December 2017

Dear SURF Friend,

As Fall term comes to an end on campus, students will begin thinking about their plans for next summer. Many of them will start looking for SURF mentors. Between now and February 22, aspiring SURF students will need to find a mentor, write a research proposal, and secure letters of recommendation. It's an exciting time and we can't wait to review their applications!

In the office we are also gearing up. A lot has to happen between January and June to get ready for our SURFers. But we are also using this time to reflect on the past year. We are grateful for all of the support we receive throughout the year. SURF relies on strong mentoring from faculty, postdoctoral scholars, and graduate students; administrative support from departments across campus; and alumni, parents, and friends who generously share their time and money to keep the program strong.

As you celebrate the winter holidays, we want to thank you for being part of the SURF family!

Candace Rypisi, Ed.D.
Director

In this issue:
- SURFers Get a Raise!
- Spotlight: Viviana Gradinaru (BS ’05; SURF ’03, ’04)
- New Vodopia-Hasson Poster Competition
- And the 2018 SURF Dedictees Are...
2017 SURF student Zachary Chase with mentor
Omer Tamuz, Assistant Professor of Economics and Mathematics

SURFers Get a Raise!

The last time the SURF award was increased was in 2007. As we all know, and have felt, the cost of living has increased since then. The SURF award level has generally been set so that students can meet the cost of living during the summer (i.e. housing and food expenses). Additionally, since students on financial aid are expected to contribute a portion of their summer earnings toward their tuition, this too is taken into account (about 30% of SURFers are on financial aid during the academic year). For 2018, these costs add up to $6,275-up 4.6% from the current $6K award.

Making sure that students are fairly compensated during the summer is key to keeping the program strong and competitive. We do not want students to have to choose between their passion for research and their need to save for tuition. However, this increase has an impact on the SURF budget: about a $85-100K impact!

We are hoping that our friends and donors will help us mitigate the impact that the award increase might have on the number of students we are able to fund. If you have not already made your annual gift, please consider doing so now. Your support is more important now than ever before.

In the words of Dianne Newman, Gordon M. Binder/Amgen Professor of Biology and Geobiology, "your support of SURF can change someone's life." She continues:

One of the most transformative experiences an undergraduate can have is to get involved in scientific research. Research experiences allow students to be creative, learn tenacity, become inspired, and figure out whether research is for them. Research brings to life concepts encountered in a classroom, and often provides a much more stimulating and effective environment for learning. A well-designed project can help students gain confidence in themselves, experience the thrill of discovery, and trigger an entire career. (Read Dr. Newman's full letter regarding the impact of the SURF program).

Please consider making an investment in the future of Caltech students!

- Checks can be made out to Caltech SURF and sent to California Institute of Technology, Summer Undergraduate Research Fellowships, Mail Code 330-87, Pasadena, California 91125

- You may also give online. Please visit http://tinyurl.com/surfgift and select "Choose specific designations" then SURF under "Research Support."
Spotlight: Viviana Gradinaru (BS '05; SURF '03, '04)

Viviana Gradinaru is an alumna of both Caltech and SURF, a Caltech professor, and a SURF mentor. Since joining the faculty in 2013 she has mentored 13 SURF students. In 2013, she was interviewed by the Caltech Fund. In her own words this is how Dr. Gradinaru described her experience as an undergraduate and the impact of doing research through SURF:

“One of the most difficult questions I’m often asked isn't about my research but about my time at Caltech. I have a feeling that most Caltech alumni find this question hard to answer in a way that truly encapsulates their experience. I could say Caltech was a tough academic environment, or it was a place where my now husband, Dr. Andrei Faraon '04, and I fell in love with ballroom dancing, but that doesn't capture the whole story.

It wasn't until recently that I came upon the answer that I feel confident sharing: At Caltech, I was taken seriously. By providing a safety net, Caltech allowed me to dream wildly.

When I arrived as a transfer student from the University of Bucharest, Romania, I was immediately seen as a serious scientist by the Caltech community. I discovered my passion and love for neuroscience by participating in a SURF program with Professor Paul Patterson. In Patterson's Lab, I worked on a motor-disorder project, specifically Huntington's disorder, to try and understand what causes the disease. Not many undergrads outside of Caltech receive the opportunity to partake in this kind of research. I felt honored, but at the same time I knew I wanted to do more.

