

College of Engineering

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Fall 2023



CAL POLY
College of Engineering



Civil engineering students Grant Cole, Brooke Harris and Roxanne Oles seal the mold for the 2024 Cal Poly Concrete Canoe during a work session in October.

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Cover Photo

Electrical engineering students Andrew Chookaszian and Nikolas Tambornini take a selfie with Pascal, the Cal Poly Robotics Club's robot, in Engineering Plaza. See story on Page 4



Electrical engineering Assistant Professor Jason Poon is researching innovative computer methods for managing power systems, funded by a \$496,000 grant from the National Science Foundation.

Electrical Engineering Professor Secures \$496K Grant to Tackle Grid Challenges with Advanced Computing

Driven by a mission to transform power grids, Cal Poly Assistant Professor Jason Poon has secured \$496,000 in grant funding to develop innovative computer methods for managing power systems.

The award from the National Science Foundation is a collaborative grant that sends \$267,000 to Cal Poly and \$229,000 to the University of Minnesota for the three-year project: “Electronic Analog and Hybrid Computing for Power and Energy Systems.”

“Managing the grid has become much more complex in the last 10 to 20 years,” said Poon, who began teaching electrical engineering at Cal Poly in 2022, “and existing computing tools are limiting our ability to make the grid more sustainable, reliable and efficient.”

The evolution can be attributed to the rapid adoption of distributed energy resources, such as solar and wind, which can introduce rapid fluctuations in energy generation due to factors like weather conditions, along with the increased adoption of electric vehicle (EV) charging that can contribute to higher electricity demand, especially during peak charging times.

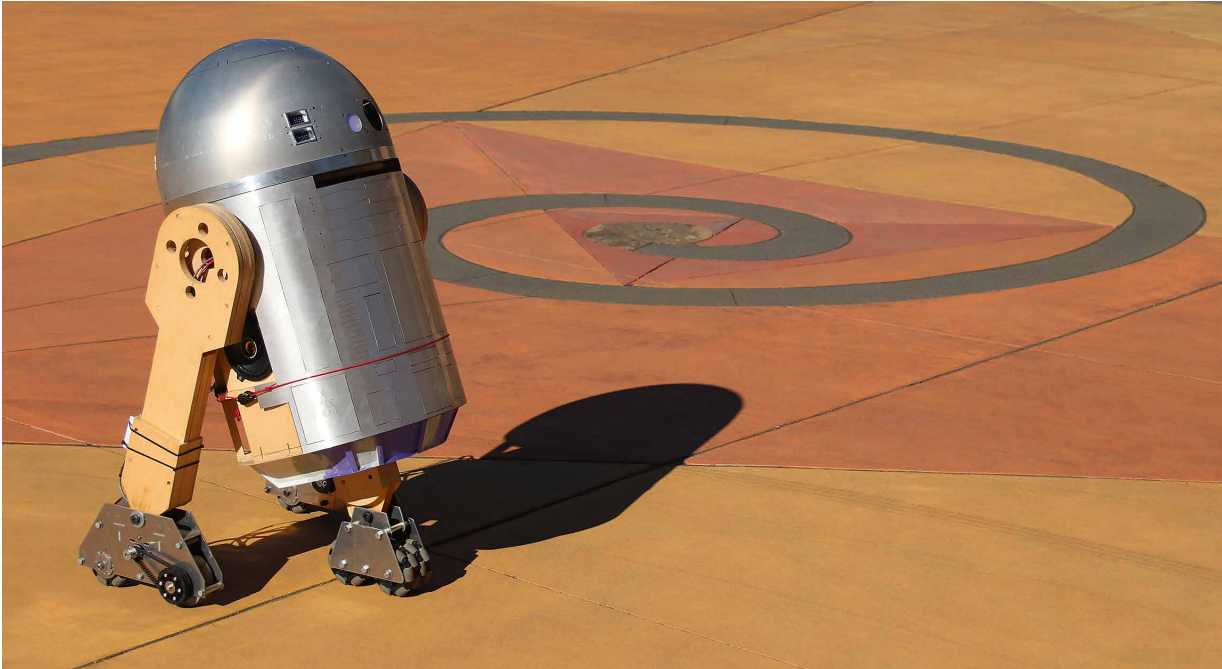
Using these new energy sources and loads is crucial to achieve global sustainability targets but incorporating them into the grid poses challenges in planning, operation and monitoring, according to Poon.

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“Managing the grid has become much more complex in the last 10 to 20 years and existing computing tools are limiting our ability to make the grid more sustainable, reliable and efficient.”

— Jason Poon

Reaching Galactic Milestones: Cal Poly's 'Star Wars' Droid Takes First Drive, Gets Official Name



Pascal, the Cal Poly Robotics Club's droid, cruises through Engineering Plaza. Getting the robot to drive was a major milestone for the club.

The robot formerly known as Astromech has a new name.

Cal Poly's Robotics Club held a spirited naming session in spring as members took another step in the yearslong process of reimagining the iconic R2-D2 from "Star Wars."

