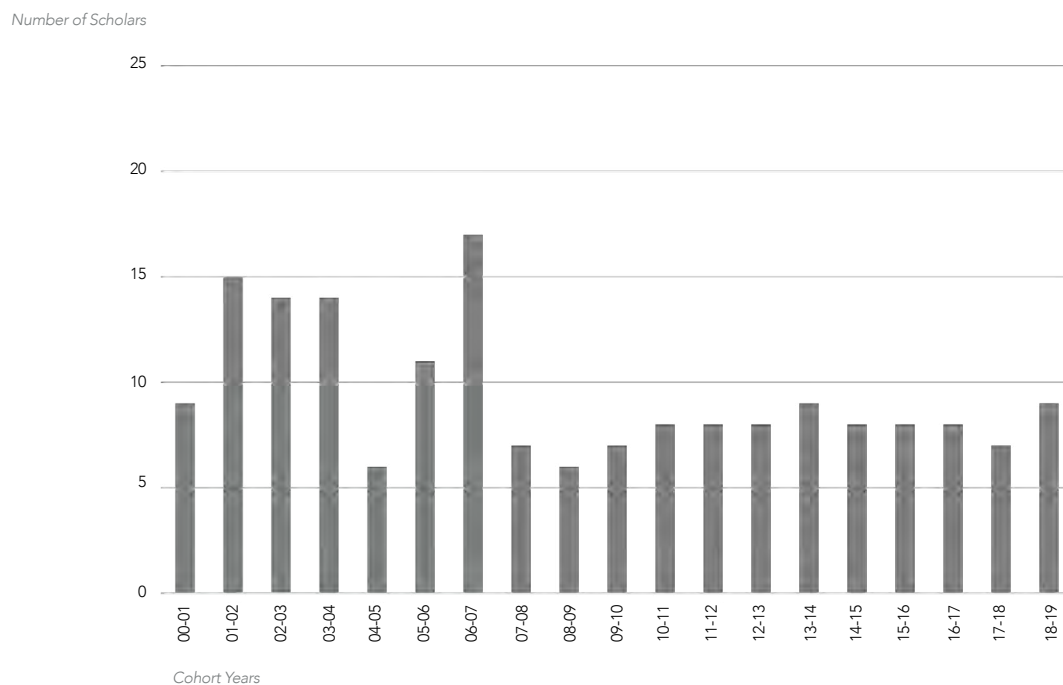
YEAR IN REVIEW

Scholars continued to showcase their research skills at various local and national conferences, including the Annual Biomedical Research Conference for Minority Students (ABRMCS), the Society of Hispanic Professional Engineers, and UC Irvine's Undergraduate Research Symposium.

Graduating seniors are required to meet with writing consultants to refine their essays for extramural funding. **Kimmai Phan** received the prestigious National Science Foundation Graduate Research Fellowship. She graduated in spring 2019 and is in a Biomedical Engineering joint Ph.D. program between Georgia Institute of Technology and Emory University.

Second year scholars facilitated a variety of workshops that supported the transition of first year scholars into the program. The topics included professional behavior and etiquette at conferences and exercising leadership skills in research labs. Students also maintained involvement in the community by tutoring inner city high school students and exposing youth to STEM opportunities.

Scholars supported by UC LEADS at UC Irvine each year



SECOND YEAR SCHOLARS

Brenda Cruz (Materials Science and Engineering) did her second summer research at UC Los Angeles. She presented a poster at the 2019 UC LEADS Symposium titled *Room-Temperature Viscoplasticity During Nanoindentation of NbC (100) Single-Crystal*. She plans to graduate in 2020.

Chance Ornelas (Electrical Engineering) did his second summer research at UC Santa Barbara. His poster, *A Study of Hexagonal Boron Nitride on Graphene/SiC Substrates Using Atomic Force Microscopy*, received an honorable mention at the 2019 UC LEADS Symposium. He graduated in spring 2019 and is in the electrical engineering Ph.D. program at Stanford University.

Kimmai Phan (Biomedical Engineering) did her second summer research at UC San Francisco. She presented a poster at the 2019 UC LEADS Symposium titled *Encapsulating MSCs within the Silicon Nanopore Membrane for GvHD Therapy*. She graduated in spring 2019 and is in a Biomedical Engineering joint Ph.D. program between Georgia Institute of Technology and Emory University.



FIRST YEAR SCHOLARS

Luis Ramirez (Mechanical Engineering) did his first summer research at UC Irvine and is a first-year transfer student from Long Beach, California. He presented a poster at the 2019 UC LEADS Symposium titled *Design of a Novel Assistive Hand Exoskeleton Using a Residual Grip Force Strategy to Facilitate Pinch Grip*. He plans to graduate in spring 2021.

Stephanie Herrera (Mechanical Engineering) did her first summer research at UC Irvine. She presented a poster at the 2019 UC LEADS Symposium titled *Development of a Portable Pneumatic System for Use with a Soft Fiber-Reinforced Actuator*. She plans to graduate in spring 2020.

Jinnen Masri (Biological Sciences) did her first summer research at UC Irvine. Her poster, *Natural Killer Extracellular Blebs for Cancer Therapy*, received an honorable mention at the 2019 UC LEADS Symposium. She plans to graduate spring 2020 and to pursue a M.D./Ph.D. program.

Alexander Rodriguez (Biological Sciences) did his first summer research at UC Irvine and is a first-generation college student. He presented a poster at the 2019 UC LEADS Symposium titled *Utilizing Novel Gold Nanorods for Biotherapeutics*. Alexander plans to become the first member in his family to graduate from a university in the spring of 2020.

Danny Attiyah (Physics) did his first summer research at UC Irvine. He presented a poster at the 2019 UC LEADS Symposium titled *Flat-Top Wavefront for 800nm Laser Beam*. Danny is a first-generation college student and plans to graduate in spring 2020.

ALUMNI SPOTLIGHT

MICHELLE TU

UC LEADS 2006-2008
B.S., Biomedical Engineering
Ph.D., Cell and Developmental Biology

After graduating from UC Irvine, Michelle continued on to the Cell & Developmental Biology Ph.D. program at UC Davis, where she studied the role of calcium-mediated electrical activity in tissue regeneration. Her dissertation research inspired her to formulate and develop skincare products and start her own business after graduation. Her company, CURA Skincare, focuses on the reparative and regenerative benefits of calcium for skin.



“ I am and have always been a huge advocate for diversity in STEM, especially for young women of color. I mentor female engineering students from UC Irvine and a portion of proceeds from my company is donated to Girls, Inc. to help support their STEM program, where I also mentor young girls interested in studying STEM.

