

## WORKFORCE DEVELOPMENT



### Former PISCES Intern Joins NASA JPL to Test Mars Rover Systems

*Two-time PISCES intern and Waiakea High School graduate Aaron Roth developed and programmed the stereoscopic imaging system aboard the Helelani planetary rover.*

Aaron Roth, a Waiakea High School graduate, interned with PISCES over two consecutive summers in 2016 and 2017 and upgraded the agency's planetary rover with an impressive 3D imaging system. Just one year later, the Computer Science undergraduate is interning with NASA's Jet Propulsion Laboratory in California to develop systems for the agency's next major robotics mission to the Red Planet: the Mars 2020 rover.

"I'm on my fifth week in and I'm having an absolute blast," Aaron wrote in an email to PISCES. "Everything about this place is awesome: the work, the people, the atmosphere—all of it."

At JPL Aaron is testing the software programs that process data received from rovers on Mars to ensure they are functioning properly. It's an important role to fill as the data is used for navigation and planetary research.

"It's pretty cool because I get to look at a lot of pictures from Mars and see the different ways they are processed to extract specific information," Aaron wrote.

Following his internships at PISCES, Aaron was offered a position at Jim Bell's laboratory at Arizona State University where he studies. He said his internship cultivated the skills he needed to continue working with robotic systems at a more advanced level.

"So far, JPL has been such an awesome experience. I am so grateful. PISCES really put an awesome start to my career and I wouldn't be here today if it wasn't for them," Aaron said.

The staff at PISCES is excited to see him continuing his journey that began at PISCES and becoming successful. Congratulations Aaron!

## MESSAGE FROM THE PROGRAM DIRECTOR



**Rodrigo Romo**

*Aloha Kakou,*

It's been two months since Kilauea Volcano's eruption in the lower East Rift Zone began. Since then, more than nine square miles of land have been covered by lava including entire neighborhoods, farms and businesses. A new shoreline is forming in Kapoho and Halemaumau crater is seeing some radical changes. The Jagger Museum and USGS Hawaiian Volcanoes Observatory—both overlooking the crater at a distance—have suffered damage from ongoing earthquakes and will likely never be usable again.

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# WORKFORCE DEVELOPMENT



Kylie Higaki



Chanelle Mattheus



Angelina Ramirez

## PISCES Welcomes Summer 2018 Interns & Volunteers

PISCES is excited to welcome its latest team of bright minds to the agency for a unique summer experience in applied research and field work. This year the staff will mentor three students: AKAMAI intern Kylie Higaki from Oregon State University (OSU), and volunteers Chanelle Mattheus and Angelina Ramirez—both Hawaii Island students. Under the mentorship of PISCES Geology Tech Kyla Defore, the trio will be investigating techniques to sinter volcanic basalt for ISRU applications on Earth and on other planets like Mars.

Originally from Pearl City on the Island of Oahu, Kylie currently studies Environmental Engineering at OSU. Her interest was piqued by the Material Science work at PISCES because it involved a unique and environmentally friendly project that could provide non-toxic, sustainable products. She also wanted to learn more about Hawaii's geology—a topic she briefly touched on during an introductory geology class. Kylie said she's excited about her 7-week internship and the experience she will take home. "I'm really looking forward to it," she said. "I think it's going to be fun."

Chanelle is a 2017 STARS Program alumna who graduated from Kea'au High School. Originally from South Africa, she took an interest in geology during the STARS program tour at the

USGS Hawaiian Volcanoes Observatory led by lead scientist Christian Neal. "I could feel her passion for the subject, and it really got me excited." In Fall 2018, she will attend the University of Hawaii at Hilo to study Geology. Chanelle said she wants to gain research experience this summer and hopes to learn everything she can about the planet she lives on.

Angelina is a former Hawaii Preparatory Academy student who will attend the 2018 Women's STARS Program this summer. From a young age, she dreamt of becoming a scientist. "Ever since fifth grade, I wanted to be an astrobiologist," she said. "I heard about the STARS program and knew it was something I wanted to do."

Angelina's interest in the Materials Science work at PISCES overlaps with a previous science project she envisioned in school: 3D printing genetically modified mycelium that could live in the harsh environment of Mars; essentially, the first Martian mushrooms. Angelina said she looks forward to doing field work with the rest of the team during her volunteer position and learning about planetary geology.

Welcome to the PISCES 'ohana Kylie, Chanelle and Angelina! We are excited to have you working with us this summer.

## STARS PROGRAM RECEIVES GRANT FROM WOMEN'S FUND OF HAWAII



The Women's STARS Program received an additional funding boost last month with the announcement of a \$1,154 grant award from the Women's Fund of Hawaii. The funding will pay for ground transportation costs, student supplies and inspirational reading material during the workshop, scheduled July 9 to 13.

Earlier this year, the Hawaii Technology Development Corp. awarded the STARS Program a \$4,000 grant to support meal and accommodation costs. The upcoming STEM program will mentor 12 high school girls from across the state. Thanks to additional funding support, the 2018 program will provide overnight accommodations at no cost to students, as well as an inspiring lineup of female engineers, educators and astronomers.

