



INSIDER



Spring 2020

Message from the 2019-2020 ARCS San Diego Board of Directors

As we all navigate this very challenging time, we hope you, your families and friends are all safe and well. We can be especially grateful for computers, network infrastructure, email, cell phones, Zoom and other video chat applications that enable us to stay connected to our loved ones, friends and colleagues. Seeing a family member's smiling face, viewing a funny video, and just taking time to catch up on a video chat is priceless. It's what we all need to remind us what's important and to help us stay grounded. These technologies also enable doctors to virtually connect with patients, identify and send medical equipment and other supplies to where they are needed, and also support researchers working around the clock performing virology and vaccine research.

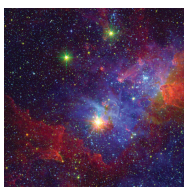
These technological innovations are available today because interesting, and sometimes outlandish ideas, were championed and funded by an ecosystem of visionaries who believed these ideas had merit and could be developed and transitioned from the laboratory into the marketplace. These products and services have now transformed our society, enabling what was once considered the impossible, possible.

The San Diego ARCS Chapter has a history of visionary thinking and of championing new ideas. Thanks to the hard work, dedication and generosity of our member volunteers, in 2019/2020 we have funded an amazing cohort of ARCS Scholars who are at the forefront of research in a variety of areas. These Scholars are finding solutions for some of the most important problems now facing our society: developing vaccines to eliminate the spread of viruses, researching therapeutics to fight and eradicate disease, innovations for delivery of nursing care, and conducting research and developing technologies to protect and sustain the environment.

Continued on page 2



2019-2020 ARCS San Diego Board of Directors



Board of Directors... Continued from Page 1

Now that we are all sheltering in place, it's the perfect time to learn more about the 2019/2020 ARCS Scholars who are the next generation innovators and entrepreneurs, and the research areas they are engaged in. Special thanks to our University Relations Committee chaired by Ellen Moxham, and new member Julia Falk, who did a wonderful job developing two documents showcasing the Scholars: Introducing the Scholars includes a summary of the new Scholars, and Scholars' Profiles includes more detailed information on all the Scholars. You can view and print these documents by visiting this link on the ARCS Web Site. <https://san-diego.arcsfoundation.org/scholars/2019-2020-arcs-scholars>.

We are especially grateful to the ARCS members, who over the past 35 years, have enabled our Chapter to partner with Scripps Research, San Diego State University, UC San Diego and University of San Diego to award more than \$10.5 Million to more than 1,400 US citizens pursuing graduate degrees in science, engineering and medical research. The unrestricted funding awarded helps ARCS Scholars with various personal expenses so they can remain focused on their research.

We are also grateful for the dedication and continued hard work of the 2019/2020 committees who are focused on recruitment and retention of our members, raising the funds needed to fund Scholars in 2020/2021 and beyond, managing our investments, planning future events, field trips and meetings, developing publications, and maintaining our web site.

We continue to remain hopeful and look forward to celebrating our accomplishments with you, the Scholars, our partners and our friends and colleagues at the 2020 Scientist of the Year Dinner currently being rescheduled for a new date in the fall. Until then, take care and be well.

ARCS San Diego Chapter 2019-2020 Board of Directors

How You Can Support ARCS Member Giving Campaign 100% Participation Goal!

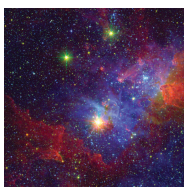
ARCS Member Giving campaign is an extremely important component of the approximately \$400,000 our ARCS chapter must raise annually to fund ARCS scholars each fall at our partner institutions: Scripps Research, UC San Diego, SDSU and University of San Diego. Member donations demonstrate our combined commitment to the ARCS mission: funding the next generation of scientists, engineers and medical

researches. The 2019/2020 Member Giving campaign was launched in late September 2019 with a letter sent to ARCS chapter members by Member Giving Director, Kayda Johnson. The ARCS Fund Development Committee is pleased to report that as of April 2020, 75 ARCS members have made donations to the 2019/2020 Member Giving campaign totaling \$83,390.