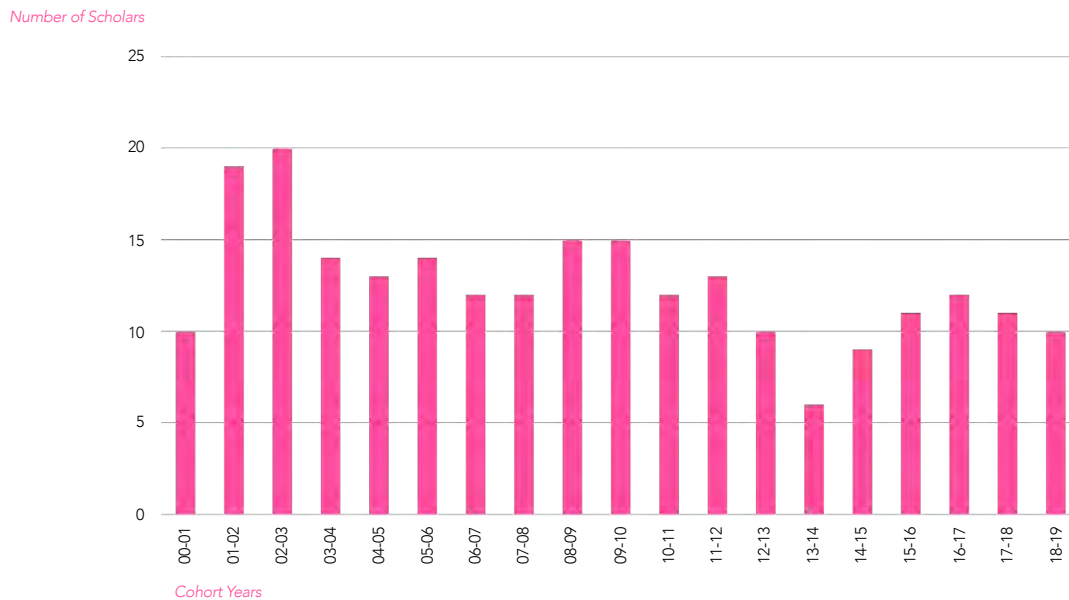


UC LOS ANGELES

YEAR IN REVIEW

UCLA's UC LEADS program remains unique in its design as a two-year capstone experience in which all senior students submit a thesis proposal at the end of their tenure in the program. Between 2018 - 2019, the scholars represented UCLA well while presenting at conferences. **Scarlett (Seejia) Yu**, a second year Physics scholar, presented her research on Capitol Hill during "Posters on the Hill," and spoke with members of the United States Congress and their staff to further their knowledge regarding the importance of undergraduate research. Scarlett and her fellow UC LEADS second year scholar **Steven Gomez** received the prestigious NSF Graduate Research Fellowship to fund their doctoral studies. Steven is now a Ph.D. student in Materials Engineering at UC Santa Barbara while Scarlett is pursuing a Ph.D. in Physics & Astronomy at Harvard University. First year scholars, **Ila Castro** (Chemistry), **Jenna Molas** (Chemistry), and **Janice Nguyen** (Physics), received Best Poster awards at the 2018 ABRCMS symposium. We are immensely proud of all our scholars' accomplishments, and look forward to their future endeavors.

Scholars supported by UC LEADS at UC Los Angeles each year



SECOND YEAR SCHOLARS

Sydney Austin (Mechanical Engineering) did her second summer research at UC Santa Barbara. Her poster, *Vine-Like Soft Growing Robot for Applications in Bronchoscopy*, received an honorable mention at the 2019 UC LEADS Symposium. She plans to graduate in spring 2020.

Josue Castillo (Aerospace Engineering) did his second summer research at UC Irvine. His poster, *Spatially-Resolved Temperature and Species in a Hybrid Rocket Reaction Layer Based on Laser Absorption Tomography*, received top honors at the 2019 UC LEADS Symposium. He plans to graduate in 2020.

Scarlett Yu (Physics) did her second summer research at UC Berkeley. She presented a poster at the 2019 UC LEADS Symposium titled *A Strong, Stimulated Optical Force for Decelerating Molecular Beams*. She graduated in spring 2019. Scarlett was awarded the NSF Graduate Research Fellowship and is now a Ph.D. student in the Physics program at Harvard.

Joshua Abraham (Chemical Engineering) did his second summer research at UC Davis. His poster, *A Synthetic Biology Approach to Improve CO₂ Fixation in Cyanobacteria*, received top honors at the 2019 UC LEADS Symposium. He graduated in spring 2019 and is now a Ph.D. student in the Chemical and Biochemical Engineering program at the University of Wisconsin, Madison.

Steven Gomez (Chemical Engineering) did his second summer research at UC Davis. He graduated in fall 2018. Steven was awarded the NSF Graduate Research Fellowship and is now pursuing a Materials Engineering Ph.D. program at UC Santa Barbara.



FIRST YEAR SCHOLARS

Ila Castro De La Torre (Chemistry) did her first summer research at UC Los Angeles. Ila transferred to UCLA from Santa Monica College in 2018. She presented a poster at the 2019 UC LEADS Symposium titled *Organometallic Gold(III)-Mediated Reactions as New Tools for Modifying Biomolecules*. She plans to graduate in 2021.

Janice Nguyen (Physics) did her first summer research at UC Los Angeles. She presented a poster at the 2019 UC LEADS Symposium titled *Eye Tracking with High Speed Camera to Study Microsaccades*. Janice was awarded "Best Poster" at the 2018 ABRCMS conference. She plans to graduate in 2020.

Jenna Molas (Chemistry) did her first summer research at UC Los Angeles. Her poster, *Creating Durable Graphene Oxide Nanofiltration Membranes with a Novel Thin Film Lift-Off Technique*, received top honors at the 2019 UC LEADS Symposium. She plans to graduate in 2020.

Isaac Diaz (Chemistry Material Sciences) did his first summer research at UC Los Angeles. He presented a poster at the 2019 UC LEADS Symposium titled *Reversible Silver Electrodeposition using Boron Cluster Ionic Liquids*. He plans to graduate in 2020.

ALUMNI SPOTLIGHT

ROBYN JAVIER

UC LEADS 2004-2006
B.S., Computational & Systems Biology
M.S., Biomedical Engineering
Ph.D., Neuroscience

Robyn Javier attended UCLA as an undergraduate student where she earned both her bachelor's degree in Computational & Systems Biology and her master's degree in Biomedical Engineering. After graduation, Javier went on to pursue her doctorate in Neuroscience at UC San Francisco. Currently, she holds a position as a STEM communication specialist and lecturer at Caltech.



“ UC LEADS provided me with invaluable research opportunities and professional skills that I still draw from today. I have since earned numerous awards for my presentations, and I now teach these skills to the next generation of scientists and engineers in my role at Caltech.



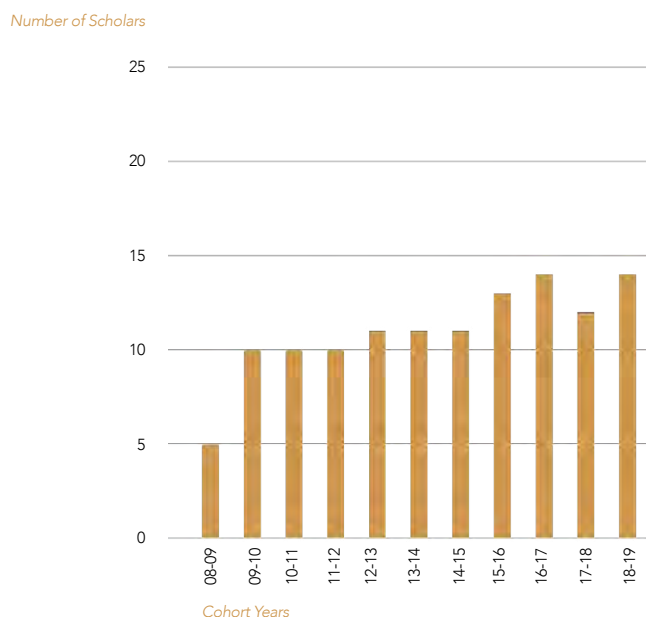
UC MERCED

YEAR IN REVIEW

The Undergraduate Research Opportunities Center (UROC) coordinates the campus fellowship programs, including UC LEADS. UC LEADS Scholars conduct research with larger groups of students enrolled in several programs, including partnerships with NASA, NIH, NSF, and Lawrence Berkeley National Lab.

