

## THE 2017 ASME FRANCIS RHODES MONTGOMERY DESIGN COMPETITION

The ASME Hawaii Francis Rhodes Montgomery (FRM) Design Competition was held on Friday, May 5, 2017 in Hawaii Institute of Geophysics HIG 110 on the University of Hawaii at Manoa Campus. This is the 30th year that the annual event is cosponsored by the Department of Mechanical Engineering (DME), University of Hawaii at Manoa, and the ASME Hawaii Francis R.

Montgomery Foundation. This year, the design competition consisted of 11 project teams from the ME 482 Senior Design course. First place and \$500 went to the NOAA Coral Reef Nursery Team, in second place and receiving \$400 was the Active Needle Prototype team, third place and \$300 was awarded to the Atmospheric Water Generator team, and fourth place and \$200 went to the HSFL Attitude Determination & Control System team. All 11 of the mechanical engineering student teams demonstrated the application of their cumulative engineering knowledge very well making finals scores extremely competitive.

The projects have and continue to be supported and funded by various organizations such as the NOAA, Boeing Co., Ltd., the Hawaii Space Flight Laboratory, and the UHM DME.

The judges this year included Mechanical Engineers Nathan Yuen, Abel Siu Ho, Simeon Powell and Steven Kehm. All judges are volunteers from Hawaiian Electric Company, Inc., where Francis Montgomery worked as Vice President of Engineering. Also in attendance this year from the ASME Senior Section was Kevin Dang and Derek Sato.

The following are brief descriptions of the first four placed team projects. Abstracts of all 11 project teams can be found on the ASME-HI website.



**Front Row from Left to Right: Raquel Kamalu, Vanessa Banogon, David Yoshimoto, Bryson Clemente. Back Row from Left to Right: Joshua Lui-Kwan, Nathaniel Lizama, Kristen Monico, Aleca Borsuk, David Todd, Eric Guyett.**

### First Place Team: NOAA Coral Reef Nursery

In partnership with the National Oceanic and Atmospheric Administration (NOAA), the team was tasked with providing a design for an in-water coral nursery. The purpose of this project is to design, manufacture, test, and deploy an offshore submerged structure for the use of coral colony collection, rehabilitation, and eventual outplanting around the island of Oahu, Hawaii. The proposed structure will be built to withstand the unique Hawaiian water conditions, and serve as a foundation for which detached coral can be stored safely until biologists are ready for mass transplantation. The structure will be implemented in accordance with United States Army Corps of Engineers (USACE) permitting, and will have a minimal environmental impact. This sustainability project will profoundly improve capabilities for reef repair. Broader impacts of this project include the potential to attract researchers from around the world,

increase tourism, and stand as a beacon of pride for Hawaii residents as a pioneer project in the field of coral restoration. Team members included: Raquel Kamalu, Vanessa Banogon, David Yoshimoto, Bryson Clemente, Joshua Lui-Kwan, Nathaniel Lizama, Kristen Monico, Aleca Borsuk, David Todd, and Eric Guyett.

### Second Place Team: Active Needle for Medical Application

Physicians are currently looking for ways to improve treatment for medical conditions such as prostate cancer. A current form of treatment is termed brachytherapy, which is a needle based procedure that involves the insertion of radioactive seeds into cancerous tissue. While brachytherapy is an effective method there are technical issues with the procedure. Current studies show that inaccuracy of needle placement is clinically significant in many different needle-based procedures, including brachytherapy. In response, active (bendable) needles are currently being developed to improve the maneuverability and placement accuracy for various medical procedures. This project sought to address this challenge through the design and fabrication of an active needle prototype that functions based off nitinol (Shape Memory Alloy) actuators. This prototype targeted multi-directional deflection with the ability to reset to its initial un-deflected

*continued on page 7*



**(L-R): Matthew Barrett-Wright, Chad Nakaoka, Sean Saito, Lauren Sumida. Not in Photo: Taylor Molde, Wei Lun Lian, Dayne Sasaki, Bradley Beaudry.**



Published monthly by:

HAWAII COUNCIL OF ENGINEERING SOCIETIES

SERVICE PRINTERS, INC.

