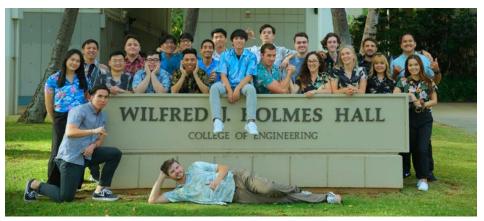
WILL ENGINEER OF HAWAII

VOL. 58 NO. 5 SERVING 2000 ENGINEERS JULY 2022

SPRING 2022 FRANCIS RHODES MONTGOMERY DESIGN COMPETITION



Team Rainbow Warrior Racing SAE EV Formula Race Car Back Row (Left to Right): Justin Pang, Kegan Dudding-Domanay, Jackie Tam, Stevie Xiao, Kevin Lin, Daniel Macho, Sam Dobry, Connor Tribble, Zachary Wadas, Viktor Yago. Middle Row: Mihyun Park, Ryan Fujimoto, Khanh Nguyen, Kenneth Rimando, Reijiro Rose, John Tran, Paul Berzinas, Jami Stout, Julia Moekkoenen, Shailynn Manabe, Sarah Okamoto. Front Row: Liam Meyer, Shiloh Tribble

The 35th annual Spring Francis Rhodes Montgomery Design Competition (FRMDC) was held on Friday, May 6, 2022 at the University of Hawaii at Manoa, Hawaii Institute of Geophysics Building. This annual event is cosponsored by the University of Hawaii, Department of Mechanical Engineering, and the ASME Hawaii Francis R. Montgomery Foundation.

The student presentations and project demonstrations were a welcomed change to the past 2 years of virtual presentations and project videos. The scale and intricacy of the projects, including the in-person demonstrations was an impressive sight to take in.

The design competition consisted of 6 project teams from the ME 481/482 design course. Teams performed a timed presentation in which they conveyed their project goals, design challenges, specific areas where their learned engineering principles were applied, and their project results. Upon conclusion of the presentations, the competition moved outside of the lecture hall where the teams were able to demonstrate their projects and answer more detailed questions from the judges.

The effects of the pandemic shifted from previous competitions where students were challenged with social distancing and fabrication time to the current issues of supply chain delays in materials procurement. Through it all, the students demonstrated perseverance and project management skills that increased the difficulty of their projects far beyond that experienced by those of 5-10 years ago.

Judges had the difficult job of determining

team awards having been presented with 6 very well-done projects. Following the ASME/FRMDC scoring rubric, the judge ranked the first, second, and third place teams as follows: First place and \$500 was awarded to Team Rainbow Warrior Racing SAE Electric Vehicle Formula car. In second place and receiving \$300 was Team Robotic Space Exploration Rover. And in third place, receiving \$200 was Team University of Hawaii Advance Balloon Satellite (UHABS-8) Autonomous Ocean Recovery System.

Thanks to the efforts of Professors Dr. Mehrdad G. Nejhad and Dr. Trevor Sorensen, the student project coordination and competition were completed with great success. Dr. Nejhad and Dr. Sorensen have been the instructors for the Senior Design ME 481/482 courses for Fall 2021 and Spring 2022.

Team Project Descriptions:

First Place: Team RWR SAE EV Formula: Rainbow Warrior Racing SAE Electric Vehicle Formula Race Car

The SAE Formula Electric Vehicle is a nationwide collegiate design competition series that provides students the opportunity to showcase their knowledge in engineering design, analysis, manufacturing, management, and presentation skills to build a small-scale electric formula-style race car. The structure of the competition is based on a set of comprehensive rules that provides the engineering design challenge, while simultaneously enforcing industry standard safety practices/design.

Second Place: Team RoSE Rover: Robotic Space Exploration Rover Vehicle

The RoSE Rover mission is to develop a rover system capable of competing in the 2022 University Rover Competition (URC). The URC is the world's premier robotics competition with a focus on astronaut assistance. The team has designed and built a rover capable of traversing extreme terrain, analyzing soil for signs of life, manipulating objects in the field, and autonomous navigation. This is the first-generation rover developed by the University of Hawaii, and has laid the groundwork for future rover teams.

continued on page 5



Team RoSE Rover Front Row Left to Right: Michael Mori, Baylor De Los Reyes. Back Row Left to Right: Casey Takane, David Carranza, Steven Kang, Charles Ostendorp, Makenzie Cammack, Jacob Sequeira, Nathaneal Roque, Faith Rolark



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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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YMF General Meeting

The next YMF general meetings will be in-person on Wednesday, July 13, 2022 at 6:00 PM and virtual on Zoom on Wednesday, August 3, 2022 at 6:00 PM. Please be sure to check out our website and social media channels for the most updated information on our upcoming general meeting 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 ymf.hawaii@gmail.com.

