

## SPRING 2023 FRANCIS RHODES MONTGOMERY DESIGN COMPETITION

The Francis Rhodes Montgomery Design Competition (FRMDC) is in its 36th year since its inception in 1987. This annual event is co-sponsored by the University of Hawai'i, Department of Mechanical Engineering and the ASME Hawai'i Francis R. Montgomery Foundation. The DME Spring 2023 FRMDC was held on Friday, May 5, 2023 at the University of Hawai'i at Manoa, Hawai'i Institute of Geophysics Building Room 110.

The competition consisted of 7 teams from the ME 481/482 design course. Teams presented their projects, conveying the project goals, design challenges, applied engineering principles, project results, expenditures, and credit to their sponsors. Upon conclusion of the presentations, the competition moved outside to the courtyard where the teams were able to demonstrate their projects and provide more detailed information to the judges.

All project presentations were very well-done and it is clear that Mechanical Engineering is progressive beyond materials

and fabrication. Projects included an impressive amount electronic controls and coding. This has increased the complexity of the projects over the years and challenges the judges to make the ever more complex determination of the team scores.

Following the ASME/FRMDC scoring rubric, the judges ranked the first, second, and third place teams as follows: First place and \$500 was awarded to Team Robotic Space Exploration Rover (RoSE). In second place and receiving \$300 was Team Rainbow Warrior Racing (RWR) SAE Electric Vehicle Formula car. And in third place, receiving \$200 was Team Mirror Mount Cell.

With social activities returning to normal, many of the projects had ties to national competitions. The excitement was evident for the students that have the opportunity to travel this summer to prove how their project design will stack up against competing universities. The projects looked well engineered and will certainly demonstrate the academic strength of the University

of Hawai'i College of Engineering and its Department of Mechanical Engineering.

Thanks to the efforts of Professors Dr. Zachary Trimble and Dr. Trevor Sorensen, the student project competition was completed with great success.

### Team Project Descriptions:

#### First Place: Team RoSE Rover: Robotic Space Exploration Rover Vehicle

The RoSE Rover mission is to design, fabricate, and deploy a tele-operable rover capable of retrieving items, servicing equipment systems, detecting life, and navigating autonomously in a simulated Mars exploration mission. Team RoSE will complete at the June 2023 University Rover Challenge hosted by the Mars Society at the Mars Desert Research Station in Hanksville, Utah.

#### Second Place: Team RWR: Rainbow Warrior Racing SAE Electric Vehicle Formula Race Car

Formula SAE EV is a collegiate design *continued on page 5*



**1st Place - Team RoSE (L to R) Timothy Kaneshiro, Olivia Lee Sprouse, Sean Blanks, Cassidy Hihara, Paolo Espejo, Caleb Jones, Deborah Higa, Jasmine Ponty, Ryan Padilla, Jacob Groggett, Alden Andrei Fernandez**



**2nd Place - Team Rainbow Warrior Racing Back(L to R): Michael Li, Karl Baguio, Daniel Aguirre, La-Marr Smith, Oliver Pattavina, Elijah-Skye Naranjo, Tyler Maruno; Front(L to R): Noah Ungos, Kyle Apuya, Tanner Tamura, Ian Tamane, Reagan Anderly**



**3rd Place - Team MAT (L to R): Alex Meneses, Ty Wakabayashi, Israel Sagapolutele, Sean Santiago**



**Judges, UH DME, & ASME (L to R): Ike Nagamine (HECO), Simeon Powell (HECO), Richard Leclerc (HECO), Dr. Trevor Sorensen (UH DME), Derek Sato (ASME). Absent: Dr. Zachary Trimble**



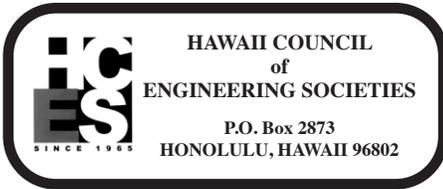
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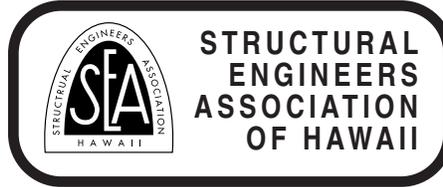
Additions and/or corrections to the Wiliki mailing list should indicate the proper society, institution or association. Corrections to email addresses should be submitted to your society coordinator.