1829 Dillingham Boulevard • Honolulu, HI 96819

Telephone: (808) 841-7644 • Fax: (808) 847-1487

ADDRESS ARTICLES FOR PUBLICATION TO:

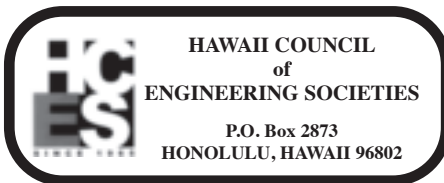
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### WILIKI MAILING LIST

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.



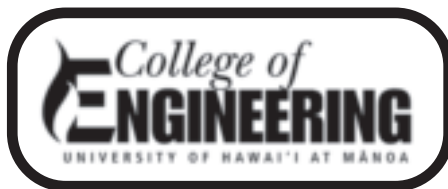
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### 2017 SAME Scholarship Program

Each year, SAME offers several four-year and one-year scholarships to deserving high school seniors and college students who will be or are currently enrolled at a university with an accredited engineering or architecture program. For more information on the 2017 scholarship program categories, eligibility, and scholarship application submittal requirements, download the 2017 SAME Scholarship Application [atwww.samehonolulu.org](http://atwww.samehonolulu.org). **Application deadline has been extended to June 15, 2017(postmarked).**

Winners will be announced in July 2017. For inquiries, contact the Communications and Scholarship Director, Julie Chen at [Scholarship@samehonolulu.org](mailto:Scholarship@samehonolulu.org).



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<http://hawchapter.cmaa.org>

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### CMAA Hawaii Chapter News:

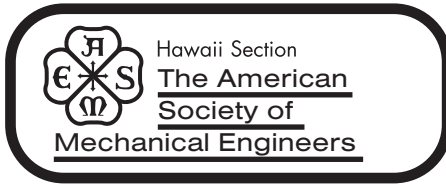
Another great May for CMAA! We held our 6th Annual Mini Conference- showcasing aspects of Construction Management including Construction Economics, Construction Contract drafting New technologies, and other items from handling Environmental issues onsite and minimizing schedule disruptions to ADA compliance and reaching Hawaii's goal of 100% renewable energy. Thanks to all who planned, worked on, attended or participated in this great event!

Also at our Mini Conference, we announced the opening of the enrollment period for the **2017 Professional Construction Management (PCM) class** - Last year this class sold out- so if you would like a seat- please don't procrastinate!

We are also still accepting applications for the **CMAA Hawaii 2017 Scholarships**; CMAA Hawaii will award 2 scholarships for \$1000 each to full time undergraduate students currently enrolled at Honolulu Community College or other Universities who are interested in or pursuing a major/minor in Construction Management, or a dependent of an active CMAA Hawaii Chapter/Student Chapter member who has been accepted to attend a university or college and is interested in Construction Management with a cumulative GPA of 3.0 or higher. If you are interested in applying for one of these scholarships, please watch for our email blasts with more information and links to the application. Due date for submission is Friday June 30, 2017 at 4pm. Don't miss this opportunity!

We would love for you to be a part of the excitement that is CMAA Hawaii. Our chapter is here as a resource for **all** Construction Engineering and Management professionals, and the things that we do benefit not only our CM community but our larger Ohana as well.

If you have any questions regarding any of our upcoming events, would like to join our Ohana and become more involved with the CMAA Hawaii Chapter or would simply like to be added to our email list, please email us at [hawaii.cmaa@gmail.com](mailto:hawaii.cmaa@gmail.com), or at our mailing address; CMAA Hawaii, PO Box 531, Honolulu, HI 96809 Looking for a CCM? The current listing for all Hawaii CCMs can be found here: <https://cmaanet.org/certified-construction-managers-registry>.