UROC also secured student space on campus this year to increase the sense of community among scholars and to better support students and faculty mentors. Our scholars have presented their research at multiple conferences, receiving top honors and honorable mentions, and have published articles in peer reviewed journals. The program's success is demonstrated this year with all of our graduating scholars applying to graduate school or working in STEM careers.

Scholars supported by UC LEADS at UC Merced each year



Note: UC Merced joined the UC LEADS network in 2008

SECOND YEAR SCHOLARS

Yulissa Perez Rojas (Earth Science) did her second summer research at UC Davis. She presented a poster at the 2019 UC LEADS Symposium titled *The Impacts of Compost Waste on Microbial Communities in Almond Orchard Soil*. She graduated in spring 2019 and is pursuing a Ph.D. at UC Merced in Earth Systems Sciences.

Jessica Lopez Lara (Chemistry) did her second summer research at UC Santa Barbara. She presented a poster at the 2019 UC LEADS Symposium titled *Radical-Nitrene Couplings via Iron-Catalyzed Reductive Decarboxylations*. She also served as a Jr. Chapter Representative for the Society of Hispanic Professional Engineers mentoring first generation middle and high school students on the importance of education, particularly in STEM. She plans to graduate in spring 2020 and is applying to STEM Ph.D. programs.

Gabriela Sanchez (Bioengineering) did her second summer research at UC San Diego. She presented a poster at the 2019 UC LEADS Symposium titled *Protective Effect of Myocardial Matrix Hydrogel on Encapsulated Cardiac Fibroblasts from Reactive Oxygen Species*. She graduated in spring 2019.

Alejandra Martinez Lopez (Environmental Engineering) did her second summer research at UC Los Angeles. She presented a poster at the 2019 UC LEADS Symposium titled *Ability of Zero-Valent Iron in Biofilter to Remove Phosphate from Stormwater*. She graduated in fall 2018.

Felipe Rodriguez (Biology) did his second summer research at UC San Francisco. He presented a poster at the 2019 UC LEADS Symposium titled *Lymphatics Vessel Proliferation Induced Before Bleomycin Exposure Reduces Lung Fibrosis*. He graduated in spring 2019 and is a Staff Research Associate at UC Merced.

Tamunotubo George (Mechanical Engineering) did his second summer research at UC Santa Barbara. During his time at UC Merced, he served as Vice President of the National Society of Black Engineers at UC Merced and published an article titled *Simulations of Clean Drops Rising into a Layer of Dissolved Surfactant in the Physical Review Fluids*. He graduated in spring 2019 and is currently a Manufacturing and Reliability Intern at Chevron.



FIRST YEAR SCHOLARS

Miguel Flores Martinez (Chemical Sciences) did his first summer research at UC Merced. He presented a poster at the 2019 UC LEADS Symposium titled *Tough Double-Network Hydrogels by Additive Manufacturing*. He also serves as a Learning Assistant for the Bright Success Center at UC Merced, tutoring undergraduates in Chemistry. He plans to graduate in 2020.

Anthony Garcia (Chemical Sciences) did his first summer research at UC Merced. His poster, *Size-Dependent Photocatalytic Activity of Colloidal Gold Nanoparticles*, received top honors at the 2019 UC LEADS Symposium. He also presented his research at the 2019 SACNAS National Diversity in STEM Conference and published an article titled *Carrier Diffusion – The Main Contribution to Size-Dependent Photocatalytic Activity of Colloidal Gold Nanoparticles* in the American Chemistry Society journal *ACS Catalysis*. He plans to graduate in 2020.

Barbara Gomez-Aldrete (Applied Mathematics) did her first summer research at UC Merced. She presented a poster at the 2019 UC LEADS Symposium titled *Using Random Walkers to Build Marine Aggregates*. She plans to graduate in 2020.

Christian Lopez Garcia (Mechanical Engineering) did his first summer research at UC Merced. He presented a poster at the 2019 UC LEADS Symposium titled *Effect of Temperature On Optical Particle Counter*. He plans to graduate in 2020.

Hansell Perez (Applied Mathematics) did his first summer research at UC Merced. His poster, *Examining an Evolutionary Model to Estimate the Population Mutation Rate*, received an honorable mention at the 2019 UC

LEADS Symposium. He also serves as a Math Tutor for UC Merced PALS Program, tutoring undergraduates in Math. He plans to graduate in 2020.

Angelica Pineda (Mechanical Engineering) did her first summer research at UC Merced. She presented a poster at the 2019 UC LEADS Symposium titled *Tribology, Particulates in Lubricants and Additive Mixtures*, and presented her research at the 2019 Southern California Conferences for Undergraduate Research. She serves as a Community Service Chairman and Treasurer of her professional engineering fraternity, Theta Tau. She plans to graduate in 2020.

Alondra Ramirez Gonzalez (Chemical Sciences) did her first summer research at UC Merced. She presented a poster at the 2019 UC LEADS Symposium titled *Exogenous Thyroxine Affects the Insulin Receptor in Insulin Resistant Rats*. She plans to graduate in 2020.

Ariell Smith (Bioengineering) did her first summer research at UC Merced. She presented a poster at the 2019 UC LEADS Symposium titled *Development of Gravity-Guided 3D Muscle Formation: A High Throughput Tissue Engineering Technique*. She also presented her research at the 2019 Black Doctoral Network Conference. Currently, she is working as a Cardiovascular Tissue Engineering Researcher for the Kara E. McCloskey Lab at UC Merced. She plans to graduate in 2020.

ALUMNI SPOTLIGHT

DAVID JONES

UC LEADS 2011-2013
B.S., Applied Mathematics
M.S., Applied Mathematics and Statistics

David Jones graduated from UC Merced in 2013 with a 4.0 in Applied Mathematics with an emphasis in Physics and Optics. He got his master's degree at UC Santa Cruz because he found that he was much more passionate about teaching than conducting research. He was hired as a full-time mathematics professor at College of the Sequoias. He is currently the top-rated instructor on the campus based on "ratemyprofessors.com" with over 100 reviews.



“ UC LEADS taught me to build strong bonds with my students as a professor. Now within the first week, new students are comfortable approaching me. For students that plan on transferring, I offer them long term advice on both undergraduate and graduate options. College of the Sequoias is in the heart of California where we have students from all cultures. I now help students from traditionally under-represented communities achieve their long term goals in STEM. Thank you so much, UC LEADS, for the opportunities you provided to me to pay it forward!



