



 **ARCS** ADVANCING
SCIENCE
IN AMERICA®
SAN DIEGO CHAPTER

ANNUAL REPORT
2023 - 2024

ACHIEVEMENT REWARDS for COLLEGE SCIENTISTS MISSION

ARCS Foundation advances science and technology in the United States by providing financial awards to academically outstanding U.S. citizens studying to complete degrees in science, engineering and medical research.



Unlocking the Mysteries of the Mind: Exploring the Connection Between Meditation, Esotericism, and the Glowing Neurons of the Brain, Generative AI

By ParinApril

This AI-generated image was used as the theme for our 2024 Scientist of the Year Celebration, which honored AI pioneer Dr. Terry Sejnowski.

MESSAGE FROM THE PRESIDENT

The ARCS Foundation, San Diego, has had another incredibly successful year. We funded 50 talented PhD Scholars from our four partner institutions. Our ARCS Scholars inspire us with dedication to their research, commitment to the broader world of scientific discovery and advancement, and in their interest in giving back to the community. Chapter members are proud of our Scholars' continuing achievements.

Our successes could not have been realized without the commitment of our chapter members, who volunteer their time and financial support to our mission. With our members' hard work on all aspects of chapter operations, their financial support, and the generous funding from many foundations, we will be able to support 50 Scholars again next year. We are grateful for our members and foundation partners who understand the importance of our educational mission, share our dedication to it, and continue to support our efforts.

Last year, as always, the ARCS-SD University Relations team managed our Scholar registration and fund distributions, organized site visits to SDSU and UCSD, hosted the Scholar Picnic, and otherwise oversaw our University partnerships. With two site visits completed in 2023-2024, we have finished a full round of formal visits to our four academic partners. The site visits are a great opportunity for ARCS leadership to learn more about the programs we support, university goals and objectives, and program strengths and challenges.

The Chapter continues to thrive financially, with healthy investments and endowments. This year, we netted over \$136,000 for the Scholar Fund from our Scientist of the Year Celebration, and our Member Giving Campaign brought in \$114,688. These contributions, together with our foundation giving receipts of \$232,250, will enable us to continue to support STEM education in San Diego.

Membership in our chapter is robust, as we cultivate new members and strengthen ties with current members through field trips, social events, and luncheon lectures. This past year, members and guests gathered for our Summer Party, our festive Holiday Party, various field trips, and our general meetings. Members, friends, ARCS Scholars, and the community also kept in touch through our social media networks and our quarterly *Insider* newsletter. We learned about the latest developments in Alzheimer's research from

James Brewer MD, PhD, professor and chair of the UCSD Department of Neurosciences, Director of the Shiley-Marcos Alzheimer's Disease Research Center. We heard from Dr. Margaret McFall-Ngai, renowned scientist from Carnegie Science, who spoke on current research on microbiomes, important to understanding how the human body functions and adapts to the environment. Members enjoyed a visit to the Scripps Institution of Oceanography's Sally Ride Research Vessel, a visit to the KPBS Conrad Prebys Media Complex in the Copley Center at SDSU, and an insider's tour of the Conrad Prebys Performing Arts Center.

The year culminated in a spectacular Scientist of the Year Celebration, held at the beautiful Conrad Prebys Performing Arts Center. Our 2024 Scientist of the Year was Dr. Terry Sejnowski, one of the world's preeminent computer scientists and computational neuroscientists, a pioneering expert in machine learning and artificial intelligence. Head of Salk Institute's Computational Neurobiology Laboratory, he is also a distinguished professor at UCSD's School of Biological Sciences. Dr. Sejnowski gave an engaging account of the challenges and promise of AI technology. Our current ARCS Scholars were also featured in the program, introduced with great fanfare and a video montage highlighting their work. ARCS-SD alumnus Dr. Randall Kelley spoke about his career trajectory from ARCS Scholar to machine learning specialist and developer of AI for the private sector. Thank you to our 2024 SOY Committee for planning and overseeing this very special event, and to the many ARCS volunteers who helped out that evening.