[www.asme-hi.com](http://www.asme-hi.com)

#### ASME-HI 2017-2018 Officers

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HCES Rep:	Derick Kam	
Alternate:	Froilan Garma	

#### NEXT ASME-HAWAII SECTION GENERAL MEMBERSHIP MEETING

Date: June 6, 2017

Time: 5:30 pm to 7:00 pm

Place: HECO Ward Ave Cafeteria Conference Room

Agenda: To be announced. This will be the final meeting for Chairman Derek Sato before the 2017-2018 officers take over.

As usual, all members are invited and encouraged to attend our meetings. There are always lots of complimentary pizza and soft drinks. Please contact Chairman Derek Sato for directions and for more information, such as parking within Hawaiian Electric's Ward Avenue facilities.

#### 2017-2018 ASME-HI OFFICERS

Our SurveyMonkey.com voting ended April 30, 2017. Congratulations to our 2017-2018 officers, Chairman Froilan Garma, Vice-Chairman Derick Kam, Treasurer Kevin Dang, Secretary Jason Frifeldt, Members (formerly director positions) Raymond Liu and Ronald Flegal, and Group Page Administrator Derek Sato who will also be the Immediate Past-Chair. Froilan and Jason are recent graduates of the Department of Mechanical Engineering, UHM. They will be assisted by our very experienced senior members.

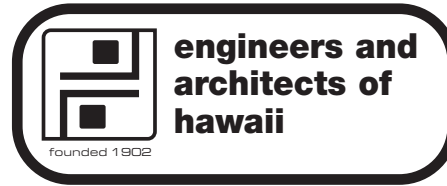
#### 2017 FRANCIS RHODES MONTGOMERY DESIGN COMPETITION

The Hawaii Section would like to thank the Department of Mechanical Engineering, UHM, Professors Mehrdad G. Nejjad and A. Zachary Trimble, for again conducting a very professional Francis R. Montgomery Design Competition. Featured were eleven Senior Design ME-482 projects. Thanks to all the student participants for their presentations to the four ASME judges.



**2017 Montgomery Competition judges, L-R: Nathan Yuen, Simeon Powell, UHM DME Professor A. Zachary Trimble, Steven Kehm, and Abel Siu Ho.**

Also, we thank Hawaiian Electric Company, Inc. for providing the mechanical engineer judges, including Steven Kehm, Simeon Powell, Abel Siu Ho, and Nathan Yuen. It is a difficult judging task to observe and rank eleven outstanding project teams first to fourth place within five hours of presentations. Thank you Steven, Simeon, Abel and Nathan.



**PO. Box 1901, Honolulu, HI 96805-1901**  
**An association for Hawaii's Engineers and Architects**

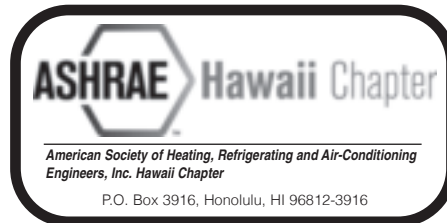
**WEB address: [www.eahawaii.org](http://www.eahawaii.org)**

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EAH's new meeting location is Room 301 in the Topa Tower (Ewa tower on Fort Street; Old AMFAC Building). Validated parking is available (enter from Nimitz). The WEB site has been updated to provide directions and a Map. If you have questions please call Sam Gillie (543-4739).

Meetings are held every Friday (except Holidays). Meetings start at NOON and have ended PROMPTLY at 1:00 pm for 70 Years. Program schedule may be adjusted. Call Sam Gillie to confirm speaker 543-4739; Fax 203-1335.



#### 2016-2017 chapter officers and BOD

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Lunch is \$10.00 Members, \$12.00 Guests. (All Welcome), Students Free. Drink refreshments are complimentary. You may bring your own lunches, in which case a \$2.00 donation is gratefully appreciated!!