UC RIVERSIDE

YEAR IN REVIEW

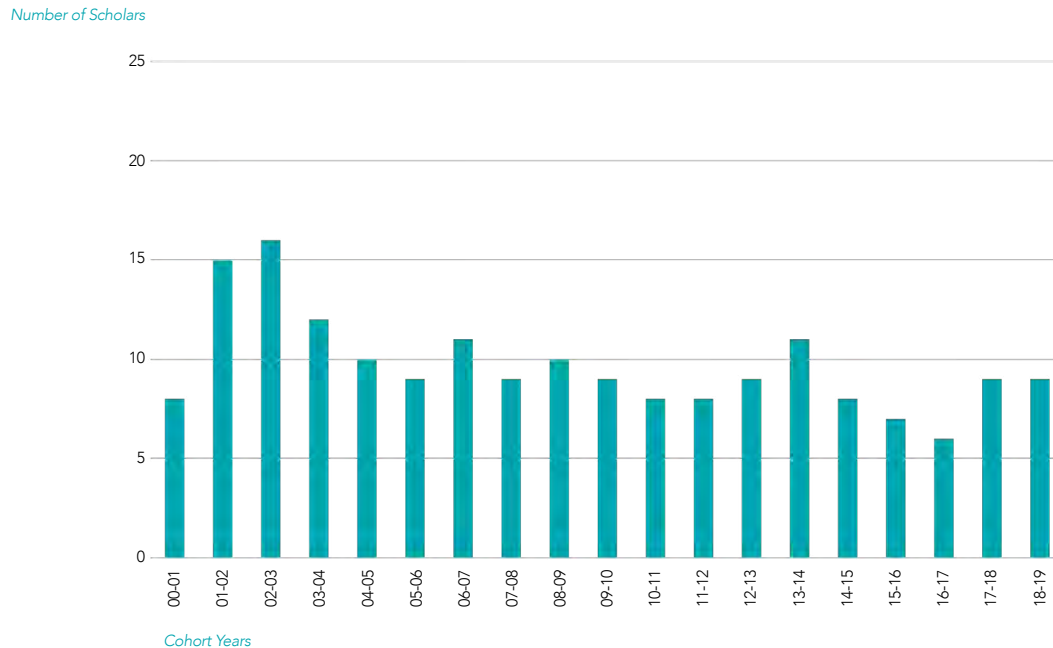
Giving back was the theme for the UCR Scholars this past year.

While all scholars conduct volunteer work, two of the scholars in particular have a long history of volunteering:

Catherine Seo has been volunteering with the Flying Samaritans at UCR since Fall of 2016. Every month UCR and CSUF organize a free health clinic in El Hongo, Baja California. A range of healthcare providers, including doctors, nurses, pharmacists, and dentists offer free healthcare services to the community of El Hongo. The Flying Samaritans are the only source of health care for this community. Catherine first served as the Secretary and Clinic Coordinator before being elected President.

David Ifediba volunteers his time at the University STEM Academy (USA). USA is a community collaborative effort that provides a high quality, academically robust learning environment that fosters math, science, and engineering curricula for 6th to 9th grade students. In addition to providing STEM education, USA strives to create a healthy and active learning environment designed help students develop leadership skills while infusing educational values.

Scholars supported by UC LEADS at UC Riverside each year



SECOND YEAR SCHOLARS

Crysthal Alvarez (Mechanical Engineering) did her second summer research at UC Irvine. She presented a poster at the 2019 UC LEADS Symposium titled *Cellular Mechano-transduction Induced by Laser Generated Microcavitation Bubbles on Breast Cancer Cells*. She graduated in spring 2019 and gave the student speaker address at the UC Riverside 2019 Bourns College of Engineering commencement. She is now pursuing a Ph.D. at UC Riverside in Mechanical Engineering.

Sonia Gomez (Chemical Engineering) did her second summer research at UC Riverside. Her poster, *Characterization of a Two-Strand RNA DX Tile for Self-Assembly of Lattices*, received an honorable mention at the 2019 UC LEADS Symposium. She graduated in summer 2019 and is applying to master's programs.

Mariah Gomez (Chemistry - General) did her second summer research at UC Riverside. She presented a poster at the 2019 UC LEADS Symposium titled *Thermal Decomposition Mechanisms of Cyclopentane, Cyclohexane, and Cycloheptane by Flash Pyrolysis Time-of-Flight Mass Spectrometry*. She graduated in summer 2019 and is a Eugene Cota-Robles Fellow in Physical Chemistry at UC Los Angeles.



FIRST YEAR SCHOLARS

Miranda Felix (Biology) did her first summer research at UC Riverside. She presented a poster at the 2019 UC LEADS Symposium titled *The Effects of Learning and Cognitive Function Among Older Adults*. She graduated in summer 2019 and is working as a medical scribe before applying to graduate school.

Alma Hernandez (Bioengineering) did her first summer research at UC Riverside. She presented a poster at the 2019 UC LEADS Symposium titled *Growth Inhibition of Staphylococcus Aureus by a Combined Treatment of ZnO Nanoparticles and Femtosecond Laser Light*. She plans to graduate in 2020 and is applying to graduate programs.

Mariamme Ibrahim (Neuroscience) did her first summer research at UC Riverside. She presented a poster at the 2019 UC LEADS Symposium titled *Language Dominance and Immersion Effects on Emotion Word Processing*. She graduated in spring 2019 and plans to apply to graduate school.

David Ifediba (Biology) did his first summer research at UC Riverside. His poster, *The Impact of Discrimination within the Healthcare Field*, received top honors at the 2019 UC LEADS Symposium. He also presented research at the Society of Personality and Social Psychology and SACNAS conferences. He plans to graduate in 2020.

Partho Paul (Chemistry - General) did his first summer research at UC Riverside. He presented a poster at the 2019 UC LEADS Symposium titled *Modular Approach to the Synthesis of Small Molecule Inhibitors for the SUMO E1 Enzyme*. He plans to graduate in 2020.

Cyrus Tosco (Biology) did his first summer research at UC Riverside. He presented a poster at the 2019 UC LEADS Symposium titled *Spatial Variability in Local and Regional Lake-Stream Systems*. He plans to graduate in 2020.

ALUMNI SPOTLIGHT

JASON BOWEN

UC LEADS 2000-2002

B.S., Physics

M.A., Physics

Ph.D., Physics

Jason Bowen completed his master's degree and Ph.D at UC Berkeley after graduating from UC Riverside. He then worked as a postdoctoral researcher at UC San Francisco for four years as a member of the Physics Research Laboratory in the Department of Radiology and Biomedical Imaging. In 2016 he was granted tenure and is now an Assistant Professor of Physics at Antelope Valley College.



“ Real life is difficult and real problems require significantly greater ingenuity and effort to solve than that required to formulate them. UC LEADS prepared me for these realities and so graduate school was less of a shock. What I am most grateful for is that these wonderful lessons are in use every day in all areas of my life.

