



# COLLEGE OF ENGINEERING LEARN BY DOING

Spring 2022

ABOVE: Cal Poly civil and environmental engineering students, from left to right, Carson Bak, Sarah Scherzinger, Heather Migdal and Nick Toma paddle during the coed race at the 2022 American Society of Civil Engineers (ASCE) Concrete Canoe Competition, June 3-5, at Louisiana Tech University. The Cal Poly team won its record sixth national championship.



**CAL POLY**  
College of Engineering

# CENG Receives Gift to Create the Noyce School of Applied Computing



CAL POLY IS PLEASED TO ANNOUNCE THE establishment of The Noyce School of Applied Computing, a new interdisciplinary school (the first of its kind at Cal Poly) combining three departments under one umbrella — Electrical Engineering, Computer Science and Software Engineering, and Computer Engineering — to create interdisciplinary collaboration opportunities for departments and faculty doing applied computing across the university in fields such as statistics.

The Noyce School is made possible by donations received from the Robert N. Noyce Trust — with its current intention to make a future eight-figure bequest to Cal Poly’s College of Engineering. Robert N. Noyce was a co-founder of Intel and inventor of the integrated circuit, which fueled the personal computer revolution and gave Silicon Valley its name. Nicknamed the “Mayor of Silicon Valley,” Noyce’s impact on the field of computing and society at large cannot be overstated.

The creation of The Noyce School (pending

CSU Board of Trustee approval) will, among other things, provide faculty with additional resources for teaching and applied research and undergraduate students in computing with opportunities to further their interests in teaching and learning. Students will also benefit from industry opportunities for paid internships and opportunities for mentors to provide guidance and counseling along the way.

“These donations and the proposed extraordinary bequest from the Noyce Trust will help to fulfill a vision that the faculty of the college have been promoting for a long time, which is to establish a school of applied computing at Cal Poly,” said Amy Fleischer, dean of the College of Engineering.

[READ MORE](#)

**“These donations and the proposed extraordinary bequest from the Noyce Trust will help to fulfill a vision that the faculty of the college have been promoting for a long time, which is to establish a school of applied computing at Cal Poly.”**

Dean Amy S. Fleischer





# Professor Receives NSF's Faculty Early Career Development Award

*Computer science professor Jonathan Ventura wears a virtual reality headset at his office.*

COMPUTER SCIENCE AND SOFTWARE Engineering Professor Jonathan Ventura wants to help others capture and share immersive virtual reality experiences from their cell phone. This April, he received a prominent \$425,786 Faculty Early Career Development (CAREER) Award from the National Science Foundation (NSF) to support his efforts.

"While most digital media today consist of flat, two-dimensional images and video, virtual reality technology allows us to share a complete three-dimensional representation of our world," said Ventura, a professor in the Computer Science and Software Engineering Department since 2018. "If the project succeeds, we will be able to capture and share immersive virtual reality experiences from our smartphones, just like we share images

and video today, so that friends and family can truly experience 'being there' with us."