P.O. Box 88840  
 Honolulu, HI 96830  
 Website: [www.acechawaii.org](http://www.acechawaii.org)

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#### LETTER FROM THE ACECH PRESIDENT

*Written by Corey Matsuoka, P.E., PMP, LEED AP*

It is often said that the biggest smile is always on the face of the Past-President. I've been involved in a number of other organizations, and for me, this phrase was always true. It was a relief when my term as President was over and I felt like a burden was lifted. I needed a recharge of my batteries.

This time however, it's different. As I'm winding down my term, I still feel the excitement of everything we do. I think it's because of how strongly I believe in ACECH's mission of promoting the business interest of our engineering companies and the people I have had the pleasure to work with.

Many of those people will be continuing to serve ACECH as board members next year. At our Annual meeting held on April 6th, the proposed slate of officers was presented and unanimously approved.

President: Jeff Kalani  
 President-Elect: Sean Sugai  
 Treasurer: Ken Kawahara  
 Secretary: Garret Masuda  
 Director: Paul Matsuda  
 Director: Derek Mukai  
 Director: Michelle Adolpho  
 National Director: Janice Marsters  
 Past President: Corey Matsuoka

As I move into the passenger seat of this organization, I just wanted to thank a few people who helped make the organization great.

First, Ginny Wright and Taryn Takiguchi, our Executive Director and Book Keeper. Thank you for making my life easy and keeping me out of trouble.

Second, the Board of Directors. Even though we lose Liana Choy and Robin Lim next year, the future of ACECH is bright. I can think of no better person than Jeff Kalani to lead this organization. I am looking forward to seeing the great things he and the board will accomplish.

Finally, a big thank you to my mentors in my ACECH journey... Sheryl Nojima, Janice Marsters, Jon Nishimura and John Katahira among others. Without your guidance and personal sacrifices, I would be lost.

Mahalo to all who helped make this a most rewarding year for myself and ACECH.

Corey Matsuoka, P.E., PMP, LEED AP  
 ACECH President (FY 2016-2017)





### 2016-2017 ASCE Hawaii Section Officers

President: Tim Goshi, P.E.  
*email: tgoshi@ascehawaii.com*  
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*email: brasa@ascehawaii.org*  
 YMF Pres.: Norman Leong, P.E.  
*email: nleong@ascehawaiiymf.org*

### JUNE DINNER MEETING

Please visit [www.ascehawaii.org](http://www.ascehawaii.org) for updates regarding our June Dinner Meeting.

### EXECUTIVE COMMITTEE MEETING

Last held: Wednesday, May 3, 2017  
 Next meeting: June 7, 2017

### INFRASTRUCTURE REPORT CARD

The 2017 Infrastructure Report Card has just been released on March 9th. Every 4 years, a group of civil engineers provide a comprehensive assessment of our nation's infrastructure across 16 categories. The overall infrastructure grade is a D+, unchanged since the 2013 report card. Three categories received a decline in grade, while seven saw slight improvements and six remain unchanged. Key solutions include investment, leadership & planning, and preparing for the future. ASCE estimates that the nation's infrastructure needs a total of \$2 trillion over the next 10 years, across all categories.

To read more about the grades and solutions, visit <http://www.infrastructurereportcard.org/>.

Hawaii is the only one in Region 8 that does not have a state report card. If you would like to help create one for Hawaii, please contact Tim Goshi, [tgoshi@ascehawaii.org](mailto:tgoshi@ascehawaii.org).

### CONTINUING EDUCATION

ASCE National holds more than 275 seminars, courses and computer workshops each year on a wide variety of technical, management, and regulatory topics. These seminars are held in more than 45 cities across the U.S. In addition, ASCE offers customized on-site training and many distance learning programs, including live interactive web/teleconference seminars, online courses and courses on CD, videotape, and audiotape. Please visit <http://www.ascehawaii.org/links.html> and click on ASCE National for complete details.