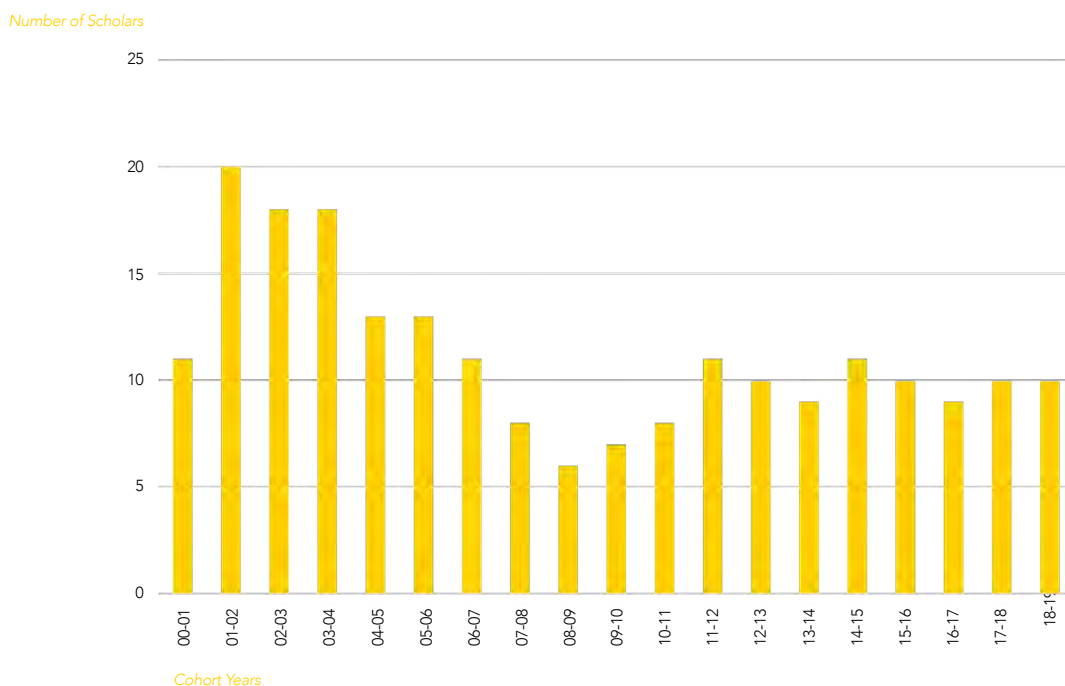


UC SAN DIEGO

YEAR IN REVIEW

The emphasis of this year was centered around the individual experiences and goals of each scholar. Our first-year scholars completed an intensive summer research experience, successfully passing different lab related trainings, and presented their research findings at the UC San Diego Summer Research Conference. In addition, each of these scholars worked with a faculty mentor, lab supervisor, and graduate student mentor during the summer. Our second-year scholars completed their second summer research experience at UCSF, UC Berkeley, UC Davis, and UC San Diego. All scholars met regularly in sessions that included group updates and a major topic of common interest presented to the group. These monthly workshops included topics like tips on writing a personal statement, poster presentations, communicating research, public speaking, and graduate school applications. Our students at UC San Diego get an allocation for their travel costs to professional conferences and/or campus visits. During fall 2018, two of scholars presented their research findings at important national conferences like ABRCMS and SACNAS. The program's effectiveness is clearly demonstrated this year, with four of our students going to graduate school within the UC system at UC Santa Barbara, UCSF, UC Berkeley, and UC San Diego, and two of our scholars gaining additional experience with a career job in industry.

Scholars supported by UC LEADS at UC San Diego each year



SECOND YEAR SCHOLARS

Brandon Leung (Computer Science) did his second summer research at UC San Diego. He presented a poster at the 2019 UC LEADS Symposium titled *OOWL500: Overcoming Dataset Collection Bias in the Wild*. He graduated in spring 2019 and is pursuing a Ph.D. in Machine Learning & Data Science at UC San Diego.

Jamiree Harrison (Applied Mathematics) did his second summer research at UC Davis. His poster, *Computational Simulations for the Improvement of Respiratory Drug Intake in the Human Trachea*, received an honorable mention at the 2019 UC LEADS Symposium. He graduated in spring 2019 and is in the Mechanical Engineering Ph.D. program at UC Santa Barbara.

Cindy Ayala (Mechanical Engineering) did her second summer research at UC San Francisco. She graduated in the spring of 2019 and currently is in the joint Ph.D. Bioengineering program between UC San Francisco and UC Berkeley.

Hanh Nguyen (Biochemistry/Chemistry) did her second summer research at UC Berkeley. She presented a poster at the 2019 UC LEADS Symposium titled *Toward a General Route to Nanographenes via a [2+2+2] / Cyclodehydrogenation Sequence*. She graduated in spring 2019 and is a Process Development Associate at Amgen.

Joshua Castro (NanoEngineering) did his second summer research at UC Berkeley. He presented a poster at the 2019 UC LEADS Symposium titled *Dry Transfer of 2-D Heterostructures*. He graduated in spring 2019 and is in the Electrical and Computer Engineering Ph.D. program at UC Santa Barbara.



FIRST YEAR SCHOLARS

Chiemerie Azubuogu (Bioengineering: Biotechnology) did his first summer research at UC San Diego. He presented a poster at the 2019 UC LEADS Symposium titled *Dictation of Trypsin in Muscle and Adipose tissues (Autodigestion)*. He plans to graduate in 2020.

James Corbitt (Bioengineering: Biotechnology) did his first summer research at UC San Diego. He presented a poster at the 2019 UC LEADS Symposium titled *In Vitro Study of Soluble Extracellular Matrix for the Treatment of Myocardial Infarction*. He plans to graduate in 2020.

Rebecca Eliscu (Cognitive Science w/ specialization in neuroscience) did her first summer research at UC San Diego. She presented a poster at the 2019 UC LEADS Symposium titled *Resting EEG Measures as a Predictor of Group Membership Between Healthy and Schizophrenic Subjects*. She plans to graduate in 2020.

Griselda Ruiz (Human Biology) did her first summer research at UC San Diego. She presented a poster at the 2019 UC LEADS Symposium titled *The Effects of the TCF7L2 Type 2 Diabetes Risk Variants on Pancreatic Islet Cell Type Regulation*. She plans to graduate in 2020.

Alessa Monserrat Ruiz Cisneros (Molecular Biology) did her first summer research at UC San Diego. She presented a poster at the 2019 UC LEADS Symposium titled *Human Induced Pluripotent Stem Cell Differentiation into Natural Killer Cells in Controlled Co-culture Conditions with OP9-DL4 Stromal Cells*. She graduated in spring 2019 and is on the quality control team at the City of Hope Beckham Research Institute.

ALUMNI SPOTLIGHT

EDUARDO FRICOVSKY

UC LEADS 2000-2002
B.S., Biochemistry/Chemistry
Pharm.D., Pharmacy

Eduardo Fricovsky completed his undergraduate degree from UC San Diego in 2002. After graduating from UCSD, he received a Doctor of Pharmacy degree from UC San Francisco School of Pharmacy. In 2006, he was accepted into a Postdoctoral Research Fellowship at UC San Diego. Currently he is a Clinical Professor at UC San Diego Skaggs School of Pharmacy, Director of the Hispanic Center of Excellence-Research Methodology Training Program in the Health Sciences Campus, and Pharmacy Director of the UCSD Student Run Free Clinic Project.



