



NATIONAL  
**ENGINEERS  
WEEK**

PACIFIC  
**BUSINESS NEWS**

SPECIAL ADVERTISING SECTION

# The Hawaii Council of Engineering Societies honors four outstanding individuals during National Engineers Week | Feb. 21-27, 2021



## David G. Waller, P.E.

### *2021 HCES Lifetime Achievement Award*

David G. Waller is posthumously 2021's HCES Lifetime Achievement Award recipient. This award honors the achievements of an outstanding retired engineer who has contributed significantly to the development of engineering in Hawaii. In his 46 year engineering career Mr. Waller has directed his efforts to developing a resource essential for our modern society, energy.



## Steve Baldrige, P.E.

### *2021 Hawaii Engineer of the Year*

Steve Baldrige was selected by the Hawaii Society of Professional Engineers, as the 2021 Hawaii Engineer of the Year. Mr. Baldrige is founder and President of Baldrige & Associates Structural Engineers, Inc. He and his firm have become leading designers in specialty areas and he has served on/chaired technical committees. He works with Hawaii's youth with emphasis on encouraging STEM.

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## Kapiolani Street, P.E.

### *2021 Hawaii Young Engineer of the Year*

Kapiolani Street was selected by the Hawaii Society of Professional Engineers as the 2021 Hawaii Young Engineer of the Year. Ms. Street works as a Project Engineer at the Limtiaco Consulting Group. Her projects include stormwater erosion control design, wastewater system design, site development and utility design. She has served/is serving in many engineering groups.

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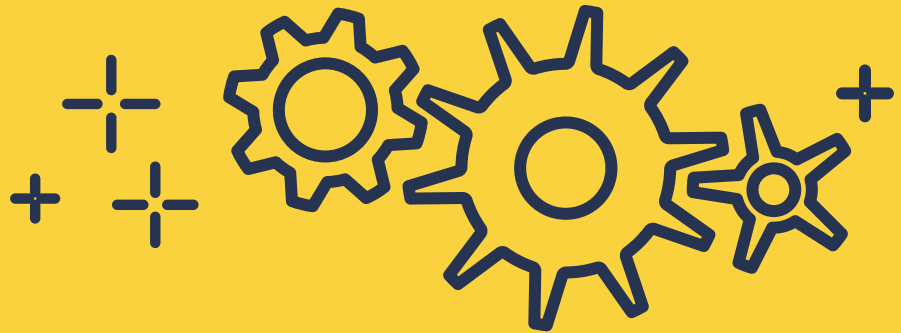
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## Willy Chang

*2021 Student Engineer of the Year*

Willy Chang was selected as the 2021 Student Engineer of the Year by a UHM College of Engineering faculty committee. Mr. Chang is expected to graduate with a BS in Computer Engineering and a minor in Business Administration this spring 2021. He will be continuing into the UHM COE Electrical Engineering Masters Program.



## *Congratulations to the Outstanding Engineers of 2021*



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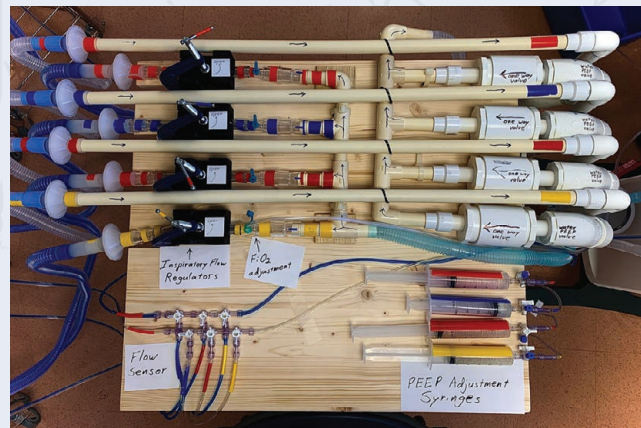
# The College of Engineering drives efforts to combat COVID-19

Since the start of the COVID-19 pandemic a year ago, the University of Hawai'i at Mānoa College of Engineering has played a central role in driving research and innovation to combat the virus and its effects both locally and around the globe. Engineering students and faculty have worked on a vast array of projects in collaboration with public and private organizations to utilize cutting edge technologies to achieve these goals. These projects have taken a number of forms, a sampling of which are shared below. The College would like to thank its students, faculty, industry partners, alumni, and friends for continuing to pivot and innovate, engineering a path for a brighter tomorrow and supporting its mission.