### 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 mail to: ASCE Scholarship Committee, P.O. Box 917, Honolulu, HI 96808-0917. If you have any questions, please contact Glenn Miyasato at 488-7579, or [gmiyasato@ascehawaii.org](mailto:gmiyasato@ascehawaii.org).

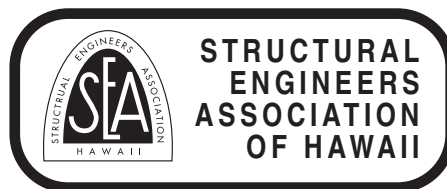
### ASCE JOB LISTINGS

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

- Assistant Program Administrator – City and County of Honolulu
- Civil Engineer V (Geotechnical) – City and County of Honolulu
- Civil Engineer V – City and County of Honolulu
- Mechanical Engineer V – City and County of Honolulu
- Design and Construction Branch Chief - City and County of Honolulu
- Junior Engineer – GPRM Prestress
- Civil Engineer – Group 70
- Project Manager – Group 70
- Director of Design and Construction – Honolulu Authority for Rapid Transit (HART)
- Deputy Director of Planning – HART
- Electrical Engineer III – HART
- Planner VI - HART
- Senior Geotechnical/Geological Engineer – Hart Crowser
- Project Geotechnical/Geological Engineer – Hart Crowser
- Project Manager – Kennedy/Jenks Consultants
- Staff Engineer (Honolulu Office) – Kennedy/Jenks Consultants
- Staff Engineer (Hawaii Offices) – Kennedy/Jenks Consultants
- Principal Project Control Engineer/Specialist, AIRPORT - Parsons
- Civil Engineer V – SSFM International
- Structural Engineer IV – SSFM International

For further information on these job listings or to find out how you can post job openings in your company on this website, please visit <http://www.ascehawaii.org/job-listings.html>.

**ASCEYMF on page 6**



PO BOX 3348, HONOLULU, HI 96801

Web Page URL <http://www.seaoh.org>

### 2017 BOD OFFICERS AND DIRECTORS

President	Jonathan Murai	791-3952
	<a href="mailto:jmurai@kaihawaii.com">jmurai@kaihawaii.com</a>	
Vice President	Jeffrey Cudiamat	488-5000
	<a href="mailto:jcudiamat@structuralhawaii.com">jcudiamat@structuralhawaii.com</a>	
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	<a href="mailto:andrewp@nagamineokawa.com">andrewp@nagamineokawa.com</a>	
Treasurer	Reid Nishimura	521-6958
	<a href="mailto:reid.nishimura@englekirk.com">reid.nishimura@englekirk.com</a>	
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	<a href="mailto:rlawton@histructures.com">rlawton@histructures.com</a>	
Director (Yr 1)	Michael Greer	591-2728
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	<a href="mailto:dkimito@pono-gms.com">dkimito@pono-gms.com</a>	
Past President	Jeffrey Hanyu	536-2108
	<a href="mailto:jeffreyhanyu@allisonide.com">jeffreyhanyu@allisonide.com</a>	

### PREVIOUS BOD MEETING

May 3, 2017

### Education Committee

SEAOH attended Hawaii Technology Academy's STEAM (Science, Technology,

Engineering, Art, and Math) night on April 13, 2017. SEAOH provided its shake table for students (and parents) to try and build Lego Duplo structures to resist simulated seismic forces.

**Code Committee** is tracking two bills in the Legislature that would fund the State Building Code Council so that the amendments to the 2012 International Building Code can be administered. SEAOH has submitted letters in support of the bills.

### Scholarship for Young Member Group to NCSEA Summit

Applications for NCSEA scholarships for YMG members to attend the annual summit in Washington, D.C. during October 11-14, 2017 are available. Scholarships include summit registration and a \$500 travel stipend. Contact Jonathan Murai for more information.