*A big Mahalo! to*

**WOMEN'S**  
FUND OF HAWAII

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# WORKFORCE DEVELOPMENT

## Interns Survey Mars-like Terrain at HI-SEAS



*(L to R): PISCES interns Kylie Higaki and Chanelle Mattheus, HI-SEAS Principal Investigator Kim Binsted, and PISCES Geology Tech Kyla Defore outside HI-SEAS.*

The PISCES Materials Science team jumpstarted their summer work last month with a field visit to the HI-SEAS Mars simulation habitat on Mauna Loa volcano.

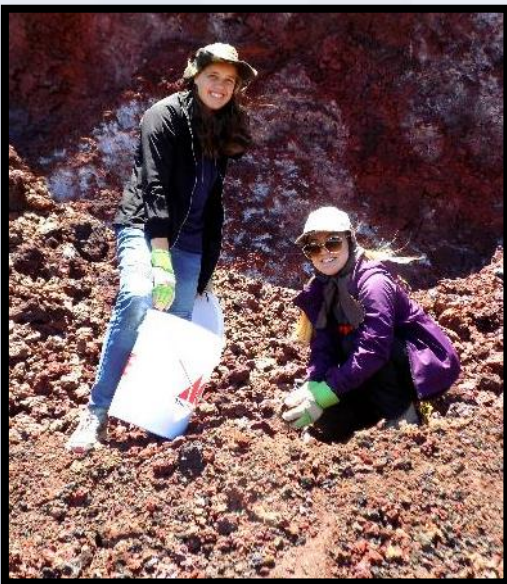
Kim Binsted, Principle Investigator for HI-SEAS (Hawaii Space Exploration Analog and Simulation) and a professor at University of Hawaii at Manoa, led the team on a brief tour inside the dome-shaped facility before hiking

around the surrounding terrain.

HI-SEAS is a NASA-funded project managed by UH Manoa to study the long-term effects of human isolation in preparation for long-duration space missions. So far, five teams have completed missions in the small dome, the longest being 12 months.

The dome lives at roughly 8,000 feet on the lower slopes of Mauna Loa amid a desolate field of jagged, reddish lava rock. For all intents and purposes, the area looks like Mars. But it also has a similar chemical make-up, which makes the area ideal for learning about both Hawaii and Martian geology.

While exploring and taking notes, PISCES Interns Kylie Higaki and Chanelle Mattheus collected rock and dust samples from a massive fissure burrowed above the habitat. The pair also followed PISCES geology technician Kyla Defore on a scouting mission in search of lava tubes. Using GPS coordinates, they found a tube that will be included in a hike during the Women's STARS Program later this month. The STARS students will learn about how tubes can provide shelter for astronauts on other planets.



*Chanelle and Kylie collect geology samples from a fissure burrowed into the Martin-like terrain surrounding HI-SEAS.*

## PROGRAM DIRECTOR'S MESSAGE CONTINUED...

Despite the chaos, the strength and spirit of Aloha in the community is alive and well and it's an inspiration to see people working together to help those in need.

At PISCES, we're welcoming new student interns for the summer who are bringing a unique dynamic and spirited energy to the office. I'm especially excited about our internship this year because we are seeing concrete evidence of its benefits. Our three-time former summer intern Kyla Defore is now working with PISCES as a full-time Geology Technician and leading the Materials Science track in the internship program. Kyla is mentoring three young women in research methods for sintering volcanic basalt and planetary analog characterization on Hawaii Island. The students include Kylie Higaki, an Akamai intern originally from Oahu; Chanel Mattheus, a Kea'au High School graduate and 2017 STARS Program alumnus; and Angelina Ramirez, a high school student from North Hawaii who will attend the 2018 STARS Program this month.

Also, our two-time robotics intern Aaron Roth—a Waiakea High School graduate who is now studying Computer Science at Arizona State University—landed an internship this summer at NASA's Jet Propulsion Lab in California to work on the Mars 2020 rover systems.

For me, it is extremely rewarding to see our former interns mature into successful and confident young professionals. I am proud to say our Workforce Development efforts at PISCES are bearing excellent fruit!