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**Previous BOD Meeting**

May 3, 2023

**Upcoming Events**

For all events see [seaoh.wildapricot.org](http://seaoh.wildapricot.org). Look for email flyers for registration of upcoming events.

**2023 SEAOH Convention**

SEAOH is partnering with the Structural Engineers Association of California (SEAO) to host a joint convention on Maui scheduled for September 6 – 9, 2023 at the Hyatt Regency Maui Resort in Ka'anapali. Registration and room booking is now open. Please visit the SEAOH website at [seaoh.wildapricot.org](http://seaoh.wildapricot.org) for additional information. Any questions, please contact Craig Meierhoffer [cmeierhoffer@baseengr.com](mailto:cmeierhoffer@baseengr.com).

**2023 SEAOH Scholarship Golf Tournament**

SEAOH is planning to hold the 11th annual scholarship golf tournament in October. Be on the lookout for a save the date flyer with more information.

**SEAOH Board of Directors**

SEAOH is looking to fill spots for the 2024 Board of Directors. If interested in serving on this prestigious board, please contact Craig

Meierhoffer [cmeierhoffer@baseengr.com](mailto:cmeierhoffer@baseengr.com).

**SEAOH Website**

SEAOH is excited to announce the launch of our new website and logo. Please check it out at [seaoh.wildapricot.org](http://seaoh.wildapricot.org).

**Next Meeting** on Wednesday, July 5, 2023. For information, contact SEAOH President Mike Greer at [mgreer@wje.com](mailto:mgreer@wje.com).



**2022-2023 Officers:**

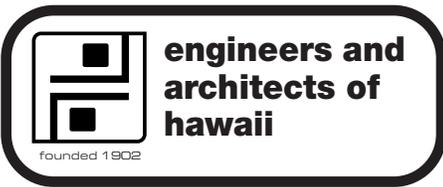
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We had a Virtual Annual Technical Solutions Event on Wednesday, May 17, 2023. We saw presentations from six different companies (Transnomis, Rekor, PTV Group, Swarco, Google and Iteris) who talked about solutions for transportation issues and their applicability to our local environment, shared lessons learned, and even provided information about existing and new technology.

Save the date! Join us for a hybrid meeting on June 22, 2023. Peter Koonce will be giving a presentation on Vision Zero. More information to be provided via email.

Registration for the 2023 Joint ITE International and Western District Annual Meeting on August 13-16, 2023 in Portland, Oregon is now open! This year's theme for the Joint ITE International and Western District Annual Meeting and Exhibition is Connecting People and Communities. This meeting will take place in the Oregon Convention Center (OCC) and its headquarters hotel, the brand new Hyatt Regency hotel, just across the river from downtown Portland. The OCC and hotel are steps from Portland MAX light rail, convenient to many local and regional attractions, and a gateway to the Pacific Northwest, making it a great opportunity for both individual and family travel. For more information and registration, please visit <https://www.iteannualmeeting.org/>.

If you would like to be added to the ITE mailing list, please email Michelle Agustin Lindsey at [magustin@wilsonokamoto.com](mailto:magustin@wilsonokamoto.com).



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**Engineers and Architects of Hawaii June Meetings**

**Friday June 9 Program TBA**

Friday June 23 Program TBA – This will also be the annual meeting please plan to attend either in person or via Zoom.

The Friday April 28 meeting was a forum on AI by three speakers. Past president Phil Blackman started by talking about his experience facilitating Hawaii's only electric vehicle entry into DARPA's Grand Challenge in 2014 a long-distance autonomous vehicle race reminding us that AI is not that new. Director, Andrew Stanton shared a video of his recent ride in Waymo's autonomous taxi on the streets of San Francisco. Andrew also shared his recent experience with AI using ChatGPT to compose simple stories and then having ChatGPT expand the stories. Energy Analyst Howard Wiig with the State Energy Office updated us on their efforts on transportation

energy plans. Howard didn't believe we are necessarily ready for driverless cars in Hawaii, and talked about how Honolulu's urban housing may shift from single family housing to more condominium buildings with the start of Rail this year. He believes this will provide saving for energy and resources.

The Friday May 12 meeting featured Mike Smola, who is the Director of Education at the Hawaiian Mission Houses Museum. Mike talked about the History Theater Programs they produce during the year, which use actors in historic period dress to portray the stories of Hawaii historical figures. Many of the historical figures rest in the cemetery behind the Mission Houses. He explained how they produce new programs each year and use actual quotes from the historical figures to bring the figures back to life almost as if they are speaking from the graves, they are sometimes standing next to.