June Chocheles -
Vice President, Fund Development

Continued on page 3



Member Giving Campaign... Continued from Page 2

The Member Giving campaign is a separate fundraising activity from other ARCS initiatives during the year. We are grateful to the 75 ARCS members from out of our total membership who have donated. However, in our 35th Anniversary year, our goal for the Member Giving campaign is 100% member participation! Please know gifts of all levels are greatly appreciated. As of April 2020 we have 65% member participation. Given this unprecedented time in our history, it's now more important than ever to support young scientists who are working in research areas such as virology, vaccine development and front line care, as well as those working in other important areas to solve hard problems.

Foundation Funding also constitutes a significant portion of the funds we raise and award to ARCS Scholars. The Foundations we submit grant applications to look at participation by members in fundraising campaigns as a criteria for awarding their foundation funds. Funds received from Foundations as of April 2020 totaled \$180,000.

With one month remaining in our fiscal year, we hope ARCS Chapter members who have not yet made a donation will join your ARCS colleagues in making a donation by June 30, 2020. Please know that any size donation matters and is greatly appreciated. All 2019/2020 donors will be recognized on the 2019/2020 ARCS Honor Roll included in various ARCS materials. Working together we can be proud of making a difference.

There are two simple ways to make your donation:

BY CHECK:

Make check payable to: ARCS Foundation, Inc. San Diego Chapter

(Add note on check: ARCS Member Giving)

Mail check to: ARCS Foundation, Inc. San Diego Chapter

207 West D Street

Encinitas, CA 92024

BY CREDIT CARD:

Go to the ARCS San Diego Chapter Home Page and click on the turquoise DONATE button.

<https://san-diego.arcsfoundation.org>

Thank you!

KAYDA JOHNSON (*Director Member Giving*) and **JUNE CHOCHULES** (*VP Fund Development*)

AMAZON SMILE

Support the ARCS San Diego Chapter by doing your Amazon shopping at AmazonSmile: smile.amazon.com. AmazonSmile is the same Amazon - Same products, same prices, same service. Amazon donates 0.5% of the price of your eligible Amazon Smile purchases to ARCS San Diego Chapter. When logging into the Amazon Smile you must select your charitable organization as: **Achievement Rewards for College Scientists Foundation, Inc. Location: Rancho Santa Fe, CA.** Special thanks to Doris Ellsworth for reminding us about using AmazonSmile to raise funds for ARCS Scholars!



Please Welcome Our New San Diego Chapter Members

PAULETTE ROBERTS



A business graduate of USC, Paulette began her career with IBM and later worked in healthcare philanthropy in CA and NJ, retiring from Meridian Health in NJ where she was President of their 4 foundations. She chaired the Assoc. for Healthcare Philanthropy and became a Fellow, the highest level of accreditation.

She has chaired and served on several non-profit boards and organizations and been on the faculty of several non-profit organizations. After her husband passed away 2 1/2 years ago, she decided to move back to La Jolla after 25+ years in NJ, relocating in Feb. 2019.

Paulette has two sons, a grandson, three step daughters, one step son and several step grandchildren. She was a member of ARCS before moving to NJ in 1993 and looks forward to working with the many talented women involved.

LESLIE BRUCE



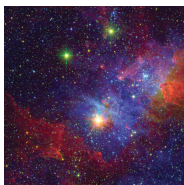
Leslie Bruce, JD, originally from New York, found her way to California to get married and to attend law school at the University of San Diego. Soon thereafter she joined the staff of Lucy Killea, becoming Chief of Staff during Lucy's tenure in the State Assembly. The effective interface with government has been at the heart of her career ever since, landing after many stops at UC San Diego where she served as Director of Government and Community Relations for the Health Sciences and then as faculty, teaching healthcare policy and politics at the School of Medicine and also

leadership at UC San Diego Health. She and her husband of 42+ years recently retired, making more time for cooking, travel and each other. On her own she revels in sprint kayaking, voice lessons, photography and politics.