Pineapple Academy Outreach Event

ASCE Hawaii YMF volunteers virtually visited the students of Pineapple Academy on Friday, May 6, 2022 and Friday, May 13, 2022. Pineapple Academy is the only fully virtual elementary school on Oahu made up of grade K-5 students attending schools within the Leilehua-Mililani-Waialua complex area. Volunteers were able to answer questions about engineering and guide the students in building aluminum foil boats that could carry the largest number of pennies. We also taught the students about the engineering design process and challenged them to improve on their boat designs. Mahalo to our six (6) YMF volunteers who attended and to Pineapple Academy for welcoming us into their virtual classroom!



AEC Softball Tournament & BBQ

The YMF Softball Team concluded their season with the AEC Softball Tournament on Sunday, June 12 at Kapiolani Park with a 2nd place finish in the lower division finals! The day was supplemented with a YMF-hosted BBQ planned by our Social Committee. Thank you to all who played on the team throughout the season and to those who cheered on the team on Sunday! Looking forward to next year's season! If you would like to join next year's team, please contact Matt at softball. ascehawaiiymf@gmail.com.

ASCE YMF Job Shadow Program

The Job Shadow Program is looking for students and industry professionals that are interested in becoming a mentee/mentor. Your interest and participation through this program will provide a valuable experience that will help guide students towards a successful path beyond graduation! If you have any questions and/or to sign up*, please email the

Job Shadow Program directly at *ymfhawaii. 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.

2022 PE Exam Update

The PE Exam will be computer-based with appointments available year-round at Pearson VUE test centers beginning April 1, 2022. Information about how to register for the exam and purchase study materials can be found on the YMF website:

https://ascehawaiiymf.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? There's a free 1-hour lesson you can check-out before committing to the program! Cost of the course is \$289 and we are offering ASCE Hawaii YMF members a \$40 discount when registering. If interested in signing up for this course, please contact us at ymf808. pecourse@gmail.com for more information.



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As a member of the Board of the Council of Engineering and Scientific Specialty Boards (CESB), AACE International offers a range of certification levels from technician to professional to expertise level including CCT, CCP, CEP, EVP and PSP Certification Programs.

The local section, AACE Hawaii, was originally established in 1973. It achieved both the Platinum and Gold Award for nine consecutive years 2014-2022. 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.





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Past President John Uno john@mkellc.com

PREVIOUS BOD MEETING

June 01, 2022

General Membership Meetings/ Technical Seminars/Events

The July technical seminar will be online. Look for an upcoming email flyer for registration.

Membership Renewals

SEAOH is transitioning to Wild Apricot for 2022 membership renewals. Membership renewal notices have been sent out via email. If you have not yet received a notice, please contact any member of the board.

SEAOH Nominations

SEAOH will start looking for volunteers to be a part of next year's Board of Directors. If interested or know someone that is, please contact any member of the

2022 SEAOH Scholarship Golf **Tournament**

This will be the 10th anniversary of the SEAOH golf scholarship tournament! Please check seaoh.org for information on the scholarship application.

Membership Applications

Applications were received from:

- Cheyne Constantino, Affiliate Member
- Glenn Koki, Affiliate Member
- Corbin Morisada, Affiliate Member
- Gregory Eng, Associate Member
- Reza Mirmoghtadaei, Associate
- Tommy Vuong, Associate Member
- Tristan Green, Associate Member
- Grace Arends, Member

Please contact any SEAOH Board Member by July 12, 2022, to file comments regarding any of the applicants.

Next Meeting on Wednesday, July 2022. For information, contact SEAOH President Craig Meierhoffer at cmeierhoffer@baseengr.com



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eaH July 2022 Programs

July Program Chair Howard Wiig

Friday July 8

Speaker: Dr. Gail Grabowsky, Dean, School of Natural Sciences Mathematics, Chaminade University

Topic: "Micronesia is Drowning"

Dr. Grabowsky has been the Director of Chaminade's Environmental Studies Program since its inception in 2000. She has published an award-winning book: '50 Simple Things You Can Do To Save Hawaii' and appeared as a "science character" in National Geographic/Sea Studios' series: The Shape of Life. She

has also helped advise on policy and education as a member of the Advisory Council for the Northwestern Hawaiian Islands Coral Reef Ecosystem Reserve, now known as Papahanaumokuakea National Marine Monument, a World Heritage site in Hawaii.