### General Membership Meetings/Technical Seminars/Events

For all events see [seah.org](http://seah.org) or look for email flyer for registration.

- SEAOH Annual Convention – August 25 and 26, 2017, Aulani Resort & Spa, details to be announced.
- SEAOH Golf Tournament – October 13, 2017, Hoakalei Country Club, details to be announced.

**Next Meeting** on June 7, 2017. For information, contact SEAOH President; Jonathan Murai [jmurai@kaihawaii.com](mailto:jmurai@kaihawaii.com).



### 2015-2016 ITE Officers

President: Sara Okuda  
*sara.t.okuda@hawaii.gov*  
 Vice Pres.: Chad Kadokawa  
*ckadokawa@wilsonokamoto.com*  
 Secretary/ Claire Fukuoka  
 Treasurer: *cfukuoka@atahawaii.com*

On Wednesday, May 10, 2017, the ITE Hawaii Section held their May meeting at the Hawaii Asphalt Paving Industry office. Jon Young, Executive Director at the Hawaii Asphalt Paving Industry, gave a presentation about Envision, a sustainability initiative for the AEC industry and Hawaii.

The ITE Hawaii Section will be hosting their Annual Meeting on Wednesday, June 7 at the Plaza Club. Guest speaker Harrison Rue, the Administrator of the City and County of Honolulu's Transit-Oriented Development (TOD) Program, will be presenting about TOD at the Annual Meeting.

**Deadline for  
 Wiliki  
 is June 15th**





# STRUCTURAL SYSTEMS, INC.

General Engineering • Foundation Systems • Micro Piles

**MICRO PILES** As defined in FHWA-RD-96-016 "Micro-piles are small diameter drilled and grouted reinforced piles used for both structural support and insitu earth reinforcement." Typically less than 10" in diameter, allowable design capacities frequently exceed 100 kips and our crews have performed testing in excess of 225 kips or over 100 tons. Micro-piles are frequently used where a deep foundation system is required in difficult substrata conditions, or where driven piles or large diameter systems are impractical due to subsurface obstructions, or limitations presented by existing buildings at or adjacent to the project site.

## Capabilities, Benefits & Advantages

- Limited Access and Low-overhead Equipment
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- Foundation Releveling
- Load Transfer
- Soil Nails, Gunite
- Slope Stabilization
- Compaction Grouting
- Uretex, Slab Releveling

### Low-overhead Equipment

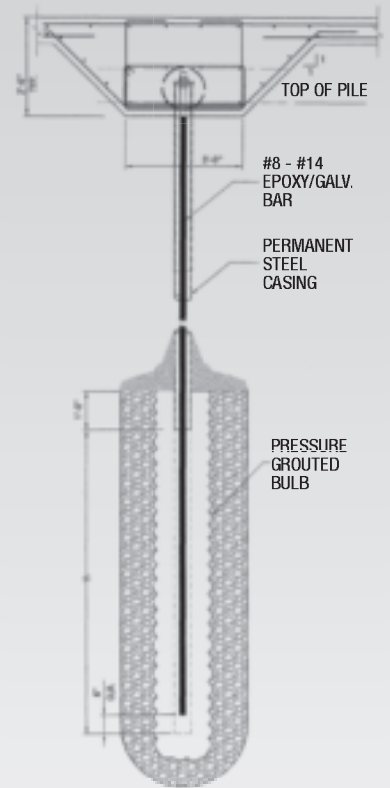


### Underpinning System



### New Construction, Maui

## MICRO PILE



Typical Micropile Detail

**Since 1985 in Hawaii, Structural Systems** and its allied company Kelikai have compiled decades of experience installing deep foundation systems. Our experience includes a range of piling systems for bearing support, and a selection of differing anchor systems for tension applications. Additionally, we are authorized installers of the Atlas and Chance brands of pre-engineered foundation systems for both new construction and remedial/underpinning applications. Hawaii has widely variable and difficult subsurface conditions. With their experience, our staff and field crews are peerless in their ability to address all the differing geotechnical conditions unique to Hawaii.