“ I benefited from the direct mentorship. More importantly the support to engage in research as an undergrad, visit different UC campuses and meet researchers and grad students that encourage me to pursue an academic research career in addition to my clinical career.



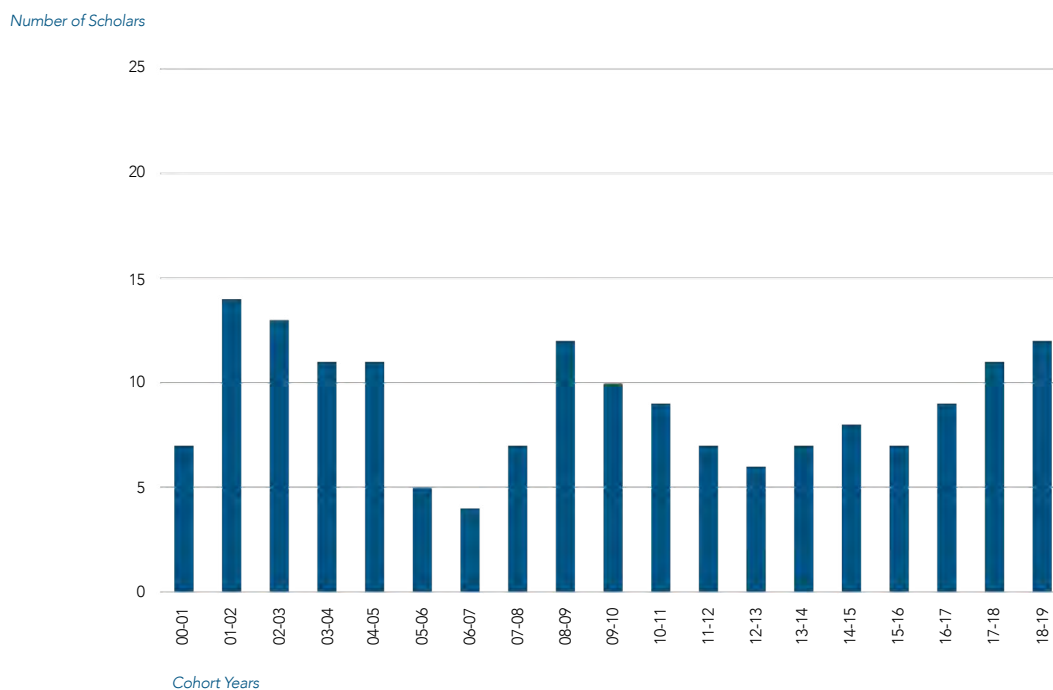
UC SANTA BARBARA

YEAR IN REVIEW

2018-2019 was another great year for UC LEADS at UC Santa Barbara. We included our first transfer students in our 2018 cohort. Seven of our scholars presented at the 2019 Koret Leadership and Research Symposium held at UC Santa Cruz. Two of our scholars received awards in Biological Sciences: **Brooker Barger** received an honorable mention, and **Kathryn Feerst** received top honors. **Haley Bowden** presented their work at the American Physical Society Conferences for Undergraduate Women in Physics (APS CUWiP) held at UCSB in 2019. **Mary Lopez Isidro** and **Michelle Grunberg** traveled to New York City to attend the 22nd International Conference on Kaposi's Sarcoma Herpesvirus and Related Agents (KSHV).

While our students are deeply involved in pursuing and presenting their own research, they also serve in various leadership activities, such as tutoring, research abroad, and executive roles in clubs. Two of our second year scholars **Ali Mahdi** and **Mary Lopez-Isidro** planned a meet and greet for scholars from the incoming 2019 cohort, the 2018 cohort, and the graduating 2017 cohort. They provided food and encouraged all scholars to ask questions about expectations of UC LEADS or give suggestions for making the most of this program. This year our students traveled the state, the country, and the world to engage in research and broaden their horizons. We are very proud of them and look forward to seeing what they do next.

Scholars supported by UC LEADS at UC Santa Barbara each year



SECOND YEAR SCHOLARS

Daniel Chu (Chemical Engineering) is from Southern California. He did his second summer research at UC Berkeley. He graduated in spring 2019 and was awarded an NSF Graduate Research Fellowship. He is now pursuing a Ph.D. in Chemical Engineering at MIT.

Kathryn Feerst (Biology – College of Creative Studies) is from Central California. She did her second summer research at UC San Diego. Her poster, *Phylogenetics of Amphiglena (Sabellidae, Annelida)*, received top honors at the 2019 UC LEADS Symposium. She graduated in spring 2019.

Mary Lopez-Isidro (Microbiology) is a first-generation student from Central California. She did her second summer research at UC San Francisco. She presented a poster at the 2019 UC LEADS Symposium titled *Optimizing CRISPRi to Silence KSHV Genes*. She graduated in spring 2019.

Ali Mahadi (Chemistry) is a first-generation student from Southern California. He did his second summer research at UC Los Angeles. He graduated in winter 2019 and is a Materials Science & Engineering Ph.D. student at Stanford University.

Isabella Mayorga (Environmental Studies) is a first-generation student from Southern California. She did her second summer research at UC Santa Cruz. She graduated in spring 2019 and is in the Environment and Sustainability M.S. program at Michigan State University.

Anoop Praturu (Physics – College of Creative Studies) is from Northern California. He did his second summer research at UC Berkeley. He graduated in spring 2019.



FIRST YEAR SCHOLARS

Brooke Barger (Sociology) is a transfer student from Northern California. She did her first summer research at UC Santa Barbara. Her poster, *Repurposing Chemotherapy Drug for the Treatment of Cocaine-Craving*, received an honorable mention at the 2019 UC LEADS Symposium. She plans to graduate in 2020.

Haley Bowden (Physics – College of Creative Studies) is from Minnesota. They did their first summer research at UC Santa Barbara. They presented a poster at the 2019 UC LEADS Symposium titled *Determining the Ionizing Source of Green Pea Galaxies*. They plan to graduate in 2020.

Michelle Grunberg (Biology-College of Creative Studies) is from Southern California. She did her first summer research at UC Santa Barbara. She presented a poster at the 2019 UC LEADS Symposium titled *Viral Genome Editing to Study smORFs in KSHV*. She plans to graduate in 2020.

Jeffrey Rong (Microbiology) is from Northern California. He did his first summer research at UC Santa Barbara. He presented a poster at the 2019 UC LEADS Symposium titled *Narrowing Contact-Dependent Inhibition of CdiA to Determine Binding Specificity to BamA*. He plans to graduate in 2020.

Parker Shankin-Clarke (Physics- College of Creative Studies) is a transfer student from Southern California. He did his first summer research at UC Santa Barbara. He presented a poster at the 2019 UC LEADS Symposium titled *Simplified Microbial Systems and Their Clinical Application*. He plans to graduate in 2020.

Luis Martinez (Biochemistry) is from Northern California. He did his first summer research at UC Santa Barbara. He plans to graduate in 2020.