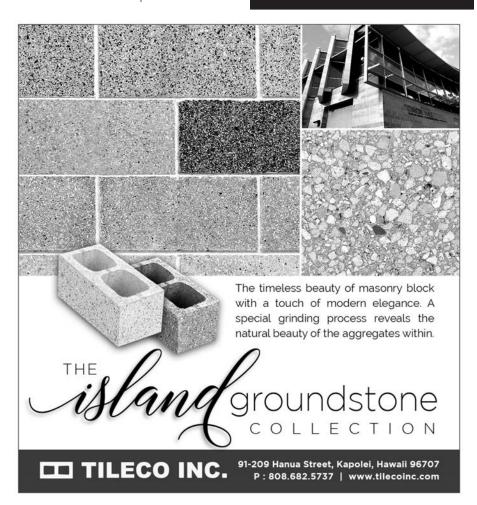
Friday July 22

Speaker: Sam Gillie - Retired Hawaiian Electric, eaH Past President

Topic: "eaH 1902 to 1922, the First 20 years"

2022 is eah's 120th anniversary year. Sam will talk about the early years of eaH and the discovery previous unknown chairmen and eaH's first Chairman, who was not Alonzo Gartley. He will provide faces for previous chairmen and members and their backgrounds. He'll talk about where meetings were held and what eaH meetings were like in the days before Zoom, PowerPoints, slide shows, overhead projectors, and when they had Smokers and Bathing days in the days of white shirts and ties.

Wiliki **Advertisers** Wanted





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EXECUTIVE COMMITTEE MEETING

Last held: June 1, 2022 Next meeting: July 12, 2022

ASCE HAWAII SECTION DINNER MEETING

We will keep you informed via e-blasts and/ or notices posted on our website at ascehawaii. org with the July meeting information and schedule.

Cost: (RSVP via Eventbrite)

OUTSTANDING CIVIL ENGINEERING ACHIEVEMENT (OCEA) AWARDS

The ASCE Hawaii Section seeks nominations for the 2022 Hawaii Outstanding Civil Engineering Achievement (OCEA) Awards, which honors the best and the brightest achievements within the local civil engineering industry. Various awards will be given to projects that demonstrate innovative and outstanding civil engineering accomplishments Hawaii's design and construction professionals. Nominations are due by Friday, August 12, 2022, to the ASCE Hawaii Section Awards Committee, nleong@ascehawaii.org & smukai@ascehawaii.org.

The awards banquet will be held on Friday, September 30, 2022, at the Kahala Hotel. We are excited to host the banquet in person for the first time since 2019. We will be celebrating the 2022 OCEA nominees as well as recognizing winners from the past two years.

For more information on nominations and the awards banquet, please visit http://www. ascehawaii.org/.

ASCE's COVID-19 RESOURCES PAGE

https://collaborate.asce.org/covid-19/home

Reminder that ASCE has launched a COVID-19 resources page with online tools and tips in one convenient place. The page includes links to free programs, training, and resources, the results of COVID-19 industry impact surveys, and relevant online discussions with fellow members. The page also offers several ways to work more effectively while at home and activities to take advantage of in the down time you may have - even fun things to do with the keiki! And don't forget that all members have 10 free PDHs! Now may be a good time to catch up on some of those technical ondemand webinars.

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 Cliff Lum, clum@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

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 Sheila Uyeoka at suyeoka@ ascehawaii.org.

ASCE GOLF TOURNAMENT

Save the date for this year's tournament, currently planned to be on Friday, Aug 5, 2022.

ASCE JOB LISTINGS

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

- AECOM (Civil Engineer II)
- Bowers & Kubota (Civil Designer III, Civil Engineer, Project Engineer, Project Manager, Senior Project Manager)
- Brown and Caldwell (Senior Staff Engineer)
- City and County of Honolulu (Civil Engineer III, IV, V, Civil Engineer V (Geotechnical), & Electrical Engineer V)
- Gray Hong Nojima & Associates, Inc. (Junior Civil Engineer)
- G70 (Civil Designer, Civil Engineer, Civil Project Manager, Construction Manager)
- HDR (Hawaii/Pacific Transportation Business Group Manager, Senior Civil Engineer, Project Manager, Civil Project Engineer)
- Hawaii Housing Finance and Development Corporation (Section Chief)
- Kennedy/Jenks Consultants Manager, Honolulu Staff Engineer, Hawaii Staff Engineer)