In closing, I'd like to thank the 2023-2024 Board of Directors. What a great team of dedicated ARCS members, committed to guiding the Chapter through a very successful year. I was thrilled to lead that team during this, my last, year as Chapter President. I am forever grateful for the board, our wonderful members, and for the opportunity to lead the Chapter these past two years. Many thanks!



KATHE HICKS ALBRECHT, PHD
President 2023-2024



WHO WE ARE: THE HISTORY of ARCS

October 4, 1957, was a game-changer. On that date, Russia launched Sputnik, a 183-pound satellite, roughly the size of a beach ball, into space. This surprise launch shocked the United States and forced it to rethink its place as the technological leader of the world. It also ushered in the Space Age and the Cold War. The Russian action touched all areas of America, including politics, patriotism, science, the military, and education. In response, the U.S. undertook an unprecedented push to educate Americans in science and math.

As part of that initiative, a group of women in Los Angeles saw the opportunity to make a difference by creating a partnership between science and society. Their goal was to re-establish and re-energize the technological superiority of the United States. They started the first ARCS chapter in September 1958. ARCS (Achievement Rewards for College Scientists) is a nationally recognized nonprofit organization founded and administered by women who volunteer their time and talent to support American advancement in STEM (science, technology, engineering and math) and in biomedical research. It is now comprised of 15 chapters across the nation.

In 1985, four San Diego women established ARCS Foundation, San Diego Chapter: Karen Bowden, Karon Luce, Barbara McColl, and Pattie Wellborn. Thirty-seven years later, ARCS San Diego has provided over \$12 million in financial awards to the brightest STEM scholars at four local academic institutions. By investing in these scholars, we are securing a better future for America and the world.

FACTS AT A GLANCE

106 CURRENT MEMBERS

1985 CHAPTER STARTED WITH 4 FOUNDERS

\$12,802,000 FUNDED SINCE 1985

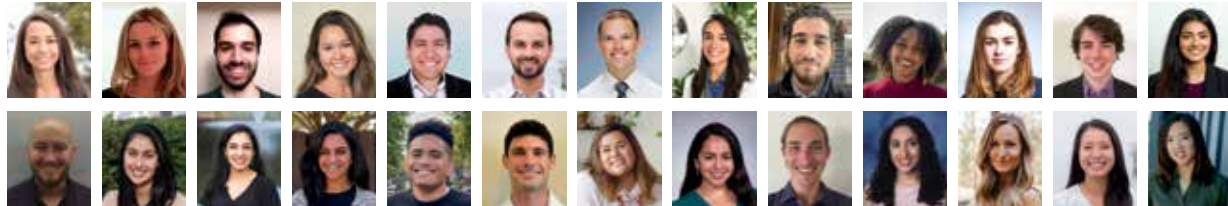
50 SCHOLARS AWARDED **\$500,000** IN 2023-2024

98% GRADUATION RATE

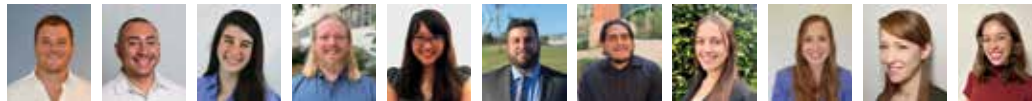
OUR SCHOLARS ... TOMORROW'S LEADERS

2023-2024 ARCS SAN DIEGO CHAPTER SCHOLARS

UNIVERSITY OF CALIFORNIA, SAN DIEGO



SAN DIEGO STATE UNIVERSITY



SCRIPPS RESEARCH



UNIVERSITY OF SAN DIEGO



We continue to be amazed by our Scholars' talent, hard work, and dedication. We are also grateful for our academic partners - UC San Diego, San Diego State University, Scripps Research and the University of San Diego – who choose our Scholars and who are approved by the ARCS National Board on the basis of excellence in basic science, engineering, math and medical research.

Our Scholars are all PhD candidates and are conducting research and making new discoveries that will lead to advances in global health and wellness, understanding and treatment of disease, national security, ecological improvements, space exploration and in many other STEM areas.

