
College of Engineering
University of Hawai'i at Mānoa
2024 YEAR-IN-REVIEW

MESSAGE FROM THE DEAN

Aloha kākou,

Research and development in microchips, drones, rovers, and microscopic soft robots. A record-breaking fundraising banquet. Talented Hawai'i-grown faculty hires and the groundbreaking Space Sciences Engineering Initiative. Thanks to the efforts of our students, faculty, and staff, we have had much to celebrate in 2024. We hope you enjoy this collection of the year's highlights, and stay tuned for more to come in 2025!

Mahalo,

Brennon Morioka, PhD, PE
Dean, College of Engineering

COLLEGE OF ENGINEERING
UNIVERSITY of HAWAI'I at MĀNOA

25% increase in research awards

15% increase in expenditures

114 scholarships awarded for $237,507

for the '23 - '24 academic year

17 new faculty

400% growth in female faculty in last two years!

All programs ranked

in *US News & World Report*

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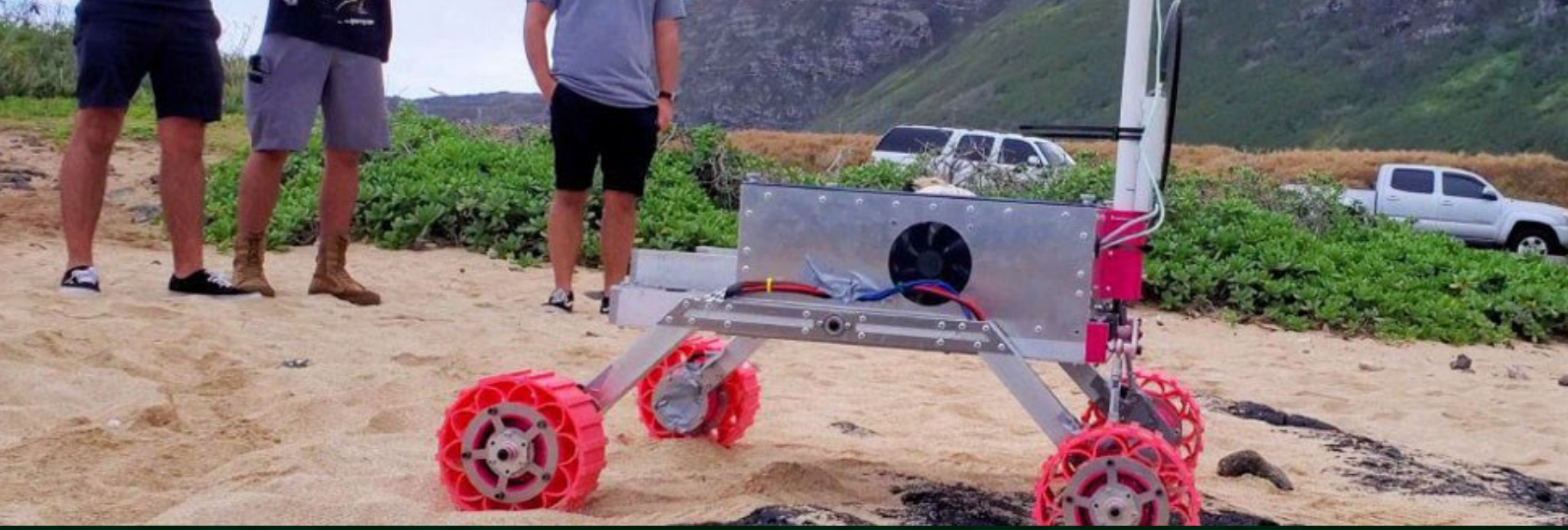
ALUMNI RETURN TO INSPIRE THE NEXT GENERATION

The University of Hawai‘i’s College of Engineering is thriving as alumni return to build Hawai‘i’s future. Daisy Green, a civil engineer with mainland experience, mentors students and leads efforts in sustainable infrastructure, ensuring local projects are innovative and environmentally responsible. Trevor Shimokusu, a mechanical engineer from Hilo, is spearheading a pre-engineering program linking UH Hilo and Mānoa, opening doors for students to pursue high-tech careers in fields like astronomy. This program is a game-changer, making engineering more accessible to students across the islands while addressing critical workforce needs. Green and Shimokusu are setting the stage for a new generation of engineers who are grounded in local values but equipped to tackle global challenges.