Professor John Seng, a computer science and computer engineering expert, launched the project post-COVID to reinvigorate the club he advises. Once members returned to campus, they unified around the idea of building an autonomous droid to the exact specifications of the movie version of R2-D2.

Last year, they completed the robot's wood frame, added three wheeled legs and a metal dome and began calling him Astromech – a small, versatile droid in the "Star Wars" franchise that can fix and maintain starships. They rounded out the year by giving the droid an official name in a complex process

that spanned a three-hour meeting as members set voting rules and whittled down the list that started at 30.

Suggestions ranged from Steve and Nacho to Gregg and the eventual winner: Pascal, or more specifically R4-PAS.

"I think people ended up very happy," said Col Cook, a third-year mechanical engineering major who is returning as a mechanical lead on the project. "There was a very clear winner."

Pascal pays homage to actor Pedro Pascal, who plays Din Djarin in the "Mandalorian" TV series, and the programming language developed in 1970. The R4 designation describes a specific droid, designed for life outside the hangar bay, and the PAS adheres to the naming conventions of "Star Wars."

[READ MORE](#)

"Everyone was excited when we got Pascal to drive for the first time. It was definitely a breakthrough for the club."

— John Seng



Cal Poly College of Engineering Dean Amy S. Fleischer was named the national recipient of the Diversity, Equity & Inclusion Program Award by the Society of Women Engineers (SWE) for her exceptional leadership in creating a more inclusive STEM community.

College of Engineering Faculty Members Honored by Society of Women Engineers for Advancing Diversity

Three Cal Poly faculty members considered to be national trailblazers have been selected as 2023 Society of Women Engineers award recipients for their significant contributions to the promotion of gender diversity and inclusion in STEM.

The Society of Women Engineers (SWE) honorees include Amy S. Fleischer, College of Engineering dean; Lizabeth Thompson, General Engineering Program director and industrial engineering professor; and Helene Finger, Cal Poly's Women's Engineering Program director.

Civil engineering master's student Isabell Chavez and aerospace master's student Payton Porter also will be recognized for their outstanding contributions to SWE, Cal Poly and the community.

Awards will be handed out during WE23, the world's largest conference and career fair for women engineers and technologists, Oct. 26-28 in Los Angeles.

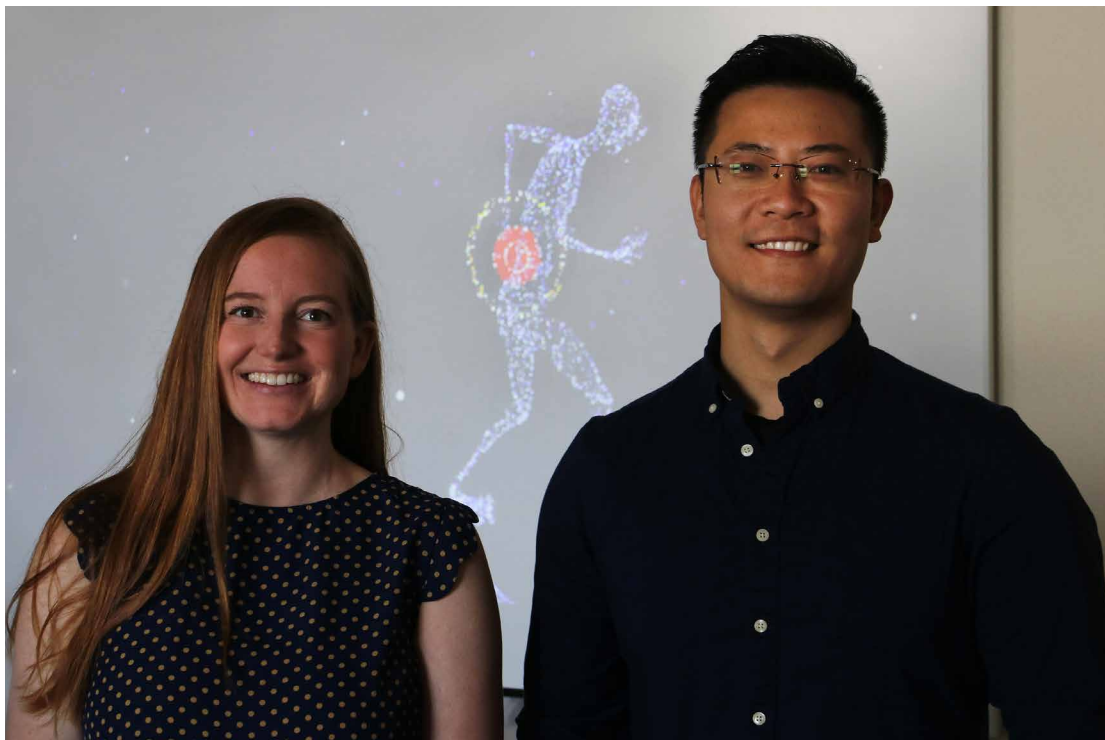
"These exceptional faculty members have not only excelled in their fields but have also empowered women and made significant strides toward achieving gender parity and equality within engineering," said College of Engineering Associate Dean for Diversity and Student Success Zoë Wood. "Their unwavering commitment to diversity and inclusion is an inspiration to us all."