We are proud to volunteer our own time to promote scientific advancement in our country and to provide unrestricted funds to tomorrow's leaders. 100% of our contributions go directly to our Scholars, not to administration or infrastructure. ARCS is one of the largest contributors to basic science education of any private membership organization in the United States.

SCHOLAR SELECTION

Scholars must be U.S. citizens and meet ARCS-established academic criteria with a minimum 3.5 GPA, while pursuing undergraduate and graduate degrees in a wide range of scientific subjects. These Scholars are specializing in astronomy, biochemistry, botany, cell and molecular biology, chemistry, computer science, ecology, engineering, genetics, marine biology, mathematics, medical research, oceanography, physics and more.



TIFFANY LUONG

SDSU/UC SAN DIEGO

College of Sciences

Concentration: Cell and Molecular Biology

Specialization: Bacteriophage Biology



BRETT MICHAEL GARABEDIAN

SCRIPPS RESEARCH

Skaggs Graduate School of Chemical and Biological Sciences

Concentration: Molecular Medicine

Specialization: Glycoimmunology



RAYYAN MOHAMMED GORASHI

UC SAN DIEGO

Jacobs School of Engineering

Concentration: Bioengineering

Specialization: Biomaterials and Sex-specific Disease Modeling



OLIVER MALLILLIN ERECE

UNIVERSITY OF SAN DIEGO

Hahn School of Nursing and Health Science

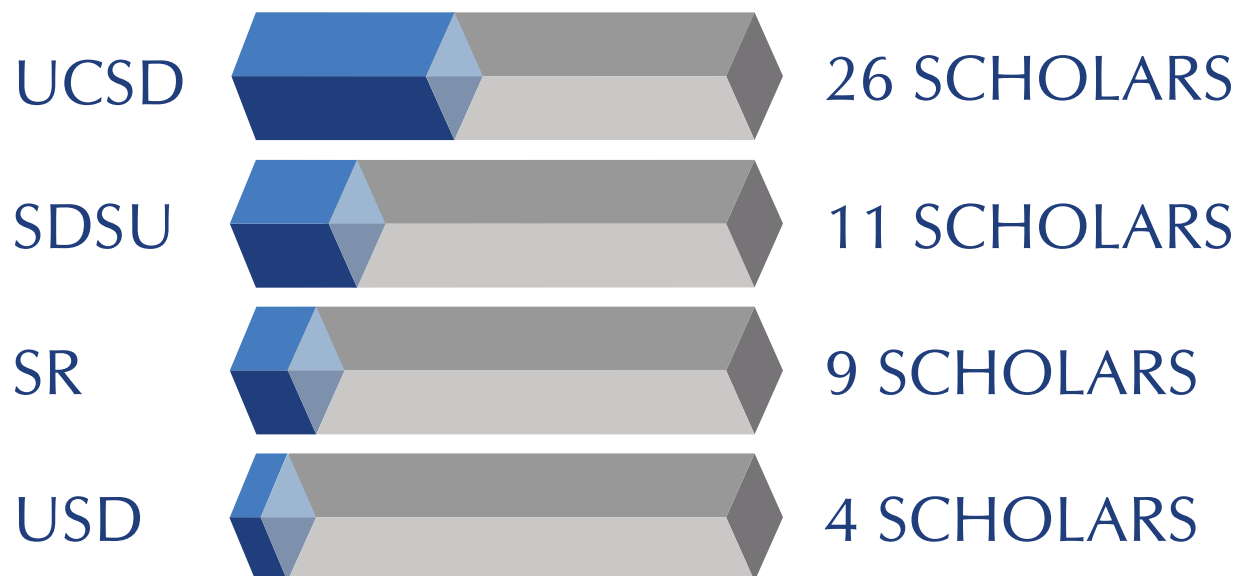
Concentration: Nursing

Specialization: Surgical and Medical Oncology

ALLOCATION of ARCS SCHOLAR AWARDS

The amount of funding available for ARCS Scholar Awards is calculated each year by using a distribution formula based on the percentage of eligible Scholars enrolled at each ARCS-approved recipient university.