- Nagamine Okawa Engineers Inc. (Structural Engineer)
- R.M Towill Corporation (Assistant Engineer I, Assistant Engineer II, Civil Design Engineer, Design Visualizer 3D Modeler)
- SSFM (Civil Engineer V, Structural Engineer
- Stantec (Account Manager/Engineer-Water) For further information, please visit http://www.ascehawaii.org/job-listings.html



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Scholarship Awards

Congratulations to the following 2022 FALEA scholars:

- Marc Angelo Armas Washington State University Pullman, Washington
- · Alexie Joi Realubit Linfield University Portland, Oregon
- Maria Stevenson Creighton University Omaha, Nebraska
- · Neil Ryan P. Tegui Michigan State University East Lansing, Michigan

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The price for the ads will be based on a $1\frac{1}{4}$ " x $2\frac{5}{16}$ " module size which is $1\frac{24}{16}$ th of the page, and be \$20.00 per month with a 15% DISCOUNT for a 6-MONTH RUN.

FRMDC, continued from Page 1

Third Place: University of Hawaii Advanced Balloon Satellite 8 Autonomous Ocean Recovery System

The goal of The University of Hawai'i Advanced Balloon Satellite 8 (UHABS-8) team is to develop an autonomous ocean recovery system for balloon satellites launched in Hawai'i. Most balloon satellites launched in Hawai'i will land in the ocean. The team's goal was to solve the problem of vehicle/data recovery by designing a BalloonSat recovery vehicle that will be able survive an ocean landing, ocean conditions, and navigate itself back to shore from off the coast of Oahu.

RURA: Reconfigurable Underwater Robotic Arm

The Reconfigurable Underwater Robotic Arm project goal is to develop a multidegrees of freedom arm, to be attached to the Navy's existing underwater drone to aid in maintenance and inspection tasks. The team created a design that would be easy for the client to manufacture and assemble. The arm is composed of a linear actuator and stepper motors housed in marine grade aluminum, and is operated via Arduino to manipulate objects and allow for future modifications.

Hökülele: Two-Stage High Powered Rocket

Team Hōkūlele has designed and is building a two-stage high powered rocket capable of reaching 30,000 feet, house a 360° camera array payload, and safely recovered. The rocket consists of four subsystems: structure, propulsion, recovery, and payload. This project provides students with the opportunity to be a part of a collaborative team project and compete in the intercollegiate aerospace engineering Spaceport America Cup (SAC) competition.

AFWD: Autonomous Fixed-Wing Drone

The AFWD's drone enables farmers to survey their crops utilizing aerial footage; providing them with the ability to efficiently allocate their workforce resources. The mechanical subsystem consists of the airframe, motor, and launcher. The electrical subsystem consists of the autonomous capable Ardupilot, GPS, camera, batteries, transmitters, and ground station computer.

Acknowledgements:

ASME Hawaii would like to thank Professors Dr. Mehrdad G. Nejhad and Dr. Trevor Sorensen along with the UHM DME for organizing the



Team UHABS-8 From Left to Right: Kaitlyn Matsunaga, Gabrielle Rose Baguio, Piper Kline, Dr. Trevor Sorensen (Advisor), Isabella Kotsol, Halona Trias, Jared Choy, Micah Raquini

2022 Francis Rhodes Montgomery Design Competition and for helping to perpetuate this mechanical engineering annual event. Thanks to all the Senior Design Course participants who presented their mechanical engineering projects. Finally, thank you to the judges Major General Robert G.F. Lee (Retired), Lane Hiramoto (Hawaiian Electric Co.), and Raymond Liu (ASME-HI Secretary) who donated their time to review and score the project presentations.

HAWAII SECTION

www.asme-hi.com

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ASME-HAWAII NEXT GENERAL MEMBERSHIP MEETING

Date: June 17, 2022 (virtual)

Agenda: July 2022 – June 2023 Activities and Budget, Round table discussion, topics to be determined.

Time: 5:30 pm

As usual, all members, students and guests are invited and encouraged to attend our monthly Zoom Conference Call meetings. Please contact Derek Sato for the link.

GENERAL MEMBERSHIP MEETING

The Hawaii ASME Professional Section, formerly known as the Senior Section, took a break for the month of May after holding monthly Zoom meetings consistently the previous months.

A FE refresher course is still alive with Raymond Liu in search of an ASME-HI organizer to coordinate the course. Instructors may come from FALEA, ASME and the UHM DME. Current UHM DME students are targeted along with already graduated engineers.

Deadline for **Wiliki** is August 15th

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