ALUMNI SPOTLIGHT

SCOTT BOYCE

UC LEADS 2000-2002
B.S., Chemical Engineering
Ph.D., Civil Engineering

After graduating from UCSB, Boyce worked for two years for a small company as a chemical engineer. He then transferred from Humboldt State to UCLA to complete a MS/Ph.D. in Civil Engineering. His article published in the *Advances in Water Resources Journal* was selected by the U.S. Office of Groundwater as the 2015 Best Groundwater Report by an Early Career Scientist. He now works for the U.S. Geological Survey's California Water Science Center.



“ UC LEADS taught me the importance of science communication for promoting research, raising funding for research, and writing successful publications. Part of my academic success is derived from the presentation and writing skills that were honed during my summer research experience at UC Berkeley and the Symposium. During the program the diversity improved my cross-cultural communication skills. I have carried forward these skills into my international collaboration and research.

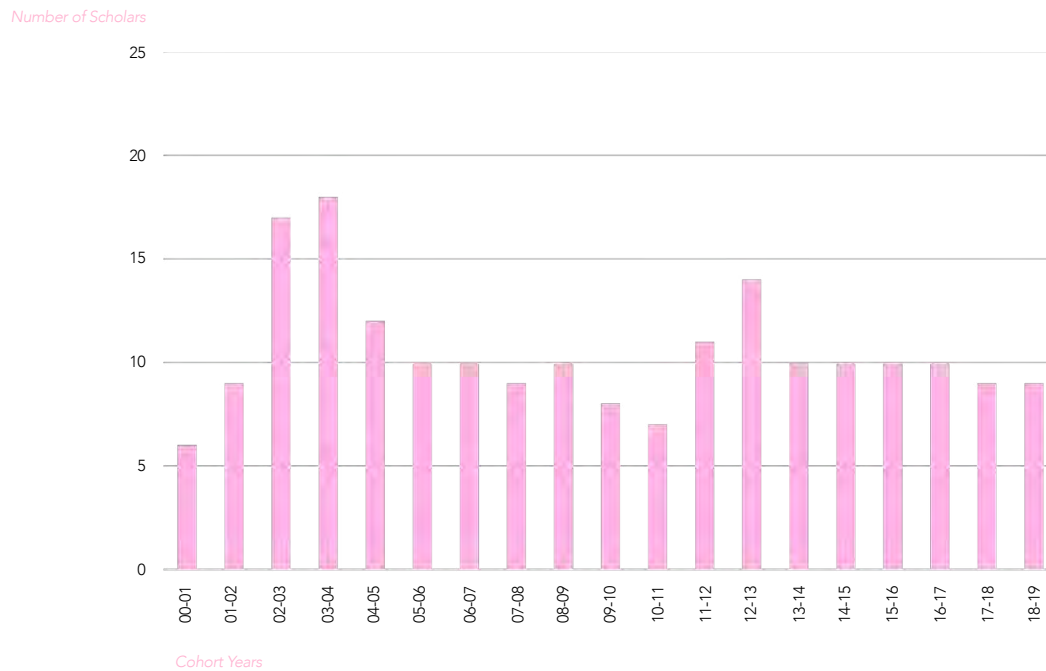


UC SANTA CRUZ

YEAR IN REVIEW

Our UC LEADS program had significant accomplishments for our 2018-2019 academic year. Our graduating scholars are continuing their educational journey in graduate study. Our first-year scholars completed an intensive, eight-week, full-time summer research program, successfully completing 12 hours of research ethics training and over five hours of lab safety training for those in the biomedical sciences. In addition to attending faculty research lectures and a weekly book club, all first-year scholars participated in biweekly professional development training on poster creation and how to prepare a CV. All scholars participate in quarterly check-ins with program coordinators during the academic year, receive tutoring for upper division courses, and attend professional development workshops. During Fall 2018, two of our second-year scholars attended the SACNAS and SHPE conferences. All of our first-year scholars attended SACNAS and one attended ABRCMS.

Scholars supported by UC LEADS at UC Santa Cruz each year



SECOND YEAR SCHOLARS

Allen Aboytes (Computer Engineering) did his second summer research at UC Santa Cruz. He presented a poster at the 2019 UC LEADS Symposium titled *Artifice: A Truly Usable Steganographic File System with Credible Deniability*. Allen is a first-generation college student from the Fresno area. He graduated in spring 2019 and is pursuing a Computer Engineering Ph.D. at UC Santa Cruz.

Joanne Dong (Physics and Mathematics) did her second summer research at UC Santa Cruz. She presented a poster at the 2019 UC LEADS Symposium titled *Potential Scattering on The Real Line: Reconstructing a Compactly Supported Potential*. Joanne is from San Francisco and is the first of her family to attend college. She graduated spring 2019 and is pursuing a M.S. in Mathematics at the University of Michigan.



FIRST YEAR SCHOLARS

Adiaratou Ba (Human Biology) did her summer research at UC Santa Cruz. She presented a poster at the 2019 UC LEADS Symposium titled *Identifying Regulators of the Vibrio Type Six Secretion Regulator AB (VxrAB) Two Component System*. She graduated in spring 2019 and is applying to M.D./Ph.D. programs and studying for the GRE and MCAT this spring.

Pinky Lee (Bioengineering) did her summer research at UC Santa Cruz. She presented a poster at the 2019 UC LEADS Symposium titled *Examining the Role of ROBO1 in NOTCH4 Activation During Pregnancy*. She graduated in spring 2019 and is now a neuroscience lab technician at Gladstone Institute.

Diego Martinez Mori (Molecular, Cell & Developmental Biology) did his first summer research at UC Santa Cruz. He presented a poster at the 2019 UC LEADS Symposium titled *Tracking NHR-25 Expression in Caenorhabditis Elegans Development*. He plans to graduate in 2020.

Eimy Castellanos (Biochemistry & Molecular Biology) did her first summer research at UC Santa Cruz. She presented a poster at the 2019 UC LEADS Symposium titled *Contributions of KIN17 3_10 Helix Loop to Splice Site Choice*. She plans to graduate in 2020.

Shaneen Britton-Acevedo (Biochemistry & Molecular Biology) did her first summer research at UC Santa Cruz. She presented a poster at the 2019 UC LEADS Symposium titled *Study of the Structure of AgRP Protein sequence Mutations and Their Interactions with The Melanocortin System*. Shaneen is the student ambassador for the Chemistry department at UCSC. She plans to graduate in 2020.

Jasmine Liu (Molecular, Cell & Developmental Biology) did her first summer research at UC Santa Cruz. Her poster, *Manganese Oxide Deposition on Defective Graphene Oxide Nanosheets for Enhanced Antibacterial Activity Under Monochromated Light*, received an honorable mention at the 2019 UC LEADS Symposium. She plans to graduate in 2020.

Vy Thuy Nguyen (Molecular, Cell & Developmental Biology) did her first summer research at UC Santa Cruz. She plans to graduate in 2020.