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"These exceptional faculty members have not only excelled in their fields but have also empowered women and made significant strides toward achieving gender parity and equality within engineering."

— Zoë Wood

Engineering Professors Invent Device to Combat Back Pain



Biomedical engineering lecturer Britta Berg-Johansen, left, and structural engineering Assistant Professor Long Wang are working on a project involving a special tape that senses stress on the spine.

Two Cal Poly engineering professors have teamed up on a research project that is eliciting excitement because it addresses the universal human experience of low back pain.

“Everyone can relate to back pain,” said biomedical engineering lecturer Britta Berg-Johansen, who added that up to 80% of the population will face one of the world’s biggest health problems at some point in their lives.

After years spent studying the human spine, Berg-Johansen believes that increasing awareness about the movements that lead to low back pain could be the key to prevention.

Berg-Johansen has teamed up with structural engineering Assistant Professor Long Wang to create a spinal tape that senses bending and twisting, alerting users through

an app when they are displaying bad posture or holding a position for too long.

“We want to use sensors to prevent injury on the spine,” Wang explained.

The long strip of athletic tape is attached vertically to the center of the lower back, with tiny sensors made from flexible, sensitive materials affixed to the tape to measure movement.

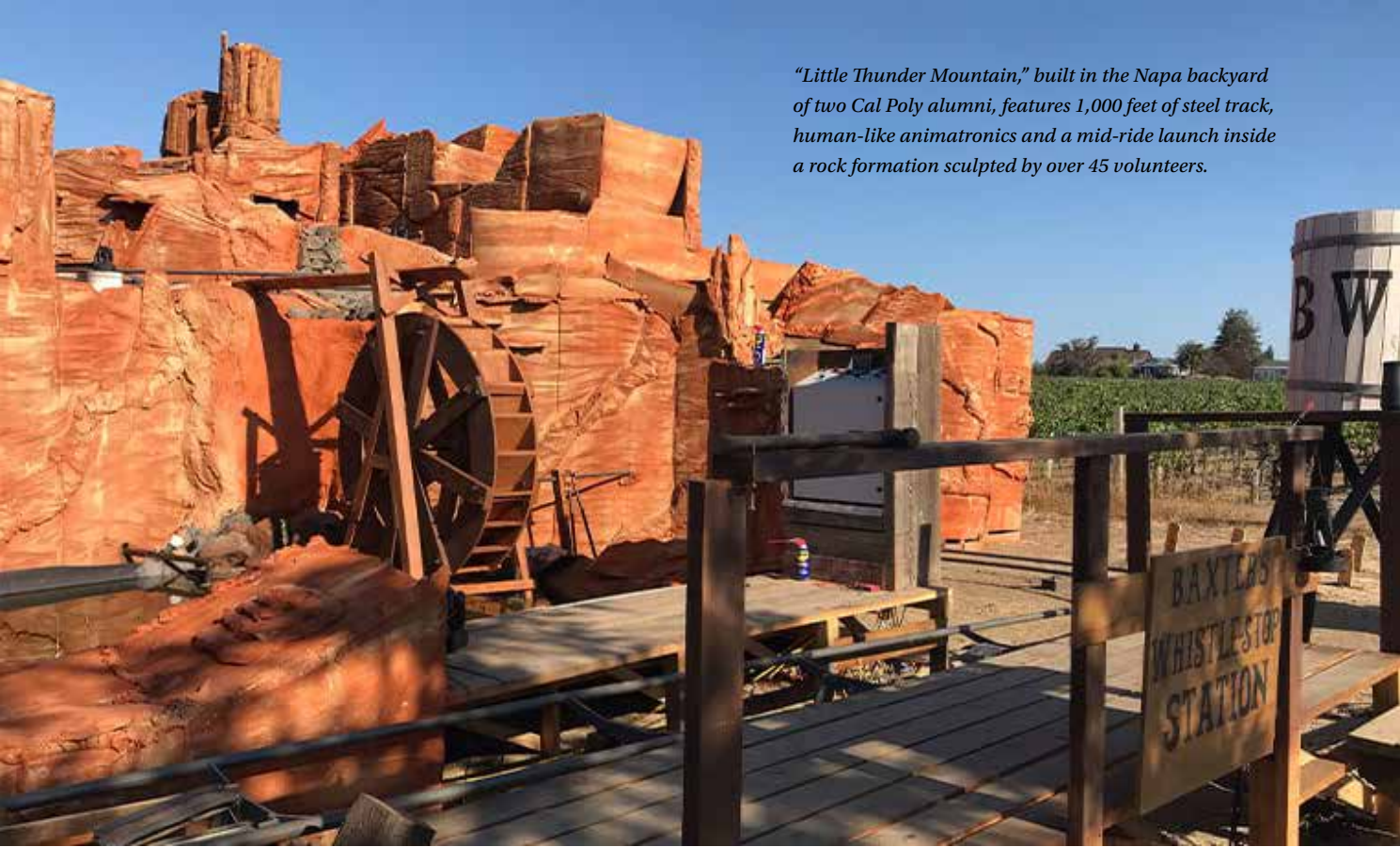
The pair is now pursuing a patent for their spinal tape with the dream of bringing the invention to the commercial market.