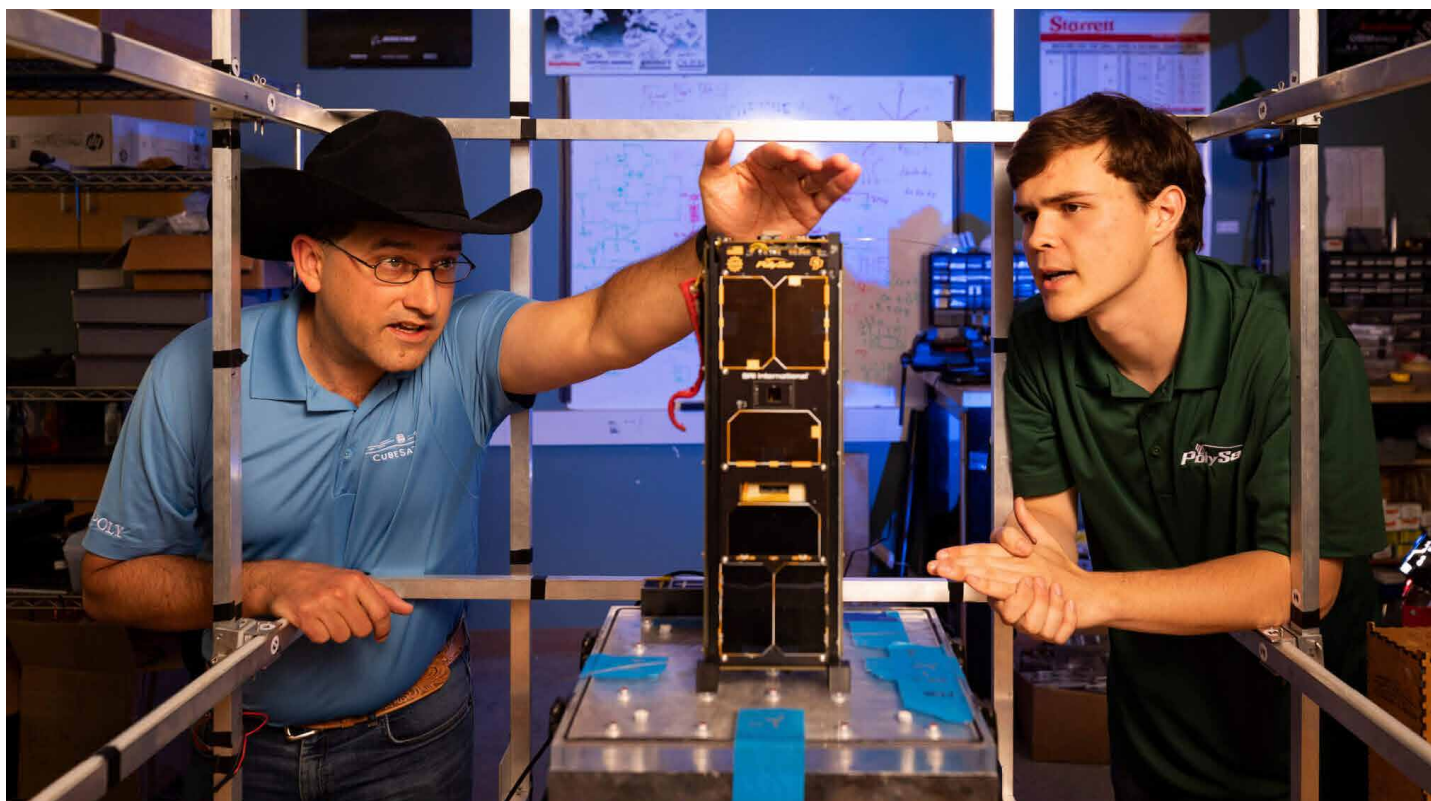
Ventura said the development of widespread and consumer-accessible technology for sharing high-quality virtual reality experiences would create more impactful and lasting learning experiences and offer more opportunities to record meaningful experiences that might otherwise be lost.

"There are many fascinating technical challenges to solve before we can achieve this, such as how to make the capturing procedure fast and intuitive; how to handle dynamic scenes and varying capture conditions; and how to efficiently store and render scenes so that we can practically transfer and display them with consumer hardware," Ventura said.

**"If the project succeeds, we will be able to capture and share immersive virtual reality experiences from our smartphones, just like we share images and video today, so that friends and family can truly experience 'being there' with us."**

Jonathan Ventura

[READ MORE](#)



*John Bellardo, computer science professor, and student Ryan Hunter inspect a CubeSat.*

# Game-Changing CubeSats, Co-Founded at Cal Poly, to be Inducted into Space Technology Hall of Fame

The key to understanding the wide-ranging influence of CubeSats, said co-creator Jordi Puig-Suari, is to think of the mini-satellites as the sandbox where the industry learned how to do space in a different way.

“Faster, smaller, taking more risk and leveraging the technological developments of non-space industries, such as the commercial electronics sector,” said Puig-Suari, a retired Cal Poly aerospace engineering professor. “Those new ways of doing business that were introduced by CubeSats form the basis of many of the new missions being developed by space companies.”

The CubeSat design standard, which he created with now-retired Stanford University professor Bob Twiggs, will be inducted

into the Space Technology Hall of Fame. The Space Foundation will bestow the honor during the 37th Space Symposium in Colorado Springs April 4-7.