The **2023-2024 academic year awards** were allocated as follows:



ARCS SAN DIEGO CUMULATIVE FUNDING 1985-2024

TOTAL AWARDS GRANTED 1,684
TOTAL FUNDING \$12,802,000



861
AWARDS

504
AWARDS

221
AWARDS

98
AWARDS









2024 SCIENTIST of THE YEAR CELEBRATION

Simply put, the 2024 Scientist of the Year (SOY) Celebration knocked it out of the park! For starters, we were all thrilled with the return of the Scholar poster sessions, which took place during the opening reception at The Conrad Performing Arts Center in La Jolla. Attendees were treated to a wonderful array of research posters presented by our Scholars



in the JAI, while enjoying delicious hors d'oeuvres and cocktails from Giuseppe Fine Catering, served in the Wu Tsai Courtyard. It was an ideal opportunity to meet with the Scholars and learn more about their research projects.

Soon it was time to move into the Baker-Baum Concert Hall for the main program, where our intrepid leader, Kathe Albrecht, welcomed the audience. We then enjoyed the traditional Scholar processional, followed by a video collage introducing this year's Scholars and a short presentation by Scholar alumnus Dr. Randall Kelley, also via video. Next it was time for our SOY's keynote speech about the perils and promise of AI technology, after which we moved back into the courtyard for some dessert and conversation with our members, Scholars, friends, and our SOY.

That evening, we all went home feeling both inspired and uplifted by the talent and dedication to science that was on full display among our SOY, Scholars, and Scholar alum. We were also incredibly grateful to our members and sponsors who helped us raised over \$136,000 for the Scholar Award Fund!



TERRY SEJNOWSKI, PhD – 2024 SCIENTIST OF THE YEAR

Dr. Sejnowski is one of the world's most preeminent computer scientists and computational neuroscientists, whose visionary and ingenious work on neural networks laid the foundation for the machine learning and AI revolution that is taking the world by storm today. Dr. Sejnowski is head of Salk Institute's Computational Neurobiology Laboratory and holder of the Frances Crick Chair. He is also a distinguished professor at UC San Diego's School of Biological Sciences, where he is co-director of the Institute for Neural Computation.



RANDALL KELLEY, PhD – ARCS SCHOLAR ALUMNUS SPEAKER

After completing five years of military service, Dr. Kelley attended UCSD and received his PhD in particle physics. He then joined Harvard University's Center for the Fundamental Laws of Nature, where he focused on modernizing the physics curricula. In his current role, Dr. Kelley leads the data science and machine learning (ML) team at Chewy.com, building predictive ML/AI models to help Chewy meet their Pet Parents' needs.

"DEEP LEARNING" TITLE SPONSOR
 UC San Diego

"BIG DATA" SPONSORS
 GILEAD SDSU San Diego State University

BENEFITS of ARCS MEMBERSHIP

ARCS members have the opportunity to actively engage with Scholars and academic partners at presentations, lab and site visits, and social events. Members also enjoy learning about cutting-edge technologies and establishing relationships with Scholars. Here are some of the presentations and field trips we enjoyed in 2023-2024.



SALLY RIDE RESEARCH VESSEL | ARCS members and friends were treated to a fascinating tour of the Sally Ride Research Vessel in Point Loma. R/V Sally Ride is operated by Scripps Institution of Oceanography under a charter agreement with the Office of Naval Research. Part of America's Academic

Research Fleet, the Sally Ride is a shared-use research facility within the University-National Oceanographic Laboratory System (UNOLS), serving scientists and students from across the United States.



UNDERSTANDING ALZHEIMER'S | Dr. James Brewer, Professor and Chair of the Department of Neurosciences and Director of the Shiley Marcos Alzheimer's Disease Research Center at UC San Diego School of Medicine was invited to speak at the Winter General Meeting in January. His research program focuses on applying advanced brain imaging approaches to detect the subtle and progressive changes that accompany aging and neurodegenerative disease. Dr. Brewer has developed tools to support

the detection of abnormal brain atrophy for patients being evaluated in the clinical setting and in clinical trials of new Alzheimer's disease therapeutics and interventions.