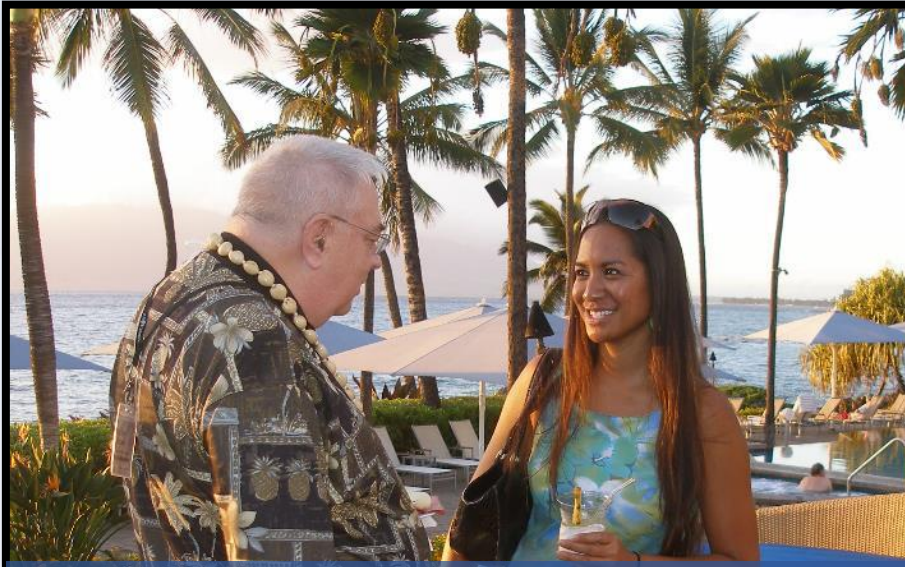
*A hui hou,*

*R. Romo*

Rodrigo Romo  
PISCES Program Director



# WORKFORCE DEVELOPMENT



## Registration Opens for AMOS Conference with Program for Young Professionals

*The EMER-GEN Conference is designed specifically for young professionals and students enthusiastic about a career in space.*

The Advanced Maui Optical and Space Surveillance Technologies (AMOS) Conference will return Sept. 11 to 14, 2018, on Maui Island at the Wailea Beach Resort. A program of the Maui Economic Development Board (MEDB), it is the premier technical conference in the nation devoted to space surveillance. The conference is attended by military personnel, contractors and members of academia. Attendance continues to grow year after year, as well as the level of technical excellence and collaboration.

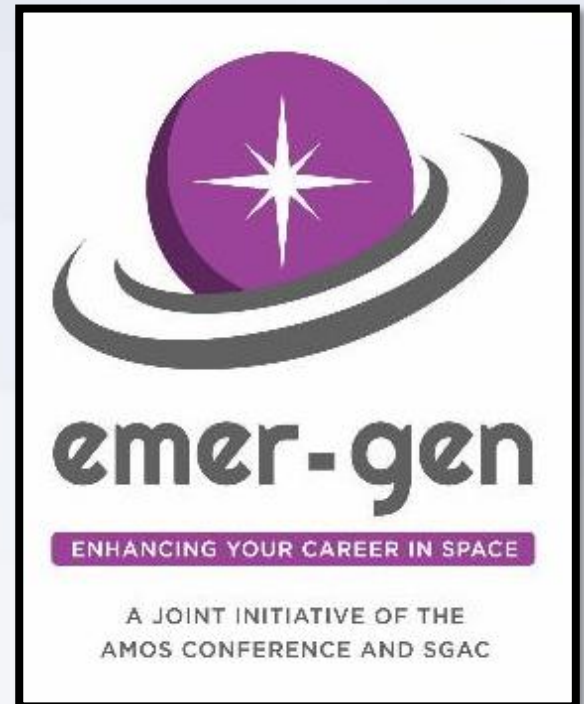
This year the AMOS conference will introduce EMER-GEN, a program designed especially for young professionals and students (35 and under) who are enthusiastic about careers in space. EMER-GEN will precede the AMOS Conference from Sept. 9 to 11. The new program is a joint initiative of AMOS and the Space Generation Advisory Council (SGAC). With support from advisors in industry, government, academia and NGOs, EMERGEN will include the following instruction and courses:

- Mentoring with renowned space specialists from the public sector (military and civil), private sector, and nongovernmental organizations;
- Networking with other young professionals;
- Short courses led by experts drawn from an array of fields related to space situational awareness;
- Professional Development sessions to enhance professional effectiveness in a global environment.

The mentoring and professional development sessions will guide discussion on key questions and challenges to space cooperation and enable tomorrow's leaders to meet and connect with today's leaders and professionals.

EMER-GEN participants will take part in the AMOS Conference short courses on Tuesday which serve to upgrade or expand their technical job skills and remain abreast of recent developments in their respective fields of interest. Attendees will also be invited to attend the main AMOS Conference at a discounted rate.

For more information about AMOS and EMER-GEN and to register, visit: <https://amotech.com/EMER-GEN>.



Two-Day Experience Includes		Sign Up at <a href="https://amotech.com/emergen">amotech.com/emergen</a>
Sunday, Sep 9	2018 EMER-GEN Launch Reception	<b>REGISTRATION FEE</b> <b>\$250 Regular Rate</b> <b>\$200 Student Rate**</b> <small>The EMER-GEN registration fee does not include hotel or travel expenses or AMOS Conference registration fee.</small> <small>**Student rate is for undergraduate and graduate students, without full-time employment, who are pursuing a degree in a science, technology, engineering, and math (STEM) at an accredited college or university.</small>
Monday, Sep 10	Breakfast with EMER-GEN Cohort Professional Development Workshop Extended Lunch Session with Mentors Aloha Reception	
Tuesday, Sep 11	Breakfast and Lunch with EMER-GEN Cohort Technical Short Courses AMOS Conference Welcome Reception	