Puig-Suari and Twiggs created the CubeSat — a satellite the size of a bread loaf — as a teaching tool in 1999. Initially intended to give students experience in satellite functionality, the standardization of the invention made it relatively simple and affordable for other schools, governments and private organizations to create satellites that could be launched into space and used for research.

[READ MORE](#)

**“Those new ways of doing business that were introduced by CubeSats form the basis of many of the new missions being developed by space companies.”**

Jordi Puig-Suari





# Cal Poly's Concrete Canoe Team Wins Sixth National Championship

BACK IN THE WATER AFTER A TWO-year delay because of the COVID-19 pandemic, the Cal Poly concrete canoe team returned to its winning ways at the 2022 American Society of Civil Engineers (ASCE) Concrete Canoe Competition on June 3-5, at Louisiana Tech University. The victory marks Cal Poly's sixth championship in the 35-year history of the competition.

Competing with their space-themed canoe "Europa" against 19 other universities in Ruston, Louisiana, located about 240 miles north of New Orleans, seven Cal Poly civil engineering students and an environmental engineering major not only swept the races but also finished first in the technical presentation and technical proposal categories of the competition and second in the final product prototype. Université Laval of Canada finished second, Western Kentucky was third, Youngstown State was fourth and New York University-Tandon finished fifth.

Cal Poly also received the R. John Craig Memorial Award, which honors the New

Jersey Institute of Technology professor who spent several years promoting his grand vision of the National Concrete Canoe Competition to the ASCE but died just months before the first event was held in 1988. In the years since, the competition has become a perennial favorite for tens of thousands of college students in the United States and beyond.

ASCE presents the award to the winner of the Coed Sprint Race as a memorial to the teamwork and dedication of Craig.

"It feels amazing," said civil engineering senior Heather Migdal, construction team lead. "My team and I have sacrificed so much of our time working on the canoe this year, so taking home the national title made it all worth it. It truly became a labor of love."

[READ MORE](#)

**"It feels amazing. My team and I have sacrificed so much of our time working on the canoe this year, so taking home the national title made it all worth it. It truly became a labor of love."**

Heather Migdal

# First Change the World Challenge Winners Announced



SPONSORED BY BILL SWANSON, THE Change The World Challenge, a university-wide initiative featuring multiple teams developing solutions using a systems approach, awarded \$35,000 in prizes at the event on Saturday, May 7.

This year's Change the World Challenge theme was Solutions for Living in a Post-COVID World. Student teams spent three quarters balancing technical concerns with social, cultural, economic, historical, political and environmental implications. Through the challenge, a wide range of ideas were considered, and complicated problems required students to take many approaches to solutions, making this Change the World Challenge an interdisciplinary Learn by Doing success.

First place, and \$20,000, was awarded to Brandon Janney (ME), Annie Kettmann (CLA) and Ahkar Kyaw (ME) for their design of a modular hydroponic approach to growing strawberries and other produce locally, cutting down on shipping costs and combating climate change. Second Place, and \$10,000, was awarded to Aidan Ashworth (CLA), Shannon Bailey (CAFES) and

Vy Vu (CE) for their concept of connecting, educating and enabling an online and local community about the role of vermiculture in reducing the greenhouse gases that result from landfilling food waste and third place, and \$5000, was awarded to Ashleigh Austin (CLA) for her online community vision "Maternal Voices of Color" which aims to increase access to prenatal health care in underserved communities.

*Change the World Challenge: Winning team "Strawberries for a Post-COVID World" with the judges. From left, Chuck Harrington (Agricultural Engineering, '73), Paul Bonderson (Electrical Engineering, '75), Brandon Janney (Mechanical Engineering), Ahkar Kyaw (Mechanical Engineering), Annie Ketterman (Political Science), Bill Swanson (Industrial Engineering, '73) and Susie Armstrong (Computer Science, '82).*

[READ MORE](#)



*Mechanical engineering student Ahkar Kyaw presents his project "Strawberries for a Post-COVID World."*





Environmental engineering student Siena Romito checks out the algae growth at the SURE! (Sustainable Utilities Research and Education) site in San Luis Obispo. Students in the SURE! program seek to find solutions within the water energy nexus to provide sustainable solutions to renewable energy, wastewater recycling and resource recovery. Specifically, the team has worked on algae based wastewater treatment, algae biofuels, conversion of wastewater solids to energy, potable re-use and dairy wastewater treatment.