## STRUCTURAL SYSTEMS, INC.

General Engineering

P.O. Box 30296  
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website: [WWW.SSIHAWAII.COM](http://WWW.SSIHAWAII.COM)



Website: [hawaii.apwa.net](http://hawaii.apwa.net)

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Past Pres	Victor Valdez	356-1281
	<a href="mailto:vvaldez@ssfm.com">vvaldez@ssfm.com</a>	

### Meet & Greet event – July

A future Meet & Greet event will be forthcoming next month. Invitations will be extended to representatives from various State and City agencies. Please check [hawaii.apwa.net](http://hawaii.apwa.net) for additional information on this and other upcoming events.

### National Public Works Week – State Proclamation

Instituted as a public education campaign by APWA in 1960, National Public Works Week (NPWW) calls attention to the importance of public works in community life. NPWW is traditionally sponsored and observed during the third full week in May. Through the Week and other efforts, APWA seeks to raise the public's awareness of public works issues and to increase confidence in public works employees and professionals who are the often-unsung heroes of our society.

Earlier last month, Hawaii Chapter was presented with a State proclamation to designate May 21-27 as Public Works Week. Additionally, Hawaii Chapter maintained an exhibit of various recent public works projects to energize and educate the public on the importance of the contribution of public works to their daily lives. The annual exhibit was on display during NPWW in Kahala Mall. This year's theme "Public Works Connects Us" celebrated the vital role public works plays in connecting us all together.



**Photo, left to right: Secretary Rouen Liu, President Ryan Char, Membership Co-Chair Ross Sasamura, Governor David Ige, Delegate John Lamer, and Past President Victor Valdez.**



### 2016-2017 YMF Officers

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 Amanda Tanaka, Past President  
[atanaka@ascehawaiiymf.org](mailto:atanaka@ascehawaiiymf.org)

### YMF General Meeting

The next YMF general meeting is scheduled for Wednesday, June 7, 2017 at 6:00 pm at Kakaako Kitchen. 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](mailto:ymf.hawaii@gmail.com).

### NALC Food Drive at Hawaii Foodbank

On Saturday, May 13th, YMF members and friends volunteered at the 25th Annual National Association of Letter Carriers (NALC) Stamp Out Hunger Food Drive at the Hawaii Foodbank. The volunteers quickly sorted and boxed donated food into various categories as bins of food poured into the warehouse throughout the evening. Thank you to the YMF volunteers for their hard work to support this amazing cause.



<http://www.hawaiispe.org/>

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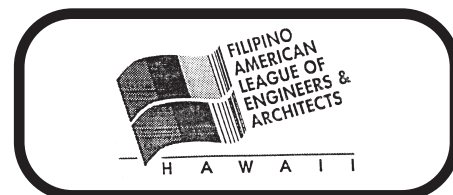
### Hawaii Section 2016-2017 OFFICERS

[www.aacehawaii.com](http://www.aacehawaii.com)

President: David Ladines  
 Vice President: Maelyn Uyehara  
 Secretary: Kristy Kastner, PSP  
 Treasurer: Chris Kanae  
 Director of Social Media: Cristo Rojas

Join AACE for the Wahe'e Tunnel Tour. This site visit will be led by the Board of Water Supply on Friday, June 2, 2017 at 2:30 PM. Happy Hour is planned to follow. For more information, please RSVP and obtain waiver information by email ([aacehawaii@section@gmail.com](mailto:aacehawaii@section@gmail.com)).

