INSIDER

ARCS ADVANCING SCIENCE IN AMERICA

October 2024

PRESIDENT'S MESSAGE...

Leslie Bruce

I was having dinner with friends recently when one asked, "Why ARCS?" I was surprised at how readily, even forcefully the words of response flew from my mouth.

"Two words," I said. "*Women* and *students*."

I elaborated effortlessly. Soon after I retired, fate happened to place me in a neighborhood coffee house with my dear friend – Chapter Recording Secretary, **Grace Miller Valencia**. Who should be there, but beloved ARCS members **Peggy Hanley** and **Helga Moore**. They were talking "shop" (ARCS) and Peggy, whom I'd known for many years said she thought I'd like ARCS and could she follow up.

I learned that ARCS is a wonderful family of intelligent women who are dedicated to improving the world. Who doesn't need that in their lives?

Like many of our members, I belong to many other organizations that do good or prevent bad. But ARCS is different. It is women-founded and women-led. Just wow. And the age of our members range from the 30s to the 90s – intergenerational! How wonderful to experience such a variety of perspectives. Getting to know our members has been just the joy I'd anticipated. And to work side by side in a shared mission – a bond – to better the world through fine young minds is fulfilling indeed. It also fills a gap created by retiring from the community of employees at one of the finest universities in the world.

Then there are the students. Many of you know I taught in the Master's Degree Programs at the UCSD School of Medicine. I also taught in the Post-Baccalaureate Pre-Med Program for students seeking entry into medical school and in the Health Leadership Academy for UC San Diego Health's nascent leaders, helping them learn to lead and manage. They were students all, in a wide array of ages with varied passions but a common commitment to excellence.

ARCS Scholars are much the same: smart, passionate and aiming to change the world for the better. How lucky to have an opportunity to work with them – 50 of them – and bolster their efforts. The Fall General Meeting is my favorite

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meeting of the year. Why? We get to meet young scientists forging creative new paths to solving the problems of humanity, whether it be climate change or cancer. The same goes for the Scientist of the Year Celebration; I get teary watching the Scholars descend during the processional and express themselves in their video introductions.

So, you see why I'm hooked. What hooks you? What about our organization might hook others? I'm giving that some thought. I'm grateful that Grace has accepted my invitation to join and am actively reaching out to others who might like to as well. It's our lovely collective of women who enable us to fulfill our mission – support Scholars in STEM and biomedicine. Let's see if we can't bring more into the fold. By all means, share your ideas!

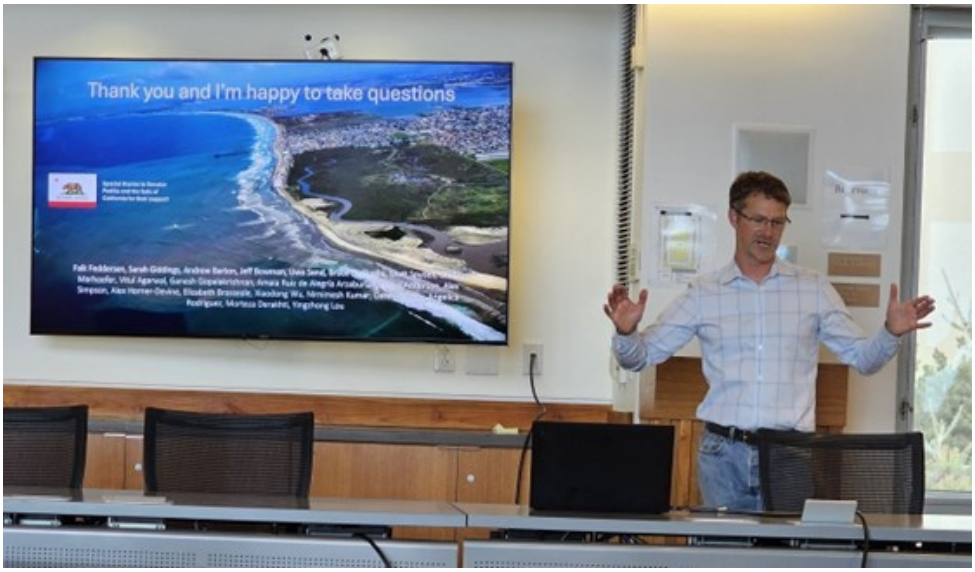
All the best,

Leslie K. Bruce, President
ARCS Foundation, San Diego Chapter

P.S. Enjoy the *Insider* and I'll see you at the General Meeting on October 29!