## *Expanding ventilator capacity*

In April, mechanical engineering associate professors A Zachary Trimble and Scott Miller teamed up with fellow UH faculty and a physician at Straub Medical Center to develop an innovative technique to treat up to four COVID-19 patients with a single ventilator - a technique that could save lives in Hawai'i and around the world. The system was designed to be implemented only in an emergency

if all ventilation capacity has been used. If needed, it would enable four times the number of patients to be treated, and it would allow doctors worldwide to make modifications because the shared ventilator system is sourced by parts they can find at local hardware stores.



## *Safety of reusing N95 masks*

Associate professor of mechanical engineering Tyler Ray is part of N95DECON, a national volunteer effort focused on



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developing guidance for hospitals on how to decontaminate masks for reuse. The group, composed of scientists, engineers, students and clinicians from the private sector and universities nationwide, aims to address the worldwide mask shortage that has had the administrators of some facilities exploring ways to reuse personal protective equipment and find a reliable method for decontamination.

**Wastewater surveillance with NSF funding**



Civil and environmental engineering professor Tao Yan is leading a research project that aims to discover the community disease burden of COVID-19 through wastewater testing and surveillance. The project drew the attention of the National Science Foundation (NSF) and received a grant for more than \$150,000 last April. Yan's research involves collecting time-sensitive wastewater samples from

communities impacted by the disease, with assistance from UH facilities and local wastewater utilities, and developing a highly efficient concentration and detection method that is specifically optimized for the enveloped virus in wastewater.

**COVID-19 airborne transmission research**

A College of Engineering review article presents a breakthrough in multidisciplinary understanding of the airborne transmission of COVID-19 and researchers say they hope the findings contribute to future public health guidance.

An integrated review published in ACS Nano by mechanical engineering Professor Yi Zuo and Assistant Professor William Uspal, together with Associate Professor Tao Wei from Howard University, covers the entire exhalation-to-infection pathway. Drawing on aerodynamics, thermodynamics, molecular biophysics and other fields, their review considers how infectious aerosols disperse in the air, deposit in the lung and interact with cell receptors.

**AI innovation may improve COVID-19 diagnosis**



A new artificial intelligence (AI) innovation developed can test individuals for COVID-19 with greater accuracy and safety, and a University of Hawai'i at Mānoa team is working

**IMAGINING  
TOMORROW**



Thank you to all the "Outstanding Engineers" award winners for shaping the future with your passion for engineering, design, and construction.

**Congratulations on your nominations and success!**

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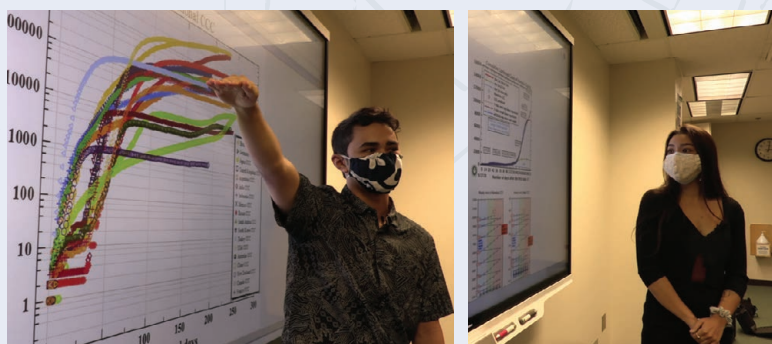


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with medical professionals to put it into action. UH Mānoa electrical engineering Assistant Professor Il Yong Chun and his team developed new AI systems that can reconstruct high-quality images at lower dosages.

Chun's innovation, the state-of-the-art iterative neural network, called Momentum-Net, was recently published in IEEE Transactions on Pattern Analysis and Machine Intelligence, the most prestigious journal in AI and computer vision. Momentum-Net can rapidly solve a wide range of problems in imaging, image processing and computer vision. Chun is working with medical physicists and radiologists at The Queen's Medical Center to determine how to implement it in the hospital.

**Student-engineered COVID-19 forecast model**



In August, a predictive model that forecasts COVID-19 cases and deaths in Hawai'i was developed by University of Hawai'i at Mānoa civil and environmental engineering students, under the guidance of civil and environmental engineering Professor Albert Kim. Their goal is to inform residents about the pandemic and explain how science could be used to predict future cases.

The model forecasts cumulative confirmed cases and deaths across Honolulu, Kaua'i, Hawai'i and Maui counties. It is based on a prior study by Kim which analyzed the 1st wave of COVID-19 cases across countries from the Group of Twenty, the premier forum for international economic cooperation. Kim said his research discovered similarities including when the number of cases peaked, the increases in death counts and the policies instituted by governments to control its spread.



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