### 2022-2023 ASCE Hawaii Section Officers

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email: president.ascehawaiiyfm@gmail.com

### EXECUTIVE COMMITTEE MEETING

Last held: May 2, 2023

Next meeting: June 6, 2023

### ASCE HAWAII SECTION DINNER MEETING

We will keep you informed via e-blasts and/or notices posted on our website at [ascehawaii.org](http://ascehawaii.org) with the meeting information and schedule.

Cost: (RSVP via Eventbrite)

### COMMITTEE POSITIONS

ASCE Hawaii is looking for volunteers for various committee positions, including Advocacy Captain, Report Card Committee Members, and Water Resources Chairperson. If you are interested or have questions on any of these positions, please contact President Reyn Hashiro, [rhashiro@ascehawaii.org](mailto:rhashiro@ascehawaii.org).

### MEMBERSHIP

If you haven't already done so, please renew your ASCE membership, which includes 10 free PDHs. You can renew your membership at [www.asce.org](http://www.asce.org).

### ASCE HAWAII SECTION STUDENT SCHOLARSHIPS

Please help us increase our scholarship endowment so that we can recognize deserving students. We continue to accept tax-deductible donations with the goal of increasing the annual scholarships. Make your check payable to 'ASCE Hawaii Section' and include the note 'Walter Lum Scholarship Fund' and mail to: ASCE Hawaii Section, P.O. Box 917, Honolulu, HI 96808-0917. If you have any questions, please contact Steven Doo at [sdoo@ascehawaii.org](mailto:sdoo@ascehawaii.org).

### ASCE GOLF TOURNAMENT

Save the date for this year's tournament, currently planned to be on Friday, August 4, 2023.

### ASCE JOB LISTINGS

The following job listings are currently posted on the ASCE Hawaii Section website:

- **Bowers & Kubota** (Civil Designer I, Civil Designer II, Civil Designer III, Civil Engineer)
- **Oceanit** (Civil Designer or Senior Civil Designer)
- **HDR, Inc.**

For further information, please visit

<http://www.ascehawaii.org/job-listings.html>



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### YMF General Meeting

The next YMF general meetings will be in-person on Wednesday, June 7, 2023, at 6:00 PM and Wednesday, July 5, 2023, at 6:00 PM. Please check our website, social media channels, or weekly eblast for the latest information on our upcoming general meetings and events. If you are interested in attending and learning more about the various professional, social, and service opportunities available through YMF, please contact YMF at [yfmf.hawaii@gmail.com](mailto:yfmf.hawaii@gmail.com).

### Social Trivia Night

By Al J Leano, Ricky Funai, Christine Mau, and Erin Uehira, Social Activities and Awards Chairs

On Friday, April 14 forty-four ASCE YMF members participated in our Social and Awards Trivia Night! Special thanks to HDR for hosting us at their office and providing us dinner! Trivia Night included two-games of trivia with eight questions with eight different categories, a "fill in the blank" section where extra points could be won, and a final question where each team could wager up to fifteen points to win even more points! Special thanks to Remy for running the trivia portion of the night! Thank you to all the ASCE YMF members who attended and made the night awesome!



### Driving Range Outing with UH Chi Epsilon

By Preston Matsuo, Golf Activities Chair

On Sunday, April 16, the hackers and whackers of YMF and UH Manoa's Chi Epsilon student chapter had a professional networking golf outing at Newtown Driving Range. With over 30 YMF and Chi Epsilon members on site, the afternoon heat was an afterthought as getting to meet UH Manoa's elite civil engineering students was a blast. We can't help but look forward to crossing paths and seeing their success in the future both on and off the course.



### Webbing Elementary School Engineering Night

By Kristin Hamaguchi, Daniel Koge, and Nick Kam, Outreach Chairs

On Friday, April 21, 2023, four volunteers from ASCE Hawaii YMF teamed up with four volunteers from HWEA/AWWA YP to lead the Engineering Night at Gus Webbing Elementary School. The students spent the night learning about water resources and civil engineering through fun STEM activities which included designing water filters, building bridges, designing earthquake and hurricane proof structures and building and testing catapults. Thank you to all the ASCE Hawaii YMF and HWEA/AWWA YP volunteers for helping to encourage the next generation of engineers and to Webbing Elementary School for hosting the event!