Field Trip to Scripps Institution of Oceanography (September 19, 2024)

Seventeen ARCS members and guests were treated to back-to-back talks by two leading scientists at Scripps Institution of Oceanography (SIO), who are engaged in cutting-edge research surrounding the environmental disaster caused by sewage spilling from Tijuana River into the South Bay. **Dr. Jeff Bowman**, Associate Professor of Biological Oceanography, began with an in-depth account of his lab's research into how ocean and estuary currents and contaminated wastewater are transported along the coast. He also



Dr. Jeff Bowman

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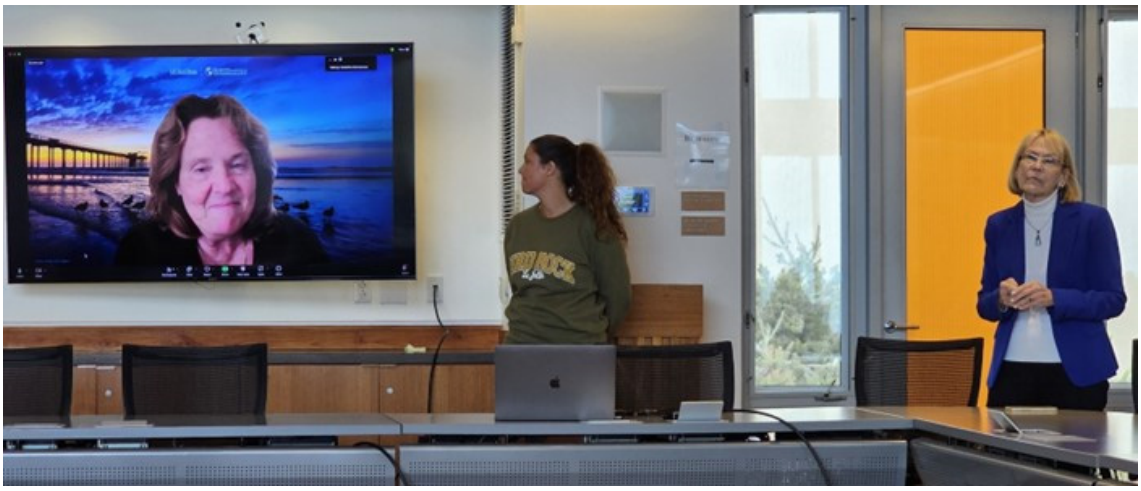
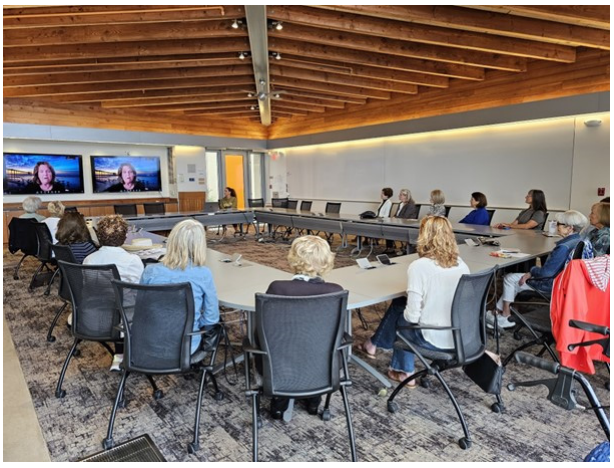
Field Trip to Scripps Institution of Oceanography… Continued from Page 2



Dr. Kim Prather, lab aid, Dr. Margaret Leinen

shared their work on pathogen modeling, specifically for norovirus, which they hope to eventually make public so as to reduce human health risk on both sides of the border.