“We are in a back pain epidemic,” said Berg-Johansen, “and this product could help a lot of people.”

“We are in a back pain epidemic and this product could help a lot of people.”

— Britta Berg-Johansen

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“Little Thunder Mountain,” built in the Napa backyard of two Cal Poly alumni, features 1,000 feet of steel track, human-like animatronics and a mid-ride launch inside a rock formation sculpted by over 45 volunteers.

Do You Want a Roller Coaster in Your Backyard?

The idea to build a themed roller coaster in the Napa backyard of two Cal Poly engineering alumni can be traced back to a kitchen conversation and a napkin sketch during the coronavirus lockdowns of 2020.

Two sets of brothers, including a mechanical engineering student, took that rough illustration from the impromptu brainstorming session and created an alpine escape — complete with bobsleds, a 24-foot-tall, stucco-coated mountain and 450 feet of steel track running under waterfalls and over a timber-framed bridge.

When the brothers posted a YouTube video of their first roller coaster — “Matterhorn: Alpine Escape” — visitors couldn’t get enough, to the tune of over 230,000 views.

“Our video became very popular, and after that we knew we had to build something even bigger and better,” said Matthew Eggers, a mechanical engineering senior with an innate talent for inventing.

They constructed their second roller coaster a year later, with an Old West theme and twice the ambition. “Little Thunder Mountain” had double the track length of the “Matterhorn,” human-like animatronics and a mid-ride launch inside a rock formation sculpted by over 45 volunteers.

“This all started because we wanted to build something cool, but it evolved into, ‘Why can’t we do this for other people?’ Eggers said.

“This all started because we wanted to build something cool, but it evolved into, ‘Why can’t we do this for other people?’”

— Matthew Eggers

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Cal Poly mechanical engineering graduates and San Jose, California, natives Rob Cabri, left, and Robert McInturff display the colors in front of an F-22

Ride High: Engineering Grads Soar as Fighter Pilots

Robert McInturff dreamed of piloting fighter jets while growing up in a family of aviators who loved to soar.

Early ambitions often give way to more practical pursuits, however, and so McInturff cultivated an interest in STEM which led him to Cal Poly and mechanical engineering.

McInturff graduated in 2007 and began designing heating and air conditioning systems, but the blue skies beckoned; hence he became a certified flight instructor and taught students on the side.

Still, McInturff longed for more.

“I wanted to fly fighters as a kid, which seemed so unrealistic, but as I considered what really fulfilled me, I thought, ‘Maybe I actually could do this,’” said McInturff, who spent hours

researching entry points before landing on the Air Force.

When he called a recruiter and relayed his aim, he could sense her cynicism as so many share their dreams of flying, but doubters would not deter him: McInturff not only became a fighter jet pilot but now trains airmen to be combat-ready.

“I had no clue when I was at Cal Poly that I could have this career,” said the major who often has pinch-me moments while working as an F-22 instructor pilot for the 43rd Fighter Squadron in Florida.

McInturff’s engineering education helped him aim high and teach others to do the same, including a student who shared an almost inconceivable connection to his past.

“I wanted to fly fighters as a kid, which seemed so unrealistic, but as I considered what really fulfilled me, I thought, ‘Maybe I actually could do this.’”

— Robert McInturff

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Engineering Majors Bring Solar Power to Navajo Homes through Skip the Grid

Diana Santos, Liam Drew, Liam Janssen, Julian Chavez and Heather Sailor were a part of a group of Cal Poly students who traveled to the Navajo Nation to participate in the Skip the Grid project. Over a three-day span, project partners installed solar-powered systems for 27 Navajo homes.



Mechanical engineering senior Liam Drew hadn't truly grasped the concept of life without light until a spring break trip to the Navajo Nation where close to 40% of homes have no access to electricity.

He watched a young girl study with a camping lantern as her only light source, and families turn to generators and expensive gasoline to heat their small homes when temperatures dipped in the desert landscape of the Four Corners region of Colorado, Utah, Arizona and New Mexico.

"There's no way to gain a sense of what it is to live without light until you experience it firsthand," said Drew, who grew up in Oceanside, California.

He joined a group of 20 Cal Poly students — including eight from the College of Engineering — and representatives from education foundation Heart of America and solar contractor SOLV Energy to provide Navajo families with clean electricity, battery storage and light.

Skip the Grid project partners installed solar-powered systems for 27 Navajo homes in three days.

"You could feel the excitement when we were installing a system," Drew said. "Learn by Doing is about learning skills in the classroom but also about going into communities and experiencing some of the issues they face."

"You could feel the excitement when we were installing a system. Learn by Doing is about learning skills in the classroom but also about going into communities and experiencing some of the issues they face."

— Liam Drew

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Mechanical engineering senior Riley Taft sails near Morro Rock. He plans to sail around the world after graduating next year.