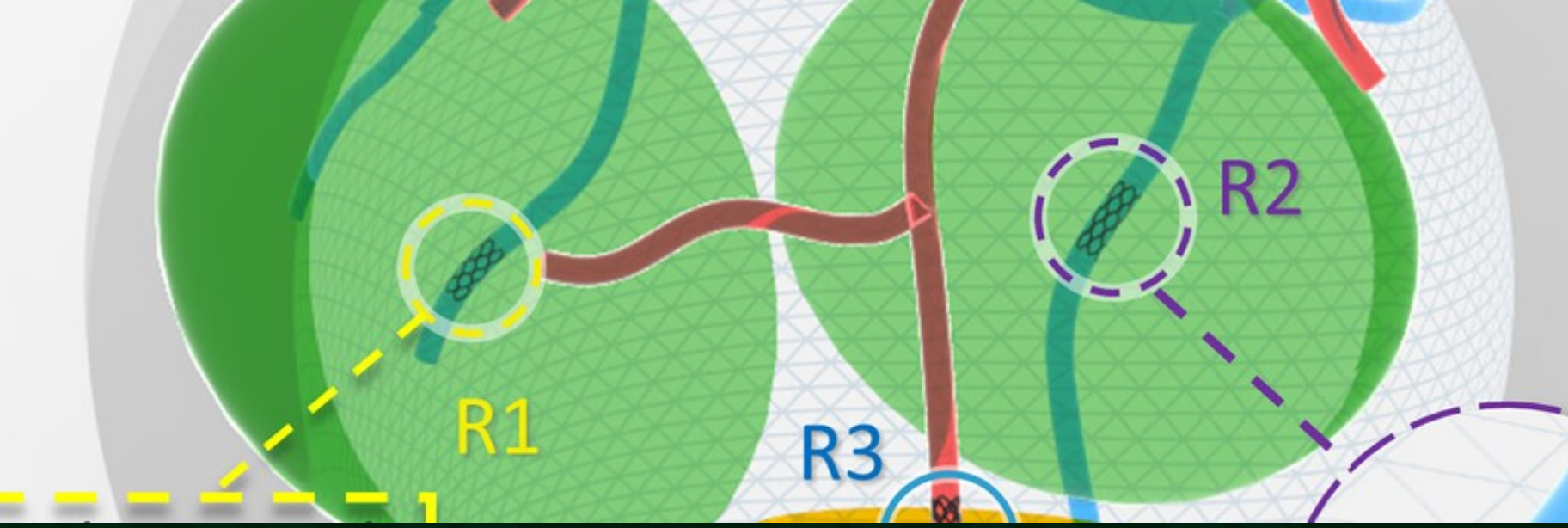
In January, Melia Talagi will join the faculty, further strengthening the college’s commitment to cultivating homegrown talent alongside established alumni-turned-faculty like Wayne Shiroma and Aaron Ohta, both renowned for their contributions to cutting-edge research and education. This return of talent strengthens the college’s mission: developing innovative solutions for Hawai‘i by those who know it best.



MARS OR BUST! UH STUDENTS' ROBOT DESIGN HEADS TO INTERNATIONAL SHOWDOWN

The University of Hawai'i at Mānoa's Team Robotic Space Exploration (Team RoSE) made history by competing in the 2024 University Rover Challenge (URC) finals in Utah, marking the first time a UH Mānoa team advanced to this prestigious international competition. While they did not place in the top three, the team showcased exceptional innovation and determination, earning respect among 38 teams from 10 countries. Their performance highlighted the university's growing presence in STEM and space exploration.