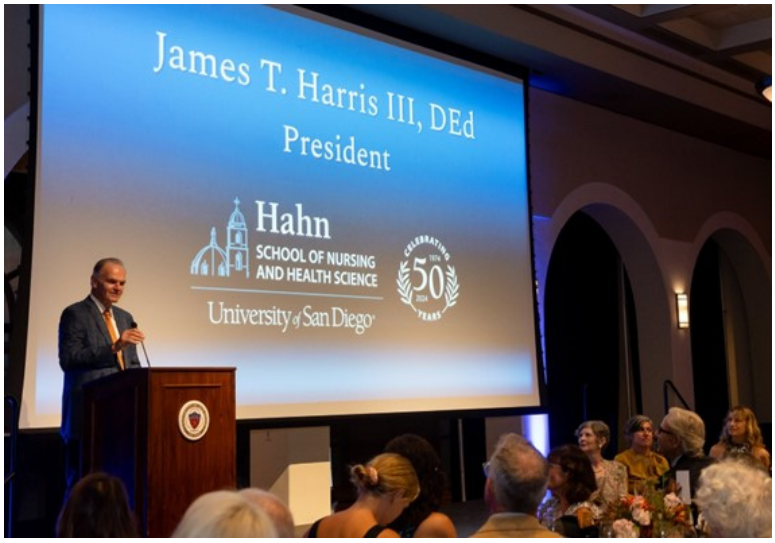


ARCS Members and guests enthralled by Dr. Prather's presentation

Next up was **Dr. Kim Prather**, a renowned atmospheric chemist at SIO, who has been sounding alarm bells about the toxic gasses emitted by this contaminated water. And who better to introduce her than **Dr. Margaret Leinen**, Director of SIO and our 2023 ARCS Scientist of the Year! Margaret explained that Kim could not give her talk in-person, because she and her team were still in the field testing the air quality at 22 sites along the Tijuana River. After a few introductory remarks from Margaret, Kim proceeded to share with us, via video, her latest findings from the "hot spot" on the Tijuana River. She reiterated that the levels of hydrogen sulfide were "extremely high" and a "serious public health concern." Hydrogen sulfide is a great indicator of the presence of sewage and industrial waste, but there are hundreds of other gases and aerosols, which will take longer to quantify. Nevertheless, Kim revealed that her recent research findings were about to hit the news and will, hopefully, finally prompt some government action to clean up the mess.

As depressing as these revelations were to all of us in the audience, we were in awe of the commitment and determination of both these two scientists, and their respective teams, to fully investigate the problem, despite all the obstacles they faced. Heartfelt thanks to **Elizabeth Taft** for arranging this incredibly interesting and informative visit to SIO!

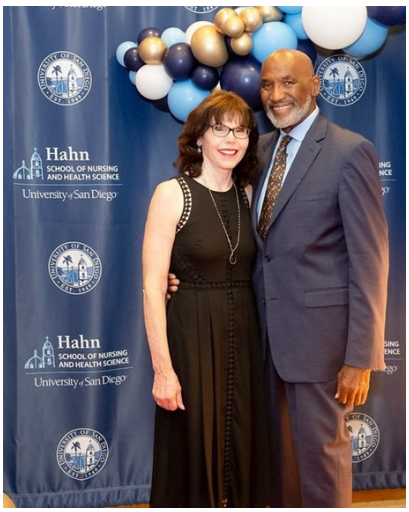
Hahn School of Nursing and Health Science Golden Jubilee Celebration (September 7, 2024)



President James T. Harris, III

Mary Ann Beyster,
Dean Jane Georges

In early September, President **Leslie Bruce**, VP of University Relations **Catie Madani**, and USD liaison **Caroline Etland**, enjoyed a wonderful evening at the 50th anniversary dinner of the Hahn School of Nursing and Health Science at the University of San Diego. In addition to celebrating the School's rich history and many achievements, the event provided guests the opportunity to reminisce and reconnect with the School's alumni, esteemed faculty, and dedicated supporters. Enjoy these photos provided by USD's publicity team.