Senior Project to Help Engineering Student Sail Around the World

Riley Taft set four goals before entering the College of Engineering: Live in a van, become an engineer, buy a boat and sail around the world.

The mechanical engineering major has achieved two, with graduation and circumnavigation left to go.

“Now, I’m building up everything I need to live a highly aquatic life,” said Taft, who lives in Morro Bay on the boat he plans to use for his nautical crossing. He exudes a surfer vibe, extols the virtue of living life freely and encourages his peers to follow their passions.

He’ll spend the next few months finishing school with a celestial navigation class, celebrating spring commencement and preparing for an eight-year journey that will take him to ports across the globe, where he plans

to use his engineering skills to volunteer in nearby communities.

He’s also spearheading a senior project that could provide him with clean drinking water while voyaging – a pedal-powered desalination unit for his sailboat.

Three of his mechanical engineering classmates and an industrial manufacturing engineering lecturer have joined the effort, drawn by the unique nature of the project and opportunity to help Taft achieve his lifelong dream.

Taft’s interest in sailing did not come from proximity to the ocean but from a book. As a child in Buena Vista, Colorado, he read “Dove” – the true story of a 16-year-old who took his 24-foot sloop on a sailing trip around the world.

“This was very different from the other senior projects. I want to be a good problem solver and this project will help me do that to a greater degree.”

— Allen Malfavon

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Couch Dog Unleashes Debut Album as They Chase Their Musical Dreams



Couch Dog performs at the popular Shabang Festival, which draws 10,000 concertgoers to Dairy Creek Golf Course in San Luis Obispo over a weekend in early May. Couch Dog consists of Max Ferrer (manufacturing engineering, '23), lead vocalist and rhythm guitar; Tasha Lee (mechanical engineering), bass; Josh Cherwelil (computer engineering), drummer; and Pablo Acosta (business), lead guitarist.

Max Ferrer wanted to deliver an unforgettable performance the night his indie garage rock band took the Fremont Theater stage to battle for prize money, bragging rights and chance to play at the wildly popular Shabang Festival.

Couch Dog – born in Ferrer’s dorm room in 2019 – was vying against four other local and talented musical acts invited to perform in front of an animated audience and judges’ panel at SLO Battle of the Bands in March.

The Couch Dog members – one business and three engineering students – donned character-inspired hats Ferrer had crocheted from blanket yarn during COVID, performed their three most thrashy, fast, energetic songs and walked away with first prize.

“When they announced our name, I was extremely surprised we won but also grateful and humbled,” said lead vocalist Ferrer who graduated in June with a manufacturing engineering degree.

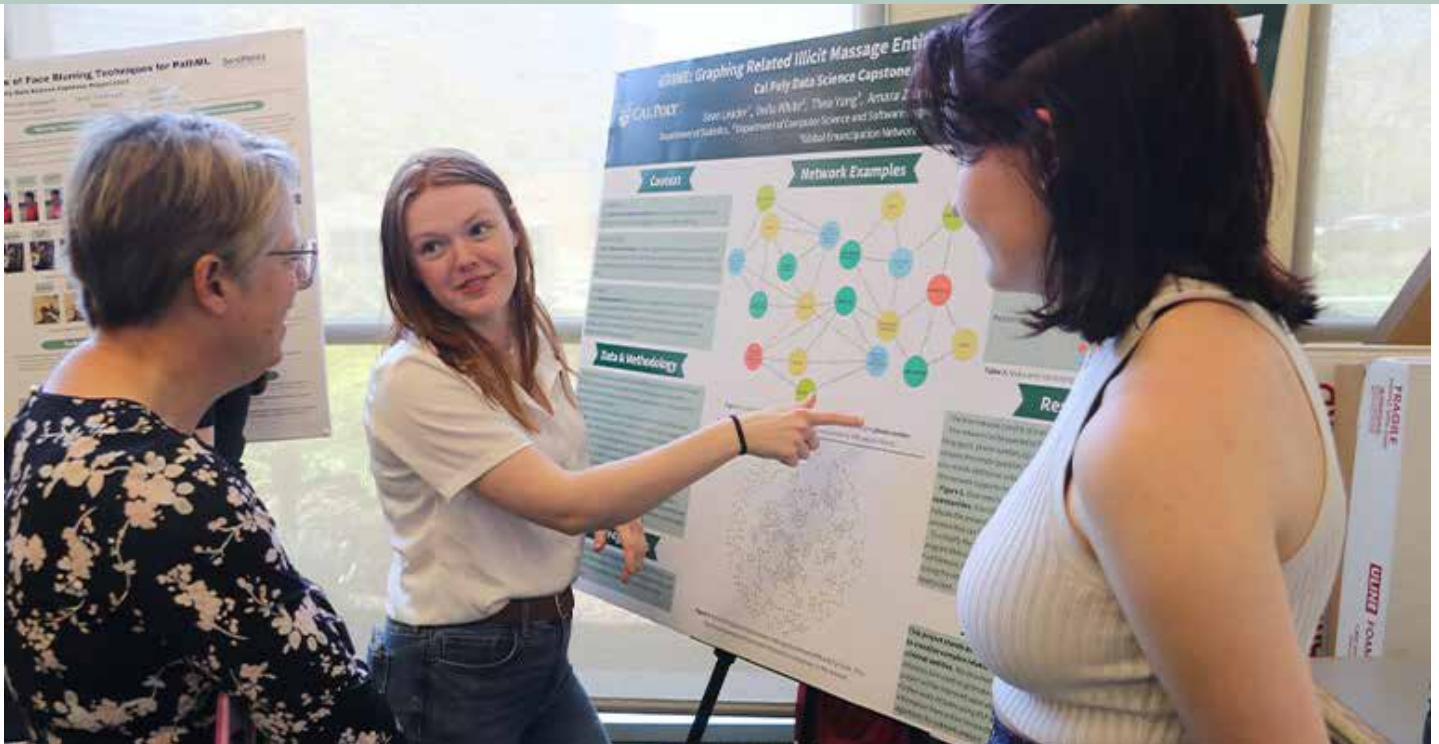
Couch Dog took their \$1,000 prize and then their playlist to Shabang, which drew almost 60 bands and 10,000 concertgoers to Dairy Creek Golf Course over a weekend in early May.