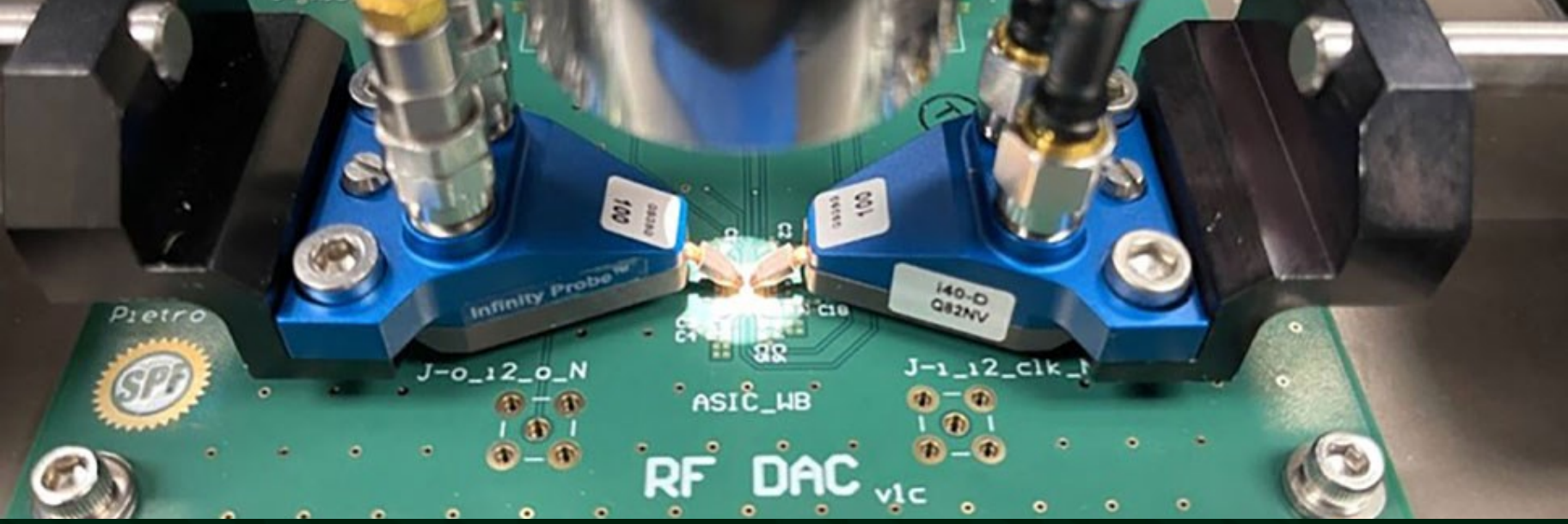
Formed just three years ago during the pandemic, Team RoSE's journey to the URC finals was a testament to their hard work and dedication. Their success brought pride to Hawai'i, demonstrating the potential of local talent on a global stage. As their advisor, Frances Zhu, noted, the team's achievements reflect a bright future for Hawai'i's technical workforce and its contributions to space exploration.



TEAM OF MICROSCOPIC SOFT ROBOTS COULD TRANSFORM MEDICAL CARE

Imagine needing surgery but the nearest surgeon is a day's drive. Or you need medical attention in a part of your body that physicians cannot easily access. A group of tiny squishy robots might soon be able to assist doctors—literally—reach patients.

In a medical breakthrough, Professor Tianlu Wang and his team at the University of Hawai'i at Mānoa have developed microscopic soft robots that can work as a team inside the human body, opening new possibilities for minimally invasive procedures. The new technology could allow doctors to guide several tiny, flexible robots independently through the body's complex network of tubes and vessels. This advancement could make it possible to deliver medicine to multiple locations, perform several tasks simultaneously during medical procedures and conduct procedures remotely.