Dr. Laurie Ecoff and spouse

Drs. Caroline Etland and Ellen Carr, both graduates from the Hahn School of Nursing and Health Science

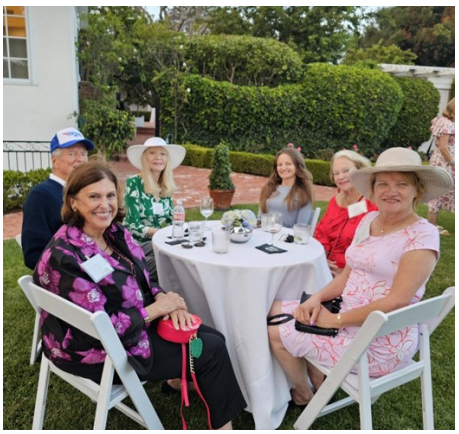
Dr. Cynthia Connolly, Dr. Catie Madani, Leslie Bruce

Just For Fun Party (August 18, 2024)

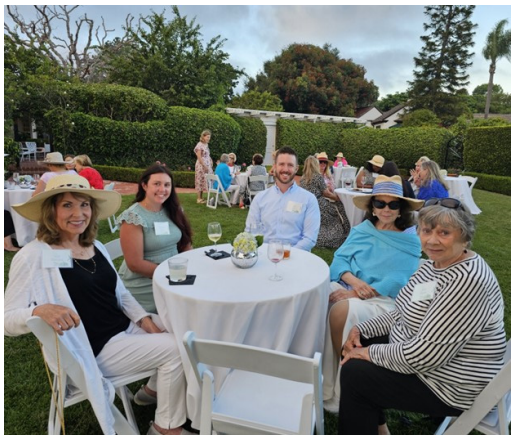
Over 40 ARCS members, friends and spouses got together "Just for Fun" on Sunday, August 18, on the beautiful lawn of **Elizabeth Taft**'s La Jolla home.

While catching up, we dined on delicious eggplant, salmon and short ribs prepared by **Chef Ron McMillan** and his staff at Catering Solutions and listened to guitarist **Mark Shapiro**.

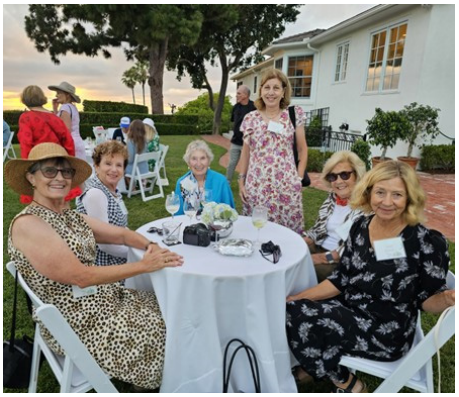
Thank you to ARCS members **Rachel Collins**, **Margaret Dudas**, and **Danielle James** for organizing such a wonderful way for us to get to know each other better!



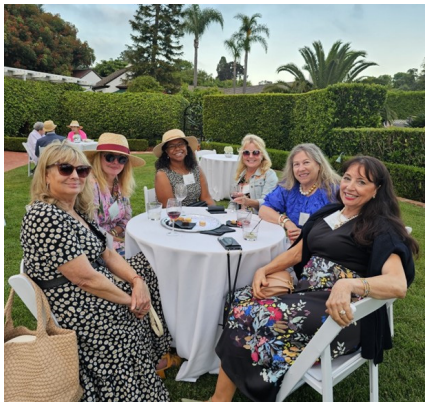
Ann Hill, Dan & Margaret Dudas, Julianna Dudas (guest), Sue Dramm, Karen Dow (guest)



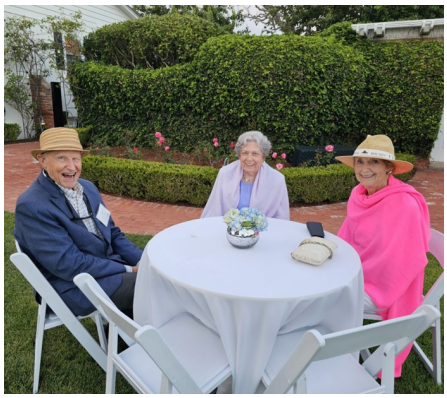
Ann Siemens, ,Danielle & Josh James, Elizabeth Taft, Britt Zeller