Two weeks later, the band that quickly rose to prominence in the local scene hit a milestone with the release of their first album – “How to Ruin your Life Fast” – that showcases the music they make for dancing, crying and kissing.

“When they announced our name, I was extremely surprised we won but also grateful and humbled.”

— Max Ferrer

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Cal Poly students Bella White (computer science), left, and Amara Zabback (statistics) show Dean Amy S. Fleischer how their capstone team built a social network graph to find connections between illicit massage businesses and those that look legitimate to aid law enforcement in the fight against human trafficking.

Groundbreaking Data Science Project Empowers Global Fight Against Human Trafficking

Organizations combatting human trafficking are using a powerful new network built by a team of Cal Poly students in the data science capstone that uncovers connections between co-conspirators to identify businesses engaged in a modern form of slavery.

“Anti-trafficking stakeholders at home and abroad have seen this system and now are taking action,” said Sherrie Caltagirone, executive director and founder of the Global Emancipation Network, or GEN, a nonprofit dedicated to disrupting human trafficking.

She met the team – a computer science student and three statistics students – through the Cross-Disciplinary Studies Minor in Data Science program led by Computer Science Professor Alex Dekhtyar and Statistics Professor Hunter

Glanz. In the 20-week capstone, students are paired with a professional client to solve a real-world problem.

Caltagirone’s team took on the challenge of building and training a network with data from massage businesses in Colorado that could help agencies and law enforcement find illicit operations – the No. 1 face of sex trafficking, according to Caltagirone.

Soon after the team presented GEN with the code, she took the network to officials at the California Department of Justice, stakeholders in Texas and law enforcement officers across the United Kingdom.

“This system allows stakeholders to access data in a new way, and they already are seeing results.”

— Sherrie Caltagirone

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Engineering Alumnus Don Williams Donates \$1.1M Property to College

Mechanical engineering Professor Jim Widmann thanks donors Don and Jean Williams with a Cal Poly gift basket during a recent visit.



Cal Poly alumnus Donald E. Williams had a choice to make when a home in his real estate assets became available: Sell it to buy another property or give it away.

“I elected to give it to the College of Engineering,” said Williams, a 1964 mechanical engineering graduate.

Williams and his wife, Jean D. Williams, made a gift agreement with the college that outlined how the residential property appraised at \$1.1 million would be sold, with proceeds going to the establishment of a fund to benefit the Mechanical Engineering Department.

They named the fund after two of Williams’ professors — Morris P. Taylor and Joy O. Richardson — who inspired him as he studied engineering at Cal Poly.

The first two initiatives will result in lab upgrades and support for student projects focused on internal combustion-powered engines. Each initiative will receive \$100,000.

Mechanical engineering Professor Jim Widmann, who recently completed his tenure as department chair, outlined plans that include the creation of new measurements and robotics labs along with a new design space. Robotic arms will be added to the existing robotics lab, with installation expected by winter quarter.

“I was brought up with the notion of tithing, and as my wife and I have prospered we’ve given a fair amount of money away,” Williams said. “Giving back is a good thing to do.”

“I was brought up with the notion of tithing, and as my wife and I have prospered we’ve given a fair amount of money away. Giving back is a good thing to do.”

— Donald D. Williams

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Cal Poly Engineering Champions Mental Health: Faculty, Staff Lead the Way in Student Support



Mechanical engineering lecturer and mental wellness faculty scholar Sarah Harding gives a presentation on Mental Health First Aid during ME 263 (Introduction to Mechanical Engineering for Transfer Students). Staff and faculty trained in the program will visit all first-year courses this quarter to let students know they are supported.

A team of College of Engineering faculty and staff newly trained as mental wellness champions will visit all 17 first-year courses this quarter to show their commitment to the care and support of students.

The 14 champions from five departments were the first in the college to complete Mental Health First Aid – a program that equips participants to identify, understand and respond to signs of mental illnesses and substance use disorders.