MEMBER NEWS - Janet Hubka

Janet Hubka is the current ARCS Recording Secretary of the 2019-2020 Board of Directors. Janet, with her husband, are the founders of the company *Illus Art*. She has shared her story with the *Insider*.



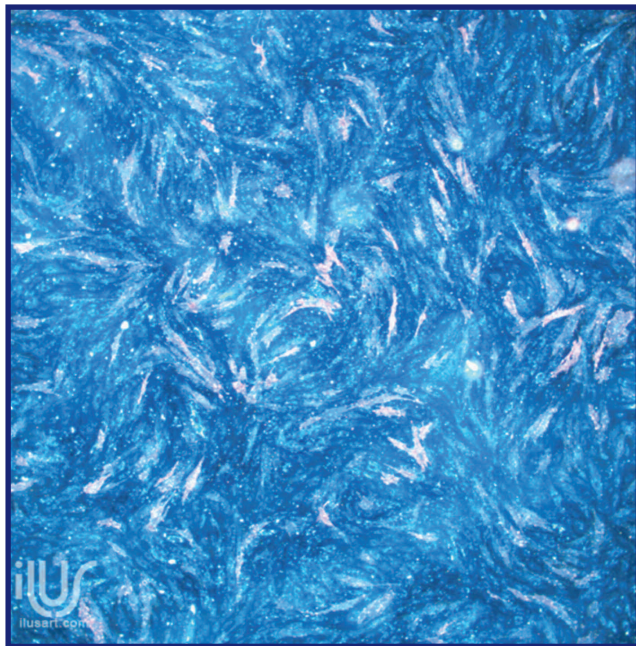


ilus Art, LLC

ilus – pronounced ē-loos, means “beautiful” in Estonia.

I like to say that we discovered “art” in the laboratory – in the beautiful images of human cells that reflect life at the microscopic level. Of course, scientists have always known how beautiful these cells are and how vibrant they become when stained with fluorescent dyes. But those of us who are not scientists do not have much of an opportunity to see these images, unless we have access to scientific journals or know someone in research or medicine.

My husband works in the biotech industry and when his company moved to a new building 8 years ago, I recommended that Mark’s screen saver would be perfect printed as a picture for their conference room. What I assumed was a picture of peacock feathers was actually a cellular image of human dermal fibroblasts, or skin cells, an image that was taken in their own lab for projects related to wound healing. The lab work at Histogen became their “artwork”. What I have found since then is that the “art” coming out of universities and labs around the world is incredible, and the story behind the art makes it that much more interesting.



At ilus, we take the cellular images that scientists use to quantify their research and produce artwork with these images infused into metal. We originally printed on canvas, but we found that the metal prints offered a more precise representation of what scientists see when they look through the microscope. The colors and composition are the work of the scientists; we do not change the image in the printing process. Scientists appreciate that we also create educational plaques that accompany the art to inform the public about the work they are doing in regenerative medicine. A portion of each commercial sale goes back to the scientist or “artist” to help further their research. We have been asked to create custom pieces for fundraisers, such as art relating to breakthrough research for Parkinson’s Disease and Alzheimer’s as well as gifts for scientists and researchers at NASA, Salk, SRI and the San Diego Zoo.

In addition to artwork, ilus Art offers other items to help further the public’s interest in science:

- Coasters
- Laser-cut wooden puzzles - “science you can play with”
- Silk scarves – “science you can wear”

Our new website is now online at <https://ilusart.com/>.