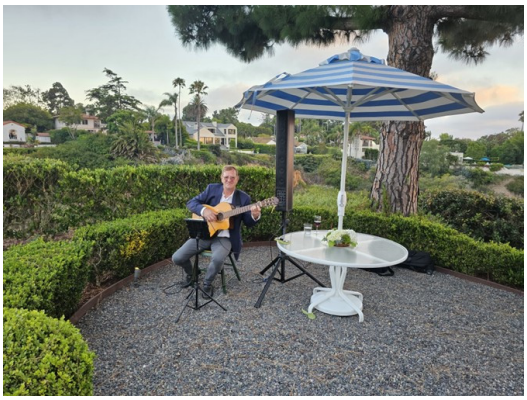
Laurie Roeder, Sue Kalish, Jan Shaw, Barbara Bry, Priscilla Moxley, Alice Brown



Susan Johnson, Leila Armstrong (guest), Marie Christensen (guest), Sue Hylton, Kathe Albrecht, Susie Barbey Booth



Peter & Doris Ellsworth, Barbara McColl



Mark Shapiro

Updates from ARCS Scholars & Scholar Alumni

Lauren Shipp, MS, PhD (2013-2016 ARCS Scholar at UCSD/Scripps Institution of Oceanography) joined the academic ranks of Scripps Institution of Oceanography this September. As a faculty member at SIO, she will lead an undergraduate research program using a combination of lab classes and partnerships with different labs on campus. Shipp's work will focus on the problems of industrial chemicals in the marine environment and the biological effects of these chemicals. She also aims to improve teaching strategies that maximize student mastery of marine, cellular, and environmental biology, preparing them to address related challenges in their careers.

You can view the complete list of new faculty and researchers at SIO here:
https://scripps.ucsd.edu/news/scripps-oceanography-welcomes-nine-new-faculty-and-researchers

Melissa Ward, PhD (2018-2020 ARCS Scholar at SDSU) received a San Diego 2024 Environmental Hero Award in September for her work to protect our oceans and coasts. After earning her PhD in Marine Ecology at SDSU, Dr. Ward went on to the University of Oxford as a postdoc. She then returned to San Diego in 2021 to serve as adjunct faculty at SDSU and also started her own business, Windward Sciences. Her business aims to rally behind nature and community-driven initiatives to tackle environmental challenges. Dr. Ward now works with partners across San Diego and California to discover the potential of ocean-based solutions to combat climate change.

Here's the link to the complete list of San Diego's 2024 Environmental Heroes:
https://a77.asmdc.org/2024-environmental-hero-awards-honorees

Dimitri Schreiber, MS, PhD (2019-2021 ARCS Scholar at UCSD) co-founded AirSurgical, Inc. back in February 2023, with the goal of enabling a future of minimally invasive care. AirSurgical builds robots that help physicians more accurately treat liver, kidney, and pancreatic cancer via CT-image guided ablation. It was one of 25 startups featured in UCSD's Innovation Pavilion at San Diego's third annual Innovation Day, which took place on September 24th at Petco Park. This provided Dr. Schreiber with a unique opportunity to share his visionary ideas with venture capitalists, angel investors, industry executives and others.

You can learn more about AirSurgical and other UCSD startups here:
https://today.ucsd.edu/story/4-uc-san-diego-startups-to-watch-from-innovation-day-2024

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Updates from ARCS Scholars & Scholar Alumni... Continued from Page 6

Wade Johnson and Nishta Krishnan (2024-2025 ARCS Scholars at UC San Diego) have been selected as 2025 Siebel Scholars! The Siebel Scholars program recognizes the most talented students in the world's leading graduate schools of business, computer science, bioengineering and energy science. The students are selected based on outstanding academic performance and leadership, and each receive a $35,000 award toward their final year of study. The Siebel Scholars are all part of the Institute of Engineering in Medicine, which brings together researchers from UC San Diego's School of Medicine, Skaggs School of Pharmacy, and the Jacobs School of Engineering to translate creative ideas into clinical medicine and novel products that will transform patient care and well-being.