UH LAUNCHING SPACE TECH DEVELOPMENT CENTER, STUDENT-TRAINING HUB

The University of Hawai‘i is strengthening its role in space science while fostering local talent through the Space Science and Engineering Initiative and a new space technology program. Building on achievements like imaging the first black hole, Pōwehi, and contributing to the James Webb Space Telescope, UH is creating a space engineering and instrument development center at UH Hilo. This facility will design, test, and manufacture advanced instruments, reducing reliance on external resources and boosting Hawai‘i’s economy. It will also provide hands-on training to prepare local students for high-paying careers in space science and engineering. These efforts aim to position Hawai‘i as a global leader in space exploration while creating a sustainable pipeline of homegrown talent. By investing in education, research, and infrastructure, UH ensures Hawai‘i’s residents can contribute to and benefit from the high-tech industries shaping the future.

UH ENGINEERING PROFESSOR HONORED FOR IMPACT ON STUDENTS' EDUCATION, CAREERS

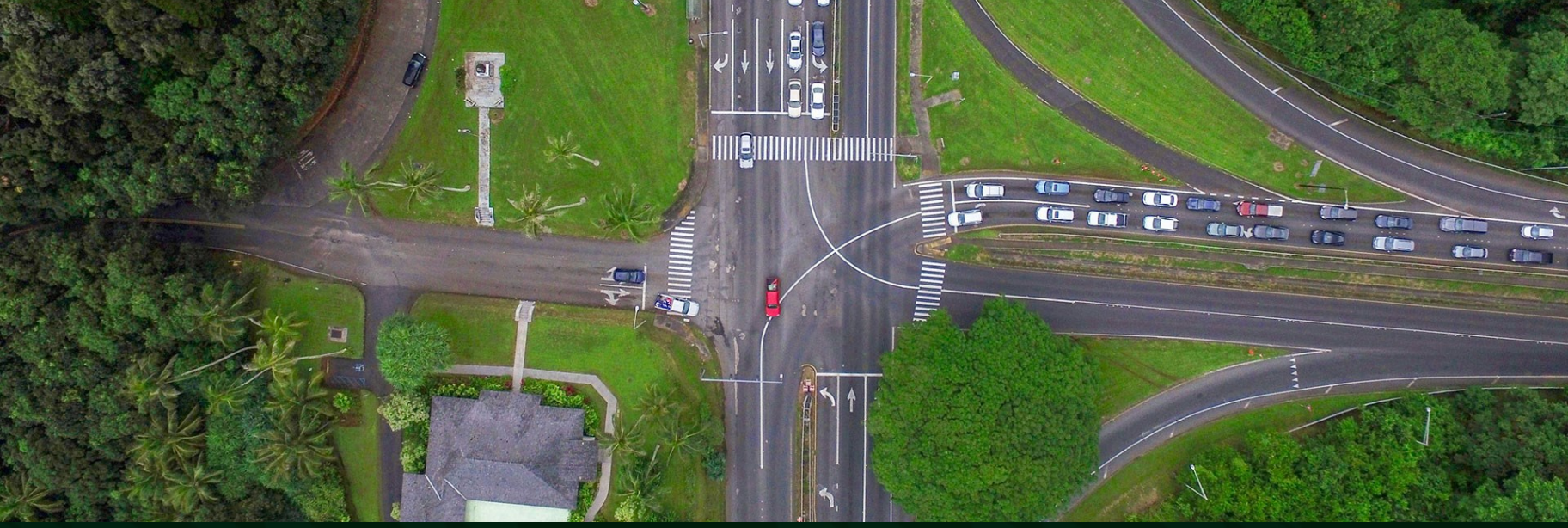
An international engineering award given to a faculty member who has made a lasting impact on both the educational experience and professional performance of their students was presented to University of Hawai'i at Mānoa College of Engineering Professor Boris Murmann. Murmann accepted the award on September 10th from the Semiconductor Research Corporation at TECHCON 2024 in Austin, Texas. An internationally renowned expert in microchip and semiconductor development, Murmann wants to make the once secretive field of chip design more publicly available. He also wants to connect with leaders in the industry to help establish a pipeline to help get UH Mānoa graduates into well-paying and impactful jobs in Hawai'i. Over his career, Murmann has guided more than 50 PhD students through the often-difficult path to graduation, with many going on to distinguished careers. Since 2004, he has been a trusted consultant to Silicon Valley companies, lending his expertise in circuit design to shape products that have become integral to daily life, from smartphones to edge devices.