ilus Art, LLC... Continued from Page 5



Biocom sponsored an art exhibit at the San Diego Airport which was on display for 7 months in 2014-15 and highlighted the life science industry in Southern California. Biocom selected ilus Art to produce the art for the exhibit because they agreed that our metal infusion process made the cellular images captivating. We also hosted the information about each image, scientist and lab on the ilus website. School teachers saw the exhibit and made requests for the art

to be displayed at their respective schools. Because we had already been gathering the technical information about each image, scientist and lab, I decided that rather than simply displaying the art at each school, it would be better to create a power point presentation to educate the students about the “science behind the art”. So we created our K-12 STEAM (Science, Technology, Engineering, Art & Math) program called, ***The Art of Science; Taking Art to the Cellular Level***. Since 2015, we have presented to over 22,000 students in San Diego County, which we provide as a community service, free-of-charge. In 2016 we worked with science educators from South Florida at the SFSCA and art educators from CCE to create an after school program tailored to “at-risk” elementary school children at four schools. It was huge success! The program is on-going and now has been adopted at several other schools in Miami. In 2018, we were invited to give our talk at a school in Washington, DC, as part of the USA Science and Engineering Festival where I was honored to be one of their “Nifty-Fifty” speakers.

In our school program, we bring the artwork (about 20 pieces) to the schools and share with the students what scientists are doing in their labs. The colorful artwork helps to grab the students’ attention, creates curiosity and then we walk them through the process of how and why scientists conduct their research and create these fluorescent images. We talk to the students about stem cells, what they are and why they are being studied. We show them how the art is created using a patented engineering process of infusing the image into metal. We include research taking place at the San Diego Zoo Safari Park and their Frozen Zoo, such as groundbreaking research to save species from extinction, like the Northern White Rhino. We talk about the stem cell research going on aboard the International Space Station. We take the students inside a research lab via video at Rice University where they can see the equipment used like hoods, incubators and microscopes.

We created ilus Art’s education program because we love seeing the light turn on in the eyes of students whether they are in elementary, middle or high school. We believe that in some students, it can be just one idea or one lecture that ignites the fire of curiosity in a child and sets them on the path to become the next great scientist, engineer, teacher or artist.

And maybe, someday, even an ARCS Scholar!



WINTER GENERAL MEETING January 27, 2020 at Morgan Run

Featured Speakers were Dr. Cathie Atkins, Associate Dean, the College of Sciences at SDSU. The Scholar Speaker was Erik Blackwood, SDSU.



Left to right: Julia Falk, Dr. Cathy Atkins, Erik Blackwood

2019 ARCS Light - Helga Moore

Holly Heaton announced Helga Moore as the 2019 ARCS Light Honoree. The ARCS Light Award is a distinctive honor presented to a member who has given the highest quality of long-term service to ARCS Foundation. The ARCS Light is honored at the Chapter's annual meeting and at the ARCS Foundation All Members Conference.



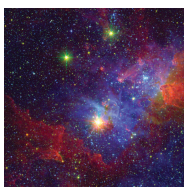
Helga Moore was chosen as the San Diego ARCS Light for 2019. Helga has been a very active ARCS member for ten years, taking on many roles during that time. She has served on the Board of ARCS for half of the time she has been a member.

After completing her undergraduate education in her country of birth, Norway, Helga moved to California with a job in hand as a young adult. She quickly used her skills to be employed at the City of San Diego. Helga met her late husband, James, an engineer and entrepreneur in San Diego, and had two daughters. Helga was very active at Frances Parker, their school, serving on a variety of parent committees. Helga completed her Masters' Degree in Public Administration from San Diego State University during her career as Deputy Director of the Library Department. She retired from the City of San Diego after serving as an Executive in the Library Department. She was

responsible for early efforts in digitizing books for the library. This was a daunting task and inevitably political since there was opposition. She retired from her career at the City, and continued her involvement in a variety of community organizations.

In addition to ARCS, Helga is active in Town and Gown, attends the Symphony religiously, as well as the Old Globe and the La Jolla Playhouse. She is also an auxiliary member in the Sons of Norway.

Helga is known for her energy and enthusiasm. She travels internationally very often and is known for her innovative problem solving capabilities and commitment to the organizations she supports.



ARCS Scripps Research Field Trip

In early February, 28 ARCS members gathered at the Scripps Research Hazen Campus Graduate Office, the starting point for a 2-hour introduction to Scripps Research (SR). Scripps is one of four academic partners with ARCS, and in 2019-2020, ARCS will fund nine Scholars at this world-renowned biomedical institute.