Here's a link to the full story of this prestigious award:
https://today.ucsd.edu/story/engineering-graduate-students-awarded-siebel-scholarship

Chesson Sipling (2024-2025 ARCS Scholar at UC San Diego) contributed to a recent paper in *Nature Communications*, which was featured on *Nature's Editor's* Highlights page, making it one of the 50 best papers recently published in that subfield of "Applied Physics and Mathematics."

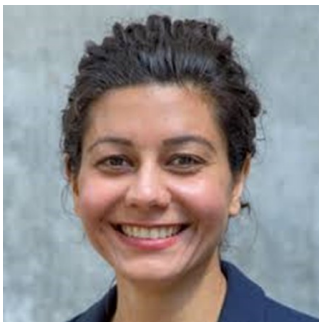
We also learned that Chesson was a guest speaker at the Elementary Institute of Science in southeast San Diego this past August, where he talked about the expansive universe and his experience pursuing a PhD at UCSD. Bravo, Chesson! We can't wait to meet you in October!

Minerva Contreras (2023-2024 ARCS Scholar at UC San Diego) received a D-SPAN* award in July, as part of the NIH Blueprint and BRAIN Initiative! The purpose of the award is to support a defined pathway across career stages for outstanding graduate students who are from diverse backgrounds, including those from groups that are underrepresented in neuroscience research.

*D-SPAN – Diversity Specialized Predoctoral to Postdoctoral Advancement in Neuroscience

Nicole Mlynaryk, MS (2019-2021 ARCS Scholar at UC San Diego) took part in the Heithoff-Brody High School Summers Scholars program offered by Salk Institute in August. This eight-week paid internship is an opportunity for high school students to gain real-life experience performing scientific research while developing skill sets needed for careers in a STEM field while being mentored by Salk scientists. Nicole was hired as Scientific Communications Manager at Salk in January 2024.

Scholar Alumni – Where Are They Now?



Shirin Doroudgar, PhD (2009-2012, SDSU/UCSD), works as an assistant professor in the University of Arizona College of Medicine – Phoenix's Department of Internal Medicine and is an active member of the Translational Cardiovascular Research Center, where she leads a research group in cardiac molecular biology, focused on understanding changes in protein homeostasis and cellular stress responses that contribute to heart disease.

Dr. Doroudgar received her bachelor's in molecular biology from the University of California, San Diego and her PhD in biology from a joint doctoral program at UC San Diego and San Diego State University.

"As an undergraduate researcher, I was interested in how cells respond to stress," Dr. Doroudgar said. "Cellular stress began to be important in my mind, as well as how cells can adapt to survive in conditions that we can learn from and apply to many diseases that we face."

After finishing her doctoral program, Dr. Doroudgar completed her postdoctoral training at San Diego State University and Heidelberg University.

In Germany, as a postdoctoral researcher, she was awarded an independent junior research group grant from the German Center for Cardiovascular Research (DZHK) to facilitate her transition to independence. She believes that better understanding the complexity of biological aging and the role it plays in disease are some of the more pressing issues in health care.

"In my lab, we're interested in deciphering the mechanisms of gene expression and how they change in disease and through the age of an organism. We are finding out that in disease, cellular stress responses can be overwhelmed. These natural defense mechanisms also decline in the heart as we age, which is especially challenging in the hearts of adults who are more likely than younger people to suffer from cardiovascular diseases" Dr. Doroudgar said. "We're beginning to appreciate differences in the aging process in male and female organisms."

To address this issue, Dr. Doroudgar is forming an interdisciplinary team, which she said can help to integrate different types of data and experiments that require various expertise.

"The most important thing for success is to bring together teams that are complex and can answer those kinds of questions," Dr. Doroudgar said. "I'm working on assembling that kind of team and the projects that help us understand the complexity of biological processes that are important in disease."

She defines success in her career as discovering something completely new, working efficiently and bringing out the best in the entire team for a task.

"I hope what we're doing now, in terms of making new models or generating new data sets, can provide information for the next generation of scientists to move forward in the field," Dr. Doroudgar said.

Read the full article here: https://phoenixmed.arizona.edu/wims2023-doroudgar

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Scholar Alumni – Where Are They Now?...