SCRIPPS PREBYS INNOVATION & EDUCATION CENTER | ARCS members and guests took part in an inside tour of SPIEC, observing in amazement the beauty of the building's various facilities, especially its various patient simulation labs. Foundation CEO Bill Littlejohn gave a history of Sharp HealthCare and the SPIEC. He then introduced the group to former ARCS

Scholar Laurie Ecoff, PhD, RN, NEA-BC, CNL who runs the Terrence and Barbara Caster Institute for Nursing Excellence which is housed at the SPIEC.

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2023-2024 DONOR HONOR ROLL

JULY 1, 2023 – JUNE 30, 2024
GIFTS RECEIVED FOR AWARDS TO BE MADE IN THE ACADEMIC
YEAR 2024 - 2025

\$70,000

Reuben H. Fleet Foundation

\$40,000

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Salk Institute for Biological Studies

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The amounts above indicate donations to the ARCS Foundation Scholar Awards Fund, Endowment Fund and Memorial Funds.

See an error or omission? Please end an email to:

sandiego@arcsfoundation.org



OUR ALUMNI – CHANGING THE WORLD!

Thousands of ARCS Scholar alumni go on to make outstanding contributions to advance science and keep America competitive. Here are just a few standouts in 2023-2024 from our chapter.



LAKSHMI CHILUKURI, PHD (1993-1996 UCSD/SIO) is entering her sixth year as Provost of Sixth College at UC San Diego, and proud to be a longtime member of the UC San Diego community. Beginning as a part-time student through UC Extension, she proceeded to complete a Masters and PhD in Marine Biology at the Scripps Institution of Oceanography. She taught in the Division of Biology for more than nineteen years, most recently as the Coordinator of the Undergraduate Microbiology teaching labs. She is a creative and dynamic educator with experience using evidence-based teaching tools and creating innovative online study and teaching tools.



CATHLYN (CAT) DAVIS, FORMERLY STYLINSKI, PHD (1995-1999, SDSU) is a tenured researcher at the University of Maryland Center for Environmental Science Appalachian Laboratory. She holds a PhD in ecology, and has extensive experience developing, studying, and evaluating public engagement with science. Dr. Davis has led multiple large NSF education grants including the Streamline Embedded Assessment for Citizen Science project, and is the editor-in-chief for the *Citizen Science: Theory and Practice* journal. She has also served as an evaluator, advisor and reviewer for numerous national committees, proposal reviews, publications, and programs linked to science engagement. Her work was recognized through the 2017 UMCES Presidential Excellence in Application Award.



JAY CHIANG, PHD (1998-2000, SCRIPPS RESEARCH*) joined Caltech's Seed Fund (CSF) Executive Committee in 2022, as Entrepreneur in Residence in Life Sciences. CSF is an internal venture fund that was launched to support the commercialization of Caltech technologies. Its purpose is to supply pre-seed and seed capital to help promising new Caltech companies bring products and services to market. Dr. Chiang's extensive experience in global pharmaceutical product commercialization, including ten years at Amgen, make him a valued member of CSF's Executive Committee.

*Dr. Chiang was among the first graduate students at Scripps Research to receive an ARCS award back in 1998, while working on his PhD in Chemistry in Professor K. Barry Sharpless' lab. Sharpless is a two-time Nobel laureate in Chemistry (2001 and 2022).

INVESTING IN AMERICA'S FUTURE



Join us to support ARCS Scholars and invest in the future of science, technology, research and innovation in America. The Scholar Award Fund is supported by ARCS members, foundations, academic institutions, businesses, and individuals in the community.

Give online at san-diego.arcsfoundation.org

Donations by check may be mailed to:

ARCS Foundation, Inc. - San Diego Chapter, c/o Mother Lode Bookkeeping, Inc.
Attn: Christine Diaz, 207 West D Street, Encinitas, CA 92024

All gifts are tax-deductible and greatly appreciated by our members, the Scholars and their academic institutions.

100% OF EACH DONATION GOES TOWARD SCHOLAR AWARDS

To make a donation of stock, create an endowment, include ARCS in your Estate plans, or request additional information, please contact:

Leslie Bruce, President | lkbrucejd@gmail.com
Kristin Boyd, VP Fund Development | kmgboyd@gmail.com

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