We were warmly greeted by members of the Scripps philanthropy staff, as well as several former ARCS Scholars now working at Scripps. India Mittag and her staff surprised us with a delicious breakfast spread before we entered the auditorium to hear from Dr.

Danielle Grotjahn (former ARCS Scholar and current Fellow at Scripps). Before introducing Danielle to the group, India gave us a nice overview of some of the research milestones that Scripps Research has achieved. Needless to say, they have a lot to be proud of. Two achievements that stood out are:

- 9 approved drugs from SR discoveries now benefit millions of people worldwide
- SR's graduate program in biology and chemistry has been ranked in the top 10 for 19 consecutive years by U.S. News & World Report.

Danielle Grotjahn then delivered a wonderful, highly personal talk, describing her early fascination with the “unseen world” that drew her into the field of microscopy at a young age. Her current research focuses on mitochondria, the energy-producing “batteries” that power cellular life. Thanks to cutting-edge imaging techniques, her lab is revealing the potential mechanisms that cause abnormal changes to mitochondria and which might contribute to their dysfunction and disease progression. Danielle spoke with incredible passion and poise and repeatedly expressed her gratitude to ARCS for its early support of work.

After a few questions for Danielle, we divided into 3 groups, each of which was led by a former ARCS



ARCS Scholar Chris Cottrell explaining his research.

Scholar – Chris Cottrell, Jessica Rosarda, Sophie Shevick – to tour their respective lab. We were all uniformly impressed by the caliber and dedication of these young scientists and enjoyed learning about their current research projects.

About half the group then headed to A.R. Valentien at The Lodge at Torrey Pines for a delicious lunch and lively discussion about what we had just experienced. All in all, it was a very inspiring field trip, which reinforced our enthusiasm and support for the ARCS mission.



Dr. Danielle Grotjahn, a former ARCS Scholar.

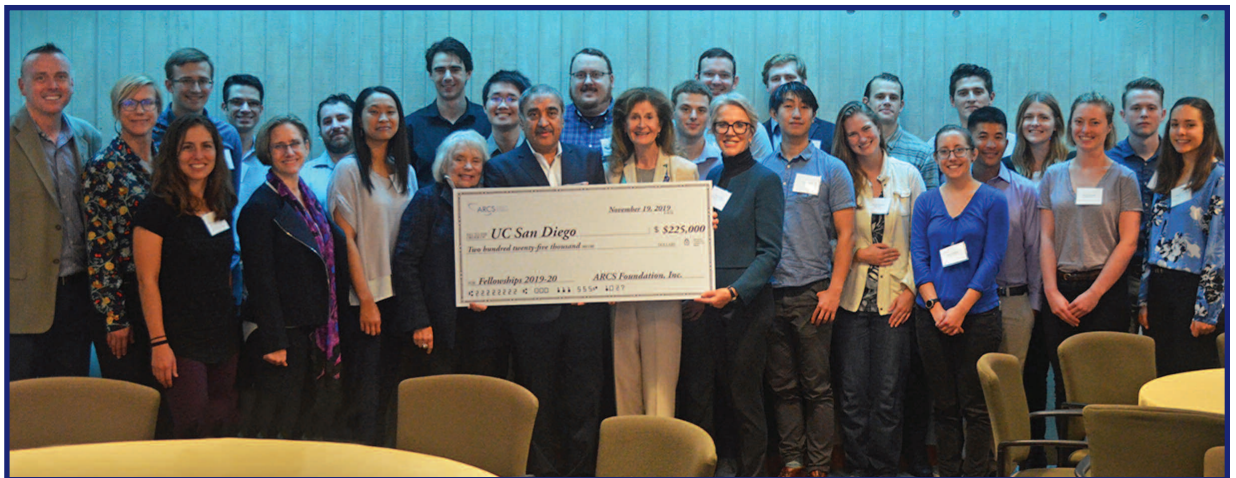


CHAPTER NEWS...