# COLLEGE OF ENGINEERING

## More Learn by Doing Highlights

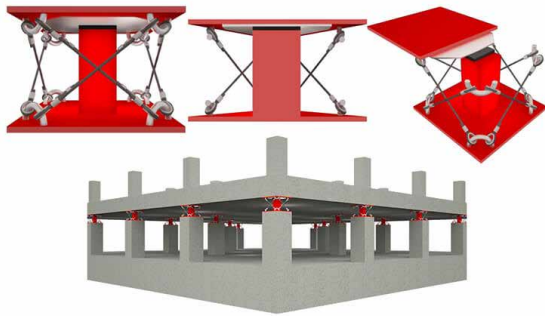
Spring 2022



**CAL POLY**  
College of Engineering

## CENG Professor Obtains Earthquake Protection Patent

7.7.2022



Working in collaboration with colleague Dr. Narjabadifam in Iran, Cal Poly Mechanical Engineering Professor Dr. Mohammad Noori has recently obtained a patent for inventing a novel earthquake protection system. Noori has been involved in the development of seismic isolation systems since the mid-1980s. Research and development into the subject have produced several “smart” materials with unique properties including the basis behind Noori’s patent: an alloy that is able to return to its original shape after being deformed.

[READ MORE](#)

## General Engineering Student Awarded Advanced Energy Scholarship

6.29.2022



*Nick Campbell works on a lathe in the Hangar Shop.*

Advanced Energy Industries, Inc. (Nasdaq: AEIS) – a global leader in highly engineered, precision power conversion, measurement and control solutions – today announced the recipients of the 2022 Advanced Energy STEM Diversity Scholarship Program. Awardees are Ashleigh Hunt, Rochester Institute of Technology; Manuel Alva, University of Colorado Boulder; and Nick Campbell, California Polytechnic State University, San Luis Obispo.

[READ MORE](#)

## Outstanding Cal Poly Grad Ready to Embrace Future Shaped from Learn by Doing

6.9.2022



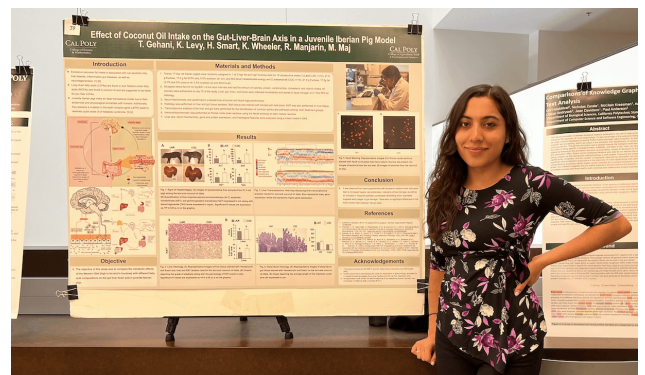
*Karan Singh was named CENG’s Outstanding Graduate*

Karan Singh is unique among his classmates. At Lathrop High School, most seniors are readying for diplomas and thinking about college in the fall. Singh, 18, knows the feeling — but he finished at Lathrop three years ago. Now, he’s excited about receiving his bachelor’s degree, magna cum laude, in electrical engineering (he concluded his studies at Cal Poly in March) and starting graduate school.

[READ MORE](#)

## Biomed Student Wins CSU Research Competition

6.9.2022



*Biomedical engineering student Tanvi Gehani took first place at the CSU Research Competition.*

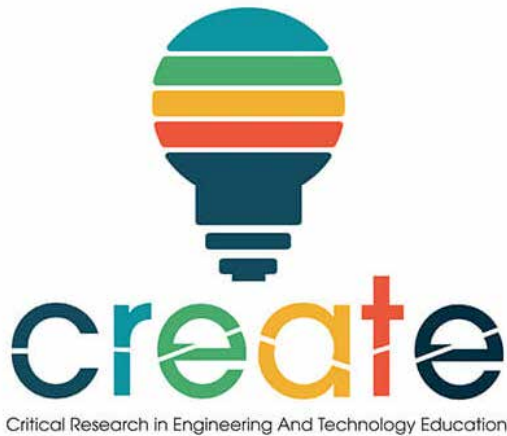
Cal Poly biomedical engineering student Tanvi Gehani took first place in her category at this year’s CSU Research Competition with her project, “A study into different types of saturated fat sources and their effects to the liver and overall gut health.” The CSU Research Competition brings together students from CSUs across California to present their research.