Mechanical engineering lecturer Sarah Harding, who played a key role in advocating for Mental Health First Aid, hopes 40-50 staff and faculty will be trained by the end of spring. She also wants to see student leaders complete the course in the future.

Her immediate goal, though, is getting the current cohort of champions into classrooms to let students know mental health matters and their doors are open.

“Faculty can seem unapproachable to members of this generation, which is why talking about mental health and sharing our stories is so important,” said Harding, who will serve as the college’s mental wellness faculty scholar this year.

She’s long been opening those lines of communication in her classes, starting the first day of each class by informing students about the resources available to them, from tutoring to counseling. She also talks candidly about her own challenges and recent ADHD/autism diagnosis.

“Faculty can seem unapproachable to members of this generation, which is why talking about mental health and sharing our stories is so important.”

— Sarah Harding

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Master's student Elaine Lau on stage at the USENIX Security Symposium in Anaheim, California.

Computer Science Graduate Presents Research on Browser Security for Visually Impaired

While updates in computer security have made it generally easier for the everyday user to avoid malware or malicious websites, not everyone is safe from technological bugs or cyber attacks.

Studies have shown that visually impaired people may have a harder time avoiding web viruses because prevention tools aren't very successful in catching visual cues.

Computer science master's graduate Elaine Lau decided to delve into the discrepancy.

She presented her research "A Research Framework and Initial Study of Browser Security for the Visually Impaired" alongside faculty member Zachary Peterson at the USENIX Security Symposium in Anaheim, California.

Their work explores how the visually impaired experience browser security warnings, establishes best practices in conducting this type of research and makes suggestions on how to improve online safety for this population.

"I was interested in the intersection of privacy and security with UX research and accessibility," Lau explained. "When I began thinking about topics to research for my master's thesis, I discovered that while there was some research related to improving web security for the visually impaired, there were virtually no studies related to browser security warnings with this population."

"I realized that having good vision to be able to view and heed warnings is a privilege that not everyone has, and it's important to ensure that browser warnings can be effective for all populations."

— Elaine Lau

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Computer engineering Professor Andrew Danowitz has made it his mission to study mental health in engineering education. He's sharing his findings with colleagues and his own story with students.



A Professor's Journey to Tackle Mental Health Stigma in Engineering Education

Computer engineering Professor Andrew Danowitz was drawn to mental health research after navigating a program where stress and long hours were often glorified.

As a student, he endured significant impacts on his emotional well-being and witnessed his classmates grappling with similar challenges, all in an environment where the stigma surrounding mental health hindered meaningful conversations.

"Engineering has traditionally had a weed-out culture, leading to the belief that you are supposed to suffer," he explained.

Danowitz took the tools, namely in quantitative research, that he honed during those demanding years to begin studying mental health in

engineering education – an area few were examining when he joined Cal Poly's faculty in 2014.

After penning multiple articles, he's sharing insights with his colleagues and his own story with students.

"I've learned that it's important to be more open with our students about our struggles – mental health and anxiety – so we can normalize it," Danowitz said. "We can provide examples of someone seen as successful in engineering but who identifies as having mental health struggles and is actively getting help.

"I've learned that it's important to be more open with our students about our struggles – mental health and anxiety – so we can normalize it."

— Andrew Danowitz

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Combating Climate Change on a Green-Sand Beach in Hawaii



Environmental engineering senior Casper Pratt, from left, environmental engineering emeritus Professor Yarrow Nelson and environmental engineering blended master's student Bip Padrnos, display samples from green-sand Papakolea Beach in Hawaii, where they researched carbon capture.

Packing for a beach day in Hawaii for most means reef-safe sunscreen, swimming shoes and snorkel gear but not if that shoreline visit is part of a mission to reverse climate change.

In that case, one needs seven pallets of scientific research equipment.

An international team of experts from the environmental, geochemical and biological sciences – including a Cal Poly professor and two students – spent a month last summer at mobile research stations on Big Island beaches to study a green volcanic mineral known as olivine that reduces ocean acidity and captures the carbon dioxide driving climate change.

Early each morning, the group would load up trucks loaded with sampling and analytical

equipment, plus a boat, and head for South Point where they would devote their days to diving, sampling and testing.

The team's research will paint a clearer picture of the risks and impacts of radically accelerating the weathering of olivine by spreading copious amounts onto coastlines where it can dissolve in seawater, increasing the rate of carbon dioxide absorption by the ocean.

Natural weathering happens too slowly to balance human carbon emissions but, if done safely and effectively, hastening the process could capture billions of metric tons of carbon dioxide.

“While we still have to reduce fossil fuels, that’s not enough any more. We just aren’t cutting it.”

— Yarrow Nelson

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More from fall of 2023



December 22, 2023

Herbie and his magic caboose bring holiday cheer to preschoolers

Professor John Seng was cautiously optimistic before hosting a group of children from Cal Poly's Preschool Learning Lab for a holiday meet-and-greet with Herbie the robot and his magic caboose.

The autonomous robot with the googly eyes and big smile is a continuous project directed by Seng with help from Robotics Club members. Herbie was designed to roam around Building 14 and serve as a goodwill ambassador, bringing joy to everyone he encounters.