University Relations Ceremonial Check Presentations



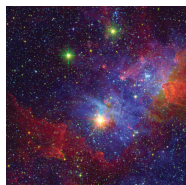
November 12, 2019 - SDSU



November 19, 2019 - UCSD



January 14, 2020 - Scripps Research



Scripps Research (SR) 2019-2020 ARCS Check Presentation

The annual ARCS check presentation was held on January 14, 2020, at the SR Molecular Biology Building Board Room. Attending the event were the 9 ARCS Scholars from SR - Carlos Aguirre, Lisa Barton, Mike McGraw, Anthony Milin, Jessica Rosarda, Sophia Shevick, Mia Shin and Leonard Yoon; Dean of the Skaggs Graduate School of Chemical and Biological Sciences, Phil Dawson, PhD; members of the SR Philanthropy Group - Jenifer Crosby, India Mittag, Addie Eure and Claire Grezemkovsky; and 3 ARCS members - Ellen Moxham, VP University Relations Committee, Laurie Roeder, VP Meetings and Special Events, and Tamia Strachan, Liaison to SR).

The gathering began with coffee and refreshments and meeting and greeting. Then we all sat around the conference table for an intimate discussion about the Skaggs Graduate School of Chemical and Biological Sciences and ARCS. Dr. Dawson led the conversation by giving us some of the 30 year history of the Graduate School. He was one of the first graduates and has remained at SR doing his research, mentoring many graduate students and in 2017 was selected as the Dean of the Graduate School. SR's emphasis for the graduate program is its interdisciplinary approach. A key feature is an ability for students to completely customize their experience across conventional boundaries, build their curriculum to consist of diverse courses aligned with their research interests, while also selecting lab rotations that impact laboratory experience in more than one research area. The different areas of study at SR (Chemistry, Immunology and Microbiology; Integrative Structural and Computational Biology; Molecular Biology; Neuroscience) have always worked closely together to create synergies between the groups to help move discovery science forward. The Graduate School stresses their confidence in the students and do not micromanage. There is also a Careers office within the school, one of the first of its kind. Other Graduate programs in the U.S. are becoming interested in this interdisciplinary approach and have begun incorporating the SR model and format.

The Scholars shared some of their experiences and ARCS members asked questions about their individual research projects and their experience with SR as a school. It was a very informative gathering and allowed us ARCS members to gain a greater appreciation for Scripps Research Scholars, Professors and Programs.

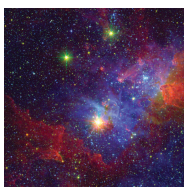
Updates from UCSD ARCS Scholars

The Fruits of Their Labors

As the spring comes into full bloom, the UCSD ARCS Scholars have reported some of their successes in this last academic year. Here are just a few:

SHREEN GHOSH is completing her program this summer and plans to go into Medical Writing. At a time like this one, it would be great to have real science presented in a sound but accessible way. You go, girl!

Continued on page 11



Updates from UCSD Scholars... Continued from Page 10

KEVIN KAUFMANN published a paper in the highly prestigious journal, *Science* as the first author! That's a big leap at this stage in his career. 'Way to go!

BETHANY DANSKIN completed data collection on her 2 ? year project just days before the pandemic shutdown. So she's still on track and sees herself as VERY lucky

BEN SHIH has published two first authored papers, done over 10 presentations of his work and founded a company for use of robotics in agriculture. He's a real star.

HOMA RAHNAMOUN published a large review article in a major journal in her field. Now, that's real work!

MATTHEW STONE published 4 articles, two first authored, and did 4 presentations at national conferences. All this in spite of a broken arm and shoulder injured in a major accident. Tough guy!

GABRIELLE COLVERT was awarded an NIH grant and has collaborated with Jeremy Glynn, an ARCS alum on some new work. And the beat goes on!

JOHN GILLES has first authored a paper accepted for publication in *Nature Cell Biology*.

CHI WEI MAN shares that he is getting married in August. So will it be a virtual gathering?

Deciphering the Academic Lingo

As we learn about what our ARCS Scholars are doing, a bit of translation may be required as some terms are not obvious.