[READ MORE](#)



## CREATE Research Team Publishes Paper

6.6.2022



A team of student and faculty researchers published their paper, "Using Utility Value Interventions to Explore Student Connections to Engineering Mechanics Topics," on ASEE PEER. The mechanical engineering Critical Research in Engineering and Technology Education (CREATE) research group includes Professors Ben D. Lutz and Brian Self and students Isabella Sorensen and Dominick Trageser.

[READ MORE](#)

## Cal Poly Students Take First Place at Inclusive Design Competition

6.6.2022



*Alex Zuniga (left) stands with students Nico Nuñez, Jacob Richards, and Joey Johnson and their IDEATE Competition winning project, the eZcart.*

A team of three Cal Poly industrial and manufacturing engineering students took first place at this year's IDEATE Engineering Competition with their senior project: the eZcart, a janitorial cart designed to help reduce fatigue and discomfort for those with mobility impairments.

[READ MORE](#)

## Cal Poly Amateur Radio Club Receives Grant

6.1.2022

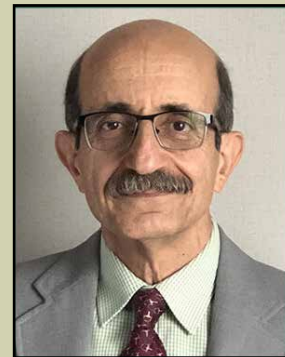


Cal Poly Amateur Radio Club (CPARC) has received a \$22,000 grant from Amateur Radio Digital Communications (ARDC), a private foundation that supports amateur radio and digital communication science and technology. CPARC has been using this grant to perform a variety of projects, including an upgrade of the club's remotely operable High Frequency radio station, which will allow students to operate the station with just a computer or smartphone. Club members are also upgrading the station's battery backup system and installing solar panels to allow "off-grid" emergency operation.

[READ MORE](#)

## Dr. Mohammad Noori Published in Sensors

5.26.2022



Dr. Mohammad Noori, professor of mechanical engineering, and his colleagues have recently published the following journal paper in a special volume of *Sensors*, a highly-ranked journal: Tianyu Wang, Huile Li, Mohammad Noori, Ramin Ghiasi, Sin-Chi Kuok and Wael A. Altabay, Probabilistic seismic response prediction of three-dimensional buildings based on Bayesian convolutional neural network, *Sensors*, 2022, 22, 3775.

[READ MORE](#)

## Cal Poly Solar Regatta Club Wins Awards

5.20.2022



The Cal Poly Solar Regatta Club took home several awards during the Solar Regatta annual competition hosted by the Sacramento Municipal Utility District (SMUD). Members Niko Banks, a March 2022 bachelor's and master's degree graduate in mechanical engineering; Emerson Nicholas and Cooper Nichols, both first year mechanical engineering students; and Kaveh Shafiei, first year electrical engineering student, took home 2nd place overall and individual awards for fastest slalom time, best drivetrain and best presentation.

[READ MORE](#)

## Medizade Shares Expertise at Society of Petroleum Engineers Regional Meeting

5.18.2022



Mechanical Engineering Professor Mason Medizade participated in the Society of Petroleum Engineers Western Regional Meeting held in Bakersfield in April. Medizade served on the technical committee and chaired the technical session on heavy oil. He was also the co-author of the paper, "Orcutt Field Thermal Diatomite Case Study: Matrix Flow Cyclic Steam Injection in the Careaga Lease, Santa Barbara, Ca."

[READ MORE](#)

## Summer Undergraduate Research Program (SURP) Abstracts for 2022

5.12.2022



*Mechanical engineering students Ryan Dubois and Sophie Getty take measurements from solar panels outside the solar lab as part of the Summer Undergraduate Research Program (SURP).*

Abstracts for the 2022 Summer Undergraduate Research Program have been posted. Over the summer, SURP students and faculty will work collaboratively on cutting-edge research to solve critical issues facing the world today.