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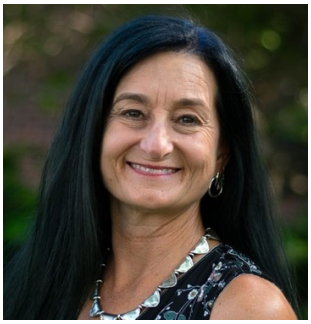

Lisa Harrison, formerly Winn, MEd (1994, UCSD) has taught at Rancho Minerva Middle School in Vista for 12 years. And if herding nearly 170 sixth- through eighth-graders through computer science and robotics isn't impressive enough, consider her latest honor, reported in the *Times of San Diego*:

In February 2022, the Washington-based nonprofit Society for Science named Harrison one of 95 exceptional science teachers from underserved communities. She was chosen along with educators from 29 states and D.C. plus American Samoa, Guam and Puerto Rico as well as Mexico, Peru and Uruguay.

It was Harrison's first time seeking that grant — after learning about it from her district office.

"I was intrigued by the concept of putting tech in kids' hands and letting them drive the inquiry, and that is what I wrote about in my proposal," she said.

Unspoken in her pitch was the biggest challenge she sees to public education. Not charter schools or private schools. Not budget cuts or lack of parental and community support.

"Right now, I think the greatest threat to public education is teacher exhaustion," she told *Times of San Diego*. "The pandemic was rough on the profession. Getting kids back into the classroom was great, but there was a lot of extra work to ensure everyone was safe."

She and some colleagues will share four Arduino starter kits (for electronics study), two PocketLab voyagers (to explore physics, weather, climate studies and engineering), four trail cameras (attachable to trees or poles to monitor wildlife) and four LaMotte water monitoring kits (to investigate water quality and contamination). Kits are valued at $1,000 each.

"Together we will be introducing the kits and how they work in the classroom and ask for the students to come up with questions they have about their world that could be addressed by using the kits," Harrison said. "The students can use the kits at school or take them home. When they are done they will be able to present what they learned by whatever means makes them most comfortable."

Born and raised in San Diego, she now lives in Fallbrook with her husband of 30 years.

Harrison, 57, earned a biology degree from UC Santa Barbara in 1988 and trained to be a clinical laboratory scientist. She worked in the UCSD/SIO system until her third child was born and quit to be a stay-at-home mom.

"When my oldest started college I went back to school to get my teaching credential and my subject authorization in science. I started teaching math and science at Rancho Minerva Middle school in 2010," she says.

Read the full article here: https://timesofsandiego.com/education/2022/03/15/national-science-teacher-winner-in-vista-stiffest-challenge-is-educator-exhaustion/

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Scholar Alumni – Where Are They Now?...

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Bryan O'Neill, PhD (2005-2007, Scripps Research) has worked in the San Diego office of BD (Becton Dickinson), a global medical technology company, for over 10 years. He joined the company in 2015 as Core Team Leader and is now Associate Director of Strategic Projects. In this role, he is focused on strategic business growth opportunities that span across traditional business, function, and/or regional boundaries.

Before BD, Dr. O'Neill co-founded and spent six years with Sapphire Energy, Inc., which raised over $300 million on its initial business plan to grow algae and then convert it into crude oil for transport fuels. First as a Scientist and Group Leader, O'Neill managed small teams of scientists and research associates that delivered key technical milestones, IP filings, and peer-reviewed publications in support of corporate strategy. Later as a Program Manager, he used project management best practices to manage complex technical projects involving large, cross-functional teams spread across multiple sites.

Dr. O'Neill is an inventor of nine issued patents and holds a PMP certification from the Project Management Institute.

ARCS Calendar of Events

NOVEMBER

- Tuesday, November 19 – Board Meeting (via Zoom)

DECEMBER

- Sunday, December 8 – Holiday Party (San Diego Yacht Club)
- Tuesday, December 17 – Board Meeting (via Zoom)

JANUARY

- Tuesday, January 21 – Board Meeting (via Zoom)
- Tuesday, January 28 – Member General Meeting (La Jolla Country Club)