A published paper is usually required for program completion and the more the better. So building that record is very important. Getting your name on a paper is good but being the first author is fabulous. The first author claims the role of putting the whole project together, with the help of others, as all research today is collaborative. The senior advisor, mentor, is in the last position in the authorship lineup and provides glow from the back end of the lineup.

Publication in a journal like Science or *Nature* is very prestigious. Major journals in one's own field are also strong creds.

Presentations at conferences are good, with a "platform" presentation, i.e. a speech, being of higher value than a "poster" presentation. Presentations are often subsequently turned into published articles or the conference itself may make its own volume and then the work is published as part of "Proceedings of...."

Invited presentations are much better than those submitted by the author.

An article marked "accepted for publication" is as good as a published work. One labeled "submitted" is not.



Deciphering the Academic Lingo... Continued from Page 11

The receipt of an individual grant is a good sign as it shows recognition of the work as worthy of pursuit. Also, institutions want to see a history of grant awards if evaluating a candidate for a position, as that suggests that the candidate might be self sufficient, eventually.

The source of the grant can be important; NIH grants, the National Science Foundation, for example, are at the top while small foundations generally are not. Commercial grants may imply a tit for tat relationship with the scientist so extra scrutiny should be applied to avoid bias in the work. However, today big technology companies will give big bucks to attract the young talent needed in their fields. Since those entrepreneurs are tough to impress, getting their attention is a very strong signal of future success.

Introducing the 2020-2021 ARCS San Diego Board of Directors



HOLLY HEATON,
President



MARLA SHEPARD,
*Vice-President
of Finance*

DEBORAH MANDABACH,
Vice-President of Membership



KATHE ALBRECHT,
*Vice-President of Fund
Development*



MARGARET DUDAS,
*Vice-President of Meetings
and Special Events*



**INGRID BENIRSHKE-
PERKINS,** *Vice-President
of Marketing and
Communication*



ELLEN MOXHAM,
*Vice-President of
University Relations*



JANET HUBKA,
Recording Secretary



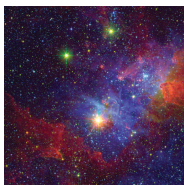
ROBIN LUBY,
Parliamentarian



PAULETTE ROBERTS,
Member-At-Large



TOBY EISENBERG,
Member-At-Large



ARCS Calendar of Events

GENERAL ANNUAL MEETING

Tuesday, June 2, 2020

This will be a virtual meeting via Zoom. We will thank retiring officers/directors and install new officers.

NATIONAL ARCS MEETING

June 11-13, 2020; Pittsburgh, PA

This will be a virtual meeting.

ARCS JOINT MEETING

Tuesday, June 16, 2020

This will be a virtual meeting.

SCIENTIST OF THE YEAR

Sunday, September 13, 2020

Virtual plans in progress.

President's Closing Message



None of us could have predicted three months ago the tectonic shift that has occurred in our world from a microscopic virus that has invaded and changed our world so dramatically! When we last met in person at our meeting on January 27 we had no idea that would be our last in-person event for months to come! For many of us this is the most significant time in our lives, and I hear comparisons to WW II and the Great Depression. All of us have had to change, adapt and figure out new ways to do our work and live our lives. 'Virtual' and 'zoom' will undoubtedly become two of the most popular words in 2020. And so it goes.

ARCS is resilient and we have confronted and embraced our new normal. While our meetings are virtual, we continue to meet, plan for the future and are trying to keep you all involved and supported. Now more than ever we recognize the need for science, research, medicine and a commitment to our Mission and our Scholars. Accordingly, we are planning our first ever virtual Scientist of the Year event and are excited to be reaching even more people with our message-- what better way to advance science and technology than to put together an event that can be seen and enjoyed by others in the country who share our mission? We need and appreciate your support as we enter this new world!

I encourage everyone to stay involved, read my weekly updates (and please contribute to same!!) and do whatever you can do to help America through this devastating time. Every day I see stories of those who are doing incredibly generous and courageous things to help. Remember: stay strong, stay safe and stay well!

HOLLY HEATON, President,
ARCS San Diego Chapter