[READ MORE](#)

## CENG Professors Selected for CSU Leadership Institute

4.23.2022



Anurag Pande, civil and environmental engineering, and John Pan, Industrial and Manufacturing Engineering, were selected as two of seven Cal Poly faculty participating in "Building with Inclusive Leadership Institute" at San Diego State University in May. The goal of the institute is to "build on the leadership potential that already exists within the CSU."

[READ MORE](#)



## Alumnus Finds Motivation Through Invention

4.22.2022



**1961 electronic engineering alumnus Jim Rodgers credits his Cal Poly education for his business success**

A highly-successful engineer, inventor and businessman, 1961 electronic engineering alumnus James (Jim) L. Rodgers remains a strong proponent of the polytechnic education he received in San Luis Obispo. "My years at Cal Poly has remained a cornerstone in my life," Rodgers said on a recent trip to campus from his home in Fresno, Calif.

[READ MORE](#)

## Cal Poly Awards Over \$108,000 in Grants for Student Research Projects

4.1.2022



Cal Poly has awarded more than \$108,000 to support 33 student research projects through the university's Baker/Koob endowments, which support hands-on, project-based learning opportunities for individual students and groups. Student projects will be focused on issues including space exploration, machine learning and climate change.

[READ MORE](#)

## Back in Time: New Scholarship Has Student Paying 1980 Tuition

3.22.2022



**Steve Deas, center, hopes his scholarship will inspire others. Pictured with him is his wife, Jane Rosenberg, left, and scholarship recipient Annabella Piercey.**

With finals approaching, freshman Annabella Piercey was busy studying in her dorm room last fall when she received an unexpected email, informing her that someone had picked up the tab for most of her college tuition.

[READ MORE](#)

## CENG Dean Elected to National Deans Council Committee

3.21.2022



**Jacques Belanger, left, mechanical engineering assistant professor, and mechanical engineering student Andy Kim, right, show Dean Amy Fleischer the Cal Poly Solar Farm.**

Amy S. Fleischer, dean of Cal Poly's College of Engineering, will play a significant role in providing vision and leadership to engineering education across the nation as a member of the executive committee of the Engineering Deans Council.

[READ MORE](#)

## The Art of Engineering: Donated Art to Add Color and Style to CENG Walls

3.17.2022



*Chris Lupo, chair of the Computer Science & Software Engineering Department, and Professor Zoë Wood show donated art in the main computing lab.*

An initiative introducing more artwork to the college will make the walls of multiple engineering buildings more visually appealing — and, according to at least one study, more welcoming to underrepresented students.

[READ MORE](#)

## EMPOWER Club Gives Students Hands-on Experience Helping Real People with Challenges

3.4.2022



*The EMPOWER club helps improve quality of life for individuals with physical challenges.*

Pearse Lipscomb realized the impact he could have at Cal Poly when a Cuesta College student strummed a guitar for the first time using a prosthetic hand Lipscomb helped create. “He was a little bit emotional,” Lipscomb said. “All of us were. It was a beautiful thing.”

[READ MORE](#)

## Lynne Slivovsky Dives Into Role as First Chair of the Computer Engineering Department

3.2.2022



*Lynne Slivovsky, who has been a diver since the early 90s, recently became the first chair of the Computer Engineering Department.*

Whenever Lynne Slivovsky dives at the Cal Poly Pier, she might be able to see as little as a few inches in front of her or as far out as 30 feet. “There’s a lot of stuff that affects the visibility out there,” she said. “But when it’s clear, it’s really spectacular.”

[READ MORE](#)

## CSSE Students Help Provide Crucial Medical Record System to Areas Experiencing a Crisis

2.22.2022



*CSSE faculty members Bruno da Silva, left, and BJ Klingenberg and their students have been working with Team fEMR on an electronic medical record system that would make medical records easily accessible during disasters.*

More than a decade after Sarah Draugelis volunteered to help earthquake victims in Haiti, there’s one patient she can’t forget. A pregnant woman with gestational diabetes needed insulin.