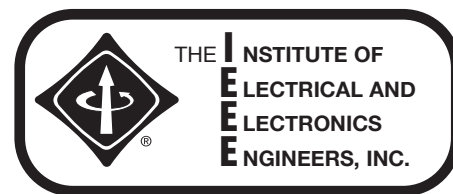
Our local Board Meetings are held monthly. Elections will be held at the end of May. Feel free to contact us with suggestions or interest. For more information, please visit our website [www.aacehawaii.com](http://www.aacehawaii.com).



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### IEEE Hawaii Section

#### Hawaii Section Officers

Section Chair: John Borland  
 Vice-Chair: Al Toda  
 Treasurer: Kurt Rognstad  
 Secretary: Grant Torigoe



**DESIGN COMPETITION, from page 1**

shape following actualization. Team members included: Matthew Barrett-Wright, Chad Nakaoka, Sean Saito, Lauren Sumida, Taylor Molde, Wei Lun Lian, Dayne Sasaki, and Bradley Beaudry.

**Third Place Team:  
Atmospheric Water  
Generator**

This work introduces a novel design for an Atmospheric Water Generator. This device utilizes desiccant dehumidification to concentrate water vapor molecules, while using a minimum power and delivering a high efficiency for condensation. The novelty of this design is in the mechanisms used during the desorption phase of an ADC (adsorption-desorption condensation) process. The molecular sieve that was utilized has a cubic molecular structure with a porosity of less than 3 angstroms, allowing it to uptake water vapor and passively filter out all biological and organic molecules. This action is advantageous at deriving potable water for human consumption without an energy input. The experiments developed data charts and graphs to demonstrating a relationship between humidity, temperature, and pressure during adsorption, thermal swing desorption, and pressure swing desorption. Team members included: Ame Arakaki, Ryan Chun, Garreth Goya, Blayton Padasdao, Eric Ucol, and Maverick Matsuoka.

**Fourth Place Team: CubeSat Attitude  
Determination and Control System (ADCS)  
Testing and Validation**

A CubeSat's ADCS requires testing and validation prior to launch to ensure the success of the mission. This requires simulation of the frictionless environment of space and the rotational dynamics that the satellite will experience. This is achieved by using a spherical air bearing which provides frictionless rotation about

the three primary axes, with freedom of rotation about the vertical Z axis and up to 45 degrees of tilt about the X and Y Axes. Previous work has been conducted on assemblies capable of testing CubeSat ADCS. These assemblies include a balancing mechanism to co-locate the center of mass of the assembly with the kinematically defined center of rotation, thus eliminating gravitational torques. The balancing mechanism chosen for this project includes a manual coarse mass trimming system and a motorized fine mass trimming system along each principal axis. The trimming systems move a mass along a threaded rod which shifts the center of mass. This project closely matches the moment of inertia of the test assembly with that of the actual satellite in addition to eliminating the gravitational torques. Team members included Brialyn Onodera, Yosef Ben Gershom, Jonah Ang, and Mars Rayno.

Other Teams Competing included:

- SAE Regular Aero
- Manoa Astronomical



**(L-R): Ame Arakaki, Ryan Chun, Garreth Goya, Blayton Padasdao.  
Not in Photo: Eric Ucol, Maverick Matsuoka.**



**(L-R): Brialyn Onodera, Yosef Ben Gershom, Jonah Ang, Mars Rayno.**



**Society of Women Engineers**

*Hawaiian Islands*

SWE – Hawaiian Island Section  
P.O. box 61728  
Honolulu, HI 96839  
Swe.hisecion@gmail.com

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Vice Pres.: Valerie Mencias  
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Alt Sec Rep.: Pearl Yamaguchi

**Technologies**

- Electric ATV
- Human Powered Vehicle (HPV)
- Kanaloa (Wave Adaptive Modular Vessel)
- SAE Formula
- UH Drone Technologies

Coordinating this event for the DME were Dr. Mehrdad Ghasemi Nejhad, DME Chair and UHM DME ABET Chair, and Dr. A. Zachary Trimble, ASME Faculty Advisor.

## Professional Directory

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