### ASCE YMF Job Shadow Program

The Job Shadow Program is looking for students and industry professionals interested in becoming a mentee/mentor. Your interest and participation in this program will provide a valuable experience that will help guide students toward a successful path beyond graduation! If you have any questions and/or want to sign up\*, please email the Job Shadow Program directly at [yfmhawaii.jobshadow@gmail.com](mailto:yfmhawaii.jobshadow@gmail.com)

\*Note: Information collected will help the Job Shadow Program pair mentor(s) and mentee(s) up based on their experience and interest.

### 2023 PE Exam Update

The PE Exam is now computer-based, with appointments available year-round at Pearson VUE test centers. Information about how to register for the exam can be found on the YMF website: <https://ascehawaiiyfm.org/pe-exam-information>

### Online PE Refresher Course

The Hawaii YMF has partnered with Pathceed, an online PE Exam refresher course that covers the breadth portion of the civil engineering exam. This course features 12-hours of on-demand course materials that may be accessed for a 6-month period and a one-time free access should you not pass the exam. Curious, but want a sample of the course? You can check out a free 1-hour lesson before committing to the program! The course cost is \$289, and we offer ASCE Hawaii YMF members a \$40 discount when registering. If you are interested in signing up for this course, please contact us at [yfmf808.pecourse@gmail.com](mailto:yfmf808.pecourse@gmail.com) for more information.



**Hawaii Section 2022-2023 OFFICERS**  
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On April 20th 2023, 9 of AAACE Hawaii members and friends joined our networking event at Tropics Mini Golf. On May 6th 2023, 4 of AAACE Hawaii members and their families attended Kanu Hawaii's Diamond Head State Monument Volunteer Workday for invasive species control. Kids had a morning fun to catch "berry", the seed of invasive species. The Volunteer Workday occurs every 1st and 3rd Saturday of the month 9am to 12pm. Mahalo to everyone who attended the volunteer event.

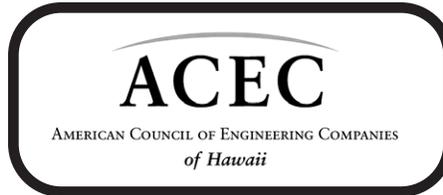
The local section, AAACE Hawaii, was originally established in 1973. It achieved both the Platinum and Gold Award for nine consecutive years 2014-2023. Our local area continues to achieve CCP, CEP, CST and PSP certifications. For more information, please visit <http://web.aacei.org/certification> and our local website [www.aacehawaii.com](http://www.aacehawaii.com).



**Diamond Head State Monument Volunteer Workday. Left to right: Yanran You, Yong Shi and his sons, Scott Arend, Cris Baze and his son, Sona Kremitovska, and Kristy Kastner.**



**Networking Event. Tropics Mini Golf Event. Left to right: Yong Shi, Scott Arend, Philip Mok, Chris Kanae, Chris Baze and his son, Joe Uno, and Vinson Hiraoka.**



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**2023 ACEC HAWAII SCHOLARSHIP WINNER**

Congratulations to Katlynn Vicuña on being named the 2023 ACEC Hawaii Scholarship winner! Katlynn is a Mechanical Engineering student with an Aerospace Focus at the University of Hawaii at Manoa. She has a strong work ethic and a passion for working with her hands, which has led her to excel in automotive technologies and pursue a career in the aerospace industry. She has participated in a variety of NASA programs, research projects, and engineering associations.

**2023 ACECH JOINT STATE-CITY-COUNTIES SYMPOSIUM**

The 2023 American Council of Engineering Companies of Hawaii (ACECH) Joint State-City-Counties Symposium was held on Tuesday, May 16, 2023 at the Japanese Cultural Center of Hawaii.

The event was well attended with over 200 participants, presenters and dignitaries and included a full agenda of workshop sessions to equip our engineering community with knowledge and information necessary to successfully partner with State, City and County agencies today and into the future.

**GENERAL MEMBERSHIP MEETING ON JUNE 7**

A General Membership Meeting for an interactive session with Dr. Song Choi, Assistant Dean of the College of Engineering, to learn about the College's new and ongoing initiatives as well as to have an opportunity to help shape the College's curriculum based on the industry's current and emerging needs in knowledge and skills will be held at the Oahu Country Club on Wednesday, June 7 at 12 p.m. - 1:30 p.m. For more information and to register, please visit [acechawaii.org](http://acechawaii.org).

Follow us on our social networks @ACECHawaii on LinkedIn, Instagram, and Facebook for more ways to reach us and stay updated with upcoming events, programs and community support.