NEW ZERO-INTEREST LOAN PROGRAM FOR UH ENGINEERING STUDENTS

A new, zero interest, no fee loan program will be available to low income students enrolled in the College of Engineering (CoE) at the University of Hawai‘i at Mānoa beginning in fall 2024. The initiative to help students with proven need while also meeting the state’s workforce demand for engineers is a pilot of the Hawai‘i Renewable Learning Fund launched by Social Finance, in partnership with the Castle Foundation . The national nonprofit and registered investment advisor plans to eventually expand to other degree and certificate programs with a record of strong employment outcomes, local employer relationships and experience serving diverse students. “Many of our students have to work part time jobs to make ends meet, so they take one less class each semester, which delays graduation and the start of a career,” said CoE Dean Brennon Morioka. “The longer they take, the more expensive it is and the less likely it is that they will earn a degree, and meanwhile, our college is graduating about 300 engineers a year when the state needs around 500 new engineers a year.”

UH ENGINEERS CONQUER GAME OF DRONES, PLACE 3RD NATIONALLY IN COMPETITION

A team of University of Hawai‘i at Mānoa College of Engineering students advised by Electrical and Computer Engineering Chair Wayne Shiroma finished 3rd among U.S. teams and 15th overall in an international drone competition. The UH Drone Technologies team traveled to Maryland in late June for the 22nd annual Student Unmanned Aerial Systems Competition. The event included a design presentation and a mission demonstration, which consisted of autonomous flying, avoiding obstacles, detecting objects and an airdrop. More than 50 teams entered, and 36 qualified for the competition, including teams from Saudi Arabia, Pakistan, Turkey, India, Czech Republic, Norway, Italy, Canada and the U.S. “I’m extremely proud of the team. We’ve worked really hard to get to that point,” said Leiolani Malagon Bracamontes Rodriguez, a senior mechanical engineering major and the team’s project manager. “Everyone knew exactly what we had to do, and what their goal and what their assignments were.”



ENHANCING ROAD SAFETY: ENGINEERING PROFESSOR WINS $100K FOR AI INNOVATION

Our roads may become safer for motorists and pedestrians through a new, innovative artificial intelligence (AI) tech project by the University of Hawai‘i at Mānoa College of Engineering.

The project, led by Department of Civil, Environmental and Construction Engineering Professor Guohui Zhang, earned a $100,000 award from the U.S. Department of Transportation (DOT). Zhang’s proposed design concept, “Toward Vision Zero: Sensing, Predicting, and Preventing Intersection Collisions,” was one of 15 winners among 120 entries in the U.S. DOT Intersection Safety Challenge. Zhang’s project will now advance into the next phase of the challenge, where teams are expected to develop, train and improve algorithms for the detection, localization and classification of vulnerable road users and vehicles using U.S. DOT-supplied sensor data collected at a controlled test roadway intersection.

RECORD TURNOUT, FUNDS RAISED AT ANNUAL BANQUET SUPPORT UH ENGINEERING STUDENTS

A record-breaking crowd of over 1,000 gathered on April 3 at the Hawai‘i Convention Center for the annual University of Hawai‘i at Mānoa College of Engineering Banquet, celebrating the achievements of students, faculty, and alumni while raising an unprecedented $380,000 to support the College.

The evening opened with a showcase of student ingenuity, featuring projects such as lava viscosity measurement devices, autonomous drones, electric vehicles, smart campus energy systems, and unexploded ordnance detection technologies—highlighting the College’s focus on real-world innovation.

Key awards followed dinner: Jeff Kalani and Ryan Yamauchi received the Outstanding Service Award, former Governor David Ige was honored as a Distinguished Alumnus, and HDOT Director Ed Sniffen earned the Dean’s Award of Excellence. A standout presentation by UH Drone Technologies capped the evening.

University of Hawai'i® Mānoa

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