The desire to do more, to dream wildly, motivated me to join Professor Deisseroth's Lab at Stanford while I was pursuing my PhD. In his lab I was part of developing a new technology called "optogenetics". Optogenetics gave me a tool to study circuits involved in motor behavior like those affected by Parkinson's disorder. After receiving my PhD, I knew of only one place where I wanted to continue my research.

Currently, I'm an Assistant Professor of Biology and Biological Engineering at Caltech. In
Andy Kim (BS '17) SURFed with Dr. Gradinaru for three summers. When asked about his experience he described the research group as highly collaborative, supportive, and friendly. He comments: "My mentors were readily available to offer assistance and insight, whether it be to explain the underlying biological motives of the project or to demonstrate an easier way of performing a given experiment. Working in this lab and participating in the SURF program provided me with invaluable opportunities to understand and practice research principles, and solidified my intent to continue research in the field of bioengineering." Andy is currently applying to graduate programs.

In 2017, Dr. Gradinaru has been awarded the Innovators in Science Early-Career Scientist Award, selected as a Moore Inventor Fellow, and named a Vallee Scholar. Among other awards, she has received the National Institutes of Health Director’s New Innovator Award and a Presidential Early Career Award for Scientists and Engineers. She has been honored as a World Economic Forum Young Scientist and as one of Cell journal’s "40 Under 40." Dr. Gradinaru is also a Sloan Fellow, Pew Scholar, and recipient of the inaugural Peter Gruss Young Investigator Award by the Max Planck Florida Institute for Neuroscience. In 2016, she was named director of the Center for Molecular and Cellular Neuroscience at Caltech’s Tianqiao and Chrissy Chen Institute for Neuroscience.

Sam Vodopia (BS ’54) and Carol Hasson Establish New Poster Competition

SURF is pleased to announce the new Vodopia-Hasson Summer Poster Competition. The summer poster contest complements the Doris S. Perpall SURF Speaking Competition and the Gee Family Poster Competition, both of which are for students who present at SURF Seminar Day in the fall. The Vodopia-Hasson competition offers a cash prize for the top three poster presenters at our Summer Seminar Day.

Samuel Vodopia (BS ’54) and Carol Hasson are long-time supporters of the SURF program. Sam has been a member of the SURF Board, and together he and Carol have created two SURF endowments for student awards. When asked why they chose to establish this new competition, Sam responded:

"The reason I established a summer poster competition was that I found a need for one. Two years ago two SURFers I sponsored tied for 2nd place in the Gee poster competition at Fall Seminar Day. The following summer two other SURFers I sponsored had posters on view at the Summer Seminar Day. They did not win any prizes because there was no competition. So I made inquires and found I could establish a competition with a mere donation of money on our part."
The first Vodopia-Hasson Summer Poster Competition was held this past August. We are proud to announce the top three winners: Ashley St. John, HHMI EXROP/WAVE Fellow from Lafayette College (first place), Kabir Mohammad, SURF student from Caltech (second place), and Joy Doong, Amgen Scholar from UC Davis (third place). Congratulations to all!

And a special thank you to Sam and Carol for establishing this prize!

And the 2018 SURF Dedicatees are...

Each year the SURF program dedicates the summer to someone who has made an outstanding contribution to the program, our students, and the Institute. We are thrilled to announce that The Aerospace Corporation and Dr. Gary Stupian have been selected as the 2018 SURF Dedicatees.

The Aerospace Corporation is a federally funded research and development center for the United States Air Force and the National Reconnaissance Office and supports all national security space programs. Many Caltech and SURF, alumni work at Aerospace providing grounds for a strong relationship between the organizations. Since 2003, Aerospace has provided funding and support for five SURF students each year.

Gary Stupian (BS ’61), a Distinguished Scientist with The Aerospace Corporation, has been a member of the SURF Board since 2006, serving as an elected member, the chair, and now as a life member. He has provided extraordinary leadership to the program and his support of students is unwavering. With Gary’s leadership, Aerospace scientists provide additional mentoring to the students they financially support -- meeting with them throughout the year, attending their final talks, and hosting them to give their talks at Aerospace. All of these efforts have created an outstanding opportunity for our students.

Gary and The Aerospace Corporation will be recognized at the annual SURF Kickoff Dinner on March 1. All SURF friends are invited! Dinner at Caltech’s Athenaeum is $65 per person. Reservations can be made by contacting Jen Manglos at sfp@caltech.edu
Want more information about SURF? We’d love to hear from you.

Call us at 626-395-2885
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