**Deadline for Wiliki is June 15th**



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**Welcome Address by Governor Josh Green at the ACECH Symposium.**

**FRMDC, from Page 1**

series that challenges students to showcase their knowledge and abilities in engineering design, analysis, manufacturing, management and communication through the production of a small-scale, formula-one style electric race vehicle. The competition consists of eight events that challenge the marketability, financial viability, engineering decisions, on-track performance, and component reliability. Team RWR will complete at the June 2023 FSAE EV competition at the Michigan International Speedway.

**Third Place: Mirror Mount Cell**

The goal of The University of Hawai'i Mirror Mount Cell was to create and implement a unique telescope mirror mount system that utilized a whiffletree mount with ball bearing, collets, and a miniature semi-circle retainer nut which allows the primary mirror cell to support a 24-inch mirror without external support systems. This mount enables movement in all six degrees of freedom while significantly reducing distortion and thereby increasing image clarity objects in space.

**Hökūlele: Two-Stage High Powered Rocket**

Team Hōkūlele's mission is to design and manufacture a two-stage high powered rocket that is capable of reaching a maximum altitude of 25,000 feet, house a 360° camera array payload, and be recovered safely in a reusable condition upon landing. Team Hōkūlele plans to successfully launch their rocket during the June 2023 Friends of Amateur Rocketry 51025 Rocket Competition in the Mojave Desert, California.

**UHDT: University of Hawai'i Drone Technologies**

The UHDT's quadcopter aims to successfully compete in the 2023 AUVSI Student Unmanned Aerial Systems (SUAS) competition. The mission consists of autonomously completing 10 miles of waypoint flight, area search for mannequin identification, delivery of 5 payloads to their designated targets, and returning to the launch site all within the 30 minute time constraint.

**Autobots: Autonomous Electric Vehicle System**

The Autonomous Electric Vehicle System aims to develop and autonomous vehicle to transport goods safely and efficiently. The system implements a central control station to monitor, track, and operate vehicles. Users can reserve the vehicle via phone app. The vehicle then can navigate to the pick-up and drop-off locations. The vehicle also offers package security via issued QR codes to the sender and receiver.

**Kanaloa: Unmanned Surface Vessel (USV)**

The USV is used for marine research in shallow waters near shore. The project improved buoyancy, added bow thrusters for increased maneuverability, and improved the software for accurate control and localization capabilities.

**Acknowledgements:**

ASME Hawai'i would like to thank Professors Dr. Zachary Trimble and Dr. Trevor Sorensen along with the UHM DME for organizing the 2023 Francis Rhodes Montgomery Design Competition. Thanks to all the Senior Design Course participants who presented their mechanical engineering projects. Finally, thank you to the judges from Hawaiian Electric: Simeon Powell, Richard Leclerc, and Shotaro Nagamine who donated their time to evaluate and score the project presentations and demonstrations.



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Student Advisor: Dr. Woochul Lee

**ASME-HAWAII 2023-2024 EXECUTIVE COMMITTEE ELECTION**

ASME Hawaii Section election of officers for the next ASME fiscal year from July 2023 to June 2024 has concluded. The new leadership team will be:

Section Chair: Abel Siu  
Vice-Chair: Raymond Liu  
Treasurer: Kevin Dang  
Secretary: Derek Sato  
Members-at-Large: Ed Chang, Justin Souza

**FRANCIS RHODES MONTGOMERY DESIGN COMPETITION**

The University of Hawai'i Department of Mechanical Engineering Spring 2023 FRMDC was completed on Friday, May 5, 2023. The competition was organized by Dr. Zachary Trimble and Dr. Trevor Sorensen.

Student Teams were: Hokulele – A two-stage high powered rocket; Autobots – Autonomous Electric Vehicle System; MAT – Telescope Mirror Mount Cell; Kanaloa – Unmanned Surface Vessel; Rainbow Warrior Racing – SAE Electric Vehicle Formula Race Car; RoSE – Robotic Space Exploration vehicle; UHDT – Unmanned Aerial System

Congratulations to all the students! All of the projects were well done.

**NEXT MEETING**

Friday, June 30, 2023 at 5:30 pm. Please contact us if interested.

**REQUEST FOR SPEAKERS**

ASME welcomes guest speakers to present any topic during our general meetings. If interested in presenting, please contact ASME.

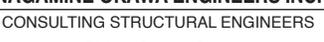
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