ALUMNI SPOTLIGHT

PAULINA RODRIGUEZ

UC LEADS 2008-2010
B.S., Mathematics
M.S., Mathematics

Paulina earned her undergraduate degree in mathematics from UC Santa Cruz. She went on to earn her M.S. in mathematics from Claremont Graduate University, and worked as a tutor coordinator for the Learning Support Services at UCSC and as a web developer at Search Influence in New Orleans, Louisiana. Currently she is a research scientist in the Division of Applied Mechanics at the U.S. Food and Drug Administration.



“ As a first-generation student growing up in downtown Los Angeles it was unfathomable that I could have a career in research. By participating in the UC LEADS program at UC Santa Cruz, a world of opportunities was presented to me through interdisciplinary research in STEM. UC LEADS gave me the tools and resources to make research an attainable goal for me.

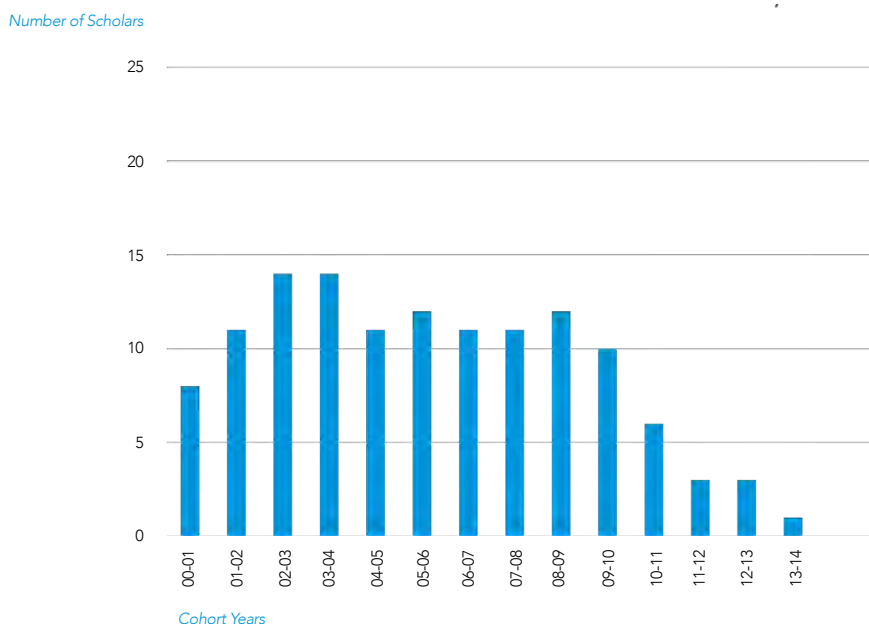


UC SAN FRANCISCO

YEAR IN REVIEW

The 2018 UCSF Summer Research Training Program (SRTP) was comprised of 52 students representing 41 colleges and universities in 15 states across the country and Puerto Rico, and included 6 UC LEADS scholars. UCSF is a unique campus in that it is a graduate student only campus and a leading university dedicated exclusively to health sciences. As a graduate only campus, the SRTP gives participating students the opportunity not only to do 10 weeks of research at a leading research institution, but also the opportunity to experience life as a graduate student. In addition to being in a lab approximately 40 hours a week, students receive professional development during weekly workshops and are paired with a graduate student advisor who meets with them weekly in a journal club like setting. Graduate student advisors are also instrumental in preparing students for oral and poster presentations presented at the research symposium at the end of the program. Many students go on to present their summer research at national conferences such as SACNAS (Society for the Advancement of Chicanos and Native Americans in Science) and ABRCMS (Annual Biomedical Research Conference for Minority Students). The students who have participated in the program not only gain valuable research experience, but are also prepared to successfully apply, interview, and be admitted to leading universities around the country.

Scholars supported by UC LEADS at UC San Francisco each year



Note: UC San Francisco began focusing their attention on only supporting visiting second summer scholars in 2014.

SECOND YEAR SCHOLARS

Hyeyeon Hwang (Computer Science) was a second-year scholar from UC Davis who completed her second summer research at UC San Francisco. She presented a poster at the 2019 UC LEADS Symposium titled *Segregation of Phenotypes in Families with Cerebral Cavernous Malformation Type 1 – Common Hispanic Mutation*. Hyeyeon also presented the same poster at the 2018 Annual Biomedical Research Conference for Minority Students (ABRCMS). She graduated in summer 2019 and is currently working as Junior Specialist at UC Davis.

Phung Quan (Chemical Engineering) was a second-year scholar from UC Davis who completed her second summer research at UC San Francisco. She presented a poster at the 2019 UC LEADS Symposium titled *Compartmentalized Self-Replication (CSR) Evolution of DNA Polymerases for Difficult Sequence Amplification*. She graduated in spring 2019 and was accepted as a Chemical Engineering Ph.D. student at UC Riverside.

Mary Lopez-Isidro (Microbiology) was a second-year scholar from UC Santa Barbara who completed her second summer research at UC San Francisco. She presented a poster at the 2019 UC LEADS Symposium titled *Optimizing CRISPRi to Silence KSHV genes*. She graduated in spring 2019. Mary is currently working as a clinical research coordinator at California Retina

Consultants and plans to apply to medical school in in June 2020 or 2021.

Kimmai Phan (Biomedical Engineering) was a second-year scholar from UC Irvine who completed her second summer research at UC San Francisco. She presented a poster at the 2019 UC LEADS Symposium titled *Encapsulating MSCs within the Silicon Nanopore Membrane for GvHD Therapy*. She graduated in spring 2019 and is in the joint Biomedical Engineering Ph.D. program between Georgia Institute of Technology and Emory University.

Felipe Rodriguez (Biology) was a second-year scholar from UC Merced who completed his second summer research at UC San Francisco. He presented a poster at the 2019 UC LEADS Symposium titled *Lymphatics vessel proliferation induced before bleomycin exposure reduces lung fibrosis*. He graduated in spring 2019 and is a Staff Research Associate at UC Merced.

Cindy Ayala (Mechanical Engineering) was a second-year scholar from UC San Diego who completed her second summer research at UC San Francisco. She graduated in spring 2019 and is in the Bioengineering joint Ph.D. program between UC San Francisco and UC Berkeley.



ALUMNI SPOTLIGHT

GARY YU

UC LEADS 2002-2004
B.S., Bioengineering
M.P.H., Epidemiology
D.P.H., Biostatistics

Gary Yu earned his degree in bioengineering at UC Berkeley while participating in the UCSF UC LEADS program. After enrolling in a summer program in biostatistics for first-generation college students at the Harvard School of Public Health, he then earned a master's in public health in epidemiology at Boston University and his Ph.D. in public health in biostatistics at Columbia University. He is currently working as a research staff scientist at the New York University Rory Meyers College of Nursing.



“ As a first-year doctoral student in 2008, I founded and secured NIH funding for the Biostatistics Enrichment Summer Training Diversity Program, BEST. Over the ensuing six years, I taught close to 100 students through BEST and its sister program, the Columbia Summer Institute for Training in Biostatistics. I see it as my responsibility to promote diversity in STEM because of the investment that others have made in me.



From left to right: Michele Johnson, Lynne Arcangel, Maria Franco-Gallardo, Franklin Dollar at the 2019 UC LEADS Symposium at UC Santa Cruz

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