[READ MORE](#)



## American Energy Society Recognizes Cal Poly and the Electric Power Institute

2.10.2022



This issue of Energy Today shines a spotlight on 20 under-appreciated university programs making outsized contributions to energy, including the Electric Power Institute (EPI). If there is one unifying feature among all of these exceptional programs it is this: they all take a creative approach to practical concerns outside traditional fields.

[READ MORE](#)

## Dr. Anurag Pande Co-Authors Book on Resilient Transportation

2.10.2022



Dr. Anurag Pande, Civil & Environmental Engineering, has co-authored a book on creating resilient transportation systems. The book examines transportation systems in relation to risk, vulnerability, adaptation, mitigation, sustainability, climate change and livability.

[READ MORE](#)

## MATE Department's Anniversary Campaign Doubles Fundraising Goal

1.29.2022



**Materials engineering lecturer Desalegn Alemu Mengistie shows MATE student Vincent Guarino how to operate a scanning electron microscope.**

A fundraising campaign coinciding with the Materials Engineering Department's 60th anniversary exceeded expectations, nearly doubling its goal, said Department Chair Trevor Harding. The campaign, which raised close to \$45,000, was matched with \$50,000 provided by alumnus Bill LaFontaine.

[READ MORE](#)

## On the Move: Zeeshan Khan's Startup, Zoetic Motion, Aims to Help Injured Athletes Heal

1.29.2022



**Zeeshan Khan works with business partner Ivet Avalos on their startup during the Summer Accelerator program.**

Having suffered a few broken bones himself through the years, Zeeshan Khan knows there's an important mental aspect to recovery. "You have to push," he said. "You have to remain mobile."

[READ MORE](#)

## LAES student Teams win in the “Florida Hacks with IBM” national hackathon

1.26.2022

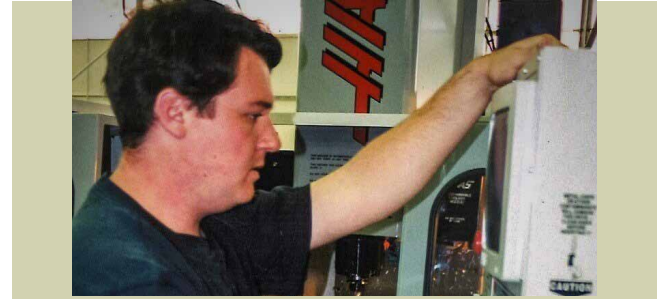


The University of Florida and IBM held a multi-month nationwide hackathon to develop solutions to combat climate change. The hackathon issued challenges to the nation to work in multidisciplinary teams to compete in developing solutions to one of six climate change challenges. These challenges were “Climate Change & Florida Ecosystem,” “Improving the Condition of Florida’s Waterways,” “Sustainable Fisheries,” “Power Consumption,” “Animal Agriculture,” and “Wildcard.”

[READ MORE](#)

## Homecoming: Haas VP Returns to His Alma Mater to Help Dedicate New Labs

1.20.2022



*Scott Gasich, pictured at Cal Poly in 1998, was a regular in the machine shop. He is now vice president of sales and marketing at Haas Automation.*

In the spring of 1998, Scott Gasich was intrigued when he saw an internship opportunity with Haas Automation posted on the bulletin board outside the Industrial and Manufacturing Engineering office. At the time, he had been working on two Haas machines at Cal Poly and actively involved with Cal Poly Racing.

[READ MORE](#)

## Engineering for Good: IME Course Applies Production Principles While Stocking Cal Poly Food Pantry

1.13.2022



*Students in three IME 101 sections prepared 2,300 trail mix packages, which were distributed to the Cal Poly Food Pantry.*

Having dealt with financial hardships and food insecurity himself, Elias Morales could easily identify with the students he interviewed for a project that provided 2,300 packets of trail mix to the Cal Poly Food Pantry.

[READ MORE](#)

## CENG Social Media

[ceng.calpoly.edu/connection](https://ceng.calpoly.edu/connection)



[twitter.com/polyengineering](https://twitter.com/polyengineering)



[facebook.com/CalPolySLOEngineering](https://facebook.com/CalPolySLOEngineering)



[instagram.com/polyengineering](https://instagram.com/polyengineering)



**CAL POLY**  
College of Engineering