Trouble struck, however, during an earlier visit with preschoolers.

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December 4, 2023

Engineering Student and Bluegrass Bassist Strikes a Winning Chord on the International Stage

Andrew Osborn was born into bluegrass.

The mechanical engineering major woke most mornings to the sound of his dad's fiddle at their home in San Rafael in the early years of a childhood punctuated by trips to bluegrass festivals, where he would drift to sleep in his tent to all-night jam sessions around the campfire.

"My mom made my dad take at least one of his three kids when he went to festivals around the state," said Osborn, joking he was likely the one picked the most because he was the youngest and possibly most annoying of his siblings.

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December 2, 2023

Engineering Professors Earn Recognition with Breakthrough Patent in Early Wildfire Detection

Two Cal Poly professors recently secured a patent for their innovative approach in curbing wildfire spread, using a method that leverages equipment within power grids to detect a blaze a mile away from the transmission line in under a minute.

Electrical engineering Associate Professor Majid Poshtan and computer engineering Associate Professor Joseph Callenes-Sloan grounded their method on the observation that radiated heat from a fire changes transmission line temperatures, leading to expansion of the line and subsequent sag.

By tracking line temperatures and sag, the duo determined that wildfires can be quickly identified around electric transmission networks.

"Our approach does not add any cost or equipment, because we would be using what is there – power supply and infrastructure – but we take that equipment and give it a smartness," Poshtan said.

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November 27, 2023

IME Students' and Faculty Members' Noteworthy Contributions at the 2023 ISE Annual Conference

In May 2023, the Cal Poly College of Engineering had a significant presence at the ISE Annual Conference. Twelve Cal Poly engineering students and two faculty mentors, all from the IME department, attended and presented their research. Highlights from the conference include the following:

Eevee Murdock (Industrial Engineering, '23), Ethan Eichten (Industrial Engineering, '23) and Tiffany Chang (Industrial Engineering, '23) presented their research paper, "The Rise in Private Brands: A Supply Chain Perspective."

Michael Cassetti (Industrial Engineering, '23), Justice Radler (Industrial Engineering, '23), Cole Goddard (Industrial Engineering, '23) and Anirudh Suri (Industrial Engineering, '23) presented a poster, "The Effect of the Russo-Ukrainian War on the Global Energy Supply Chain."

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November 14, 2023

Cal Poly Alumnus Builds Airplane Wing, Shines at National Championship Air Races

For the first time in years, a Cal Poly graduate, a group of students and an aerospace engineering faculty member designed, built and tested a wing that put a pilot in the air.

It all started when aerospace engineering graduate JP O'Dell bought a Formula One racing aircraft with flight testing in mind. He knew Paulo Iscold, aerospace engineering associate professor, would be the right person to ask for advice because of his work building a flight test program at Cal Poly.

O'Dell, who graduated from Cal Poly in spring 2021, worked closely with Iscold during his time as an undergraduate.

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November 1, 2023

Cal Poly Honors Alumnus Kyle Wiens

For more than 60 years, the Honored Alumni Award has served as the highest honor bestowed upon Cal Poly alumni. This year, Kyle Wiens, CEO and co-founder of iFixit and 2005 computer science graduate, was honored as the College of Engineering's Honored Alumnus.

Wiens and Luke Soules launched iFixit in 2003 in their dorm room at Cal Poly, posting a step-by-step repair guide online for Wiens' broken laptop. Today, iFixit is a collaborative effort spanning thousands of fixers, repair seekers and translators that provides over 80,000 free open-source repair guides for many thousands of devices. The company takes apart and rates products for ease of reparability, with a mission of providing people with the knowledge to make their things work for as long as possible in the interest of saving money, fostering independence and protecting the planet.

[READ MORE](#)

More from fall of 2023



October 31, 2023

Burning for Success: Industrial Engineering Professor's Model Reduces Loss, Cuts Wildfire Costs

The deadliest and most destructive wildfire in California's history set an industrial engineering professor from Cal Poly on a course of research that could motivate states to minimize the risk of wildfires that are growing ever larger.

Puneet Agarwal started his graduate studies in 2017 with an eye on improving structure fire response using a novel game theory model but changed his focus after the Camp Fire ignited in Northern California, becoming the costliest disaster worldwide in 2018.

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September 27, 2023

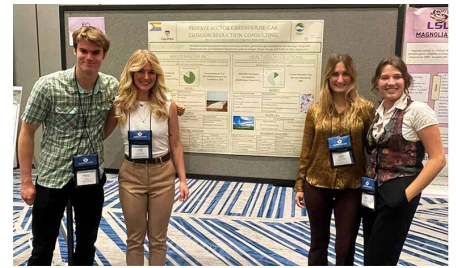
Highlighting Helene Finger: Engineering Excellence, Family Gratitude and 'Ted Lasso' Appreciation

Cal Poly Women's Engineering Program Director Helene Finger has empowered countless women to achieve their full potential in careers as engineers and leaders over the past 26 years, so it's only fitting she will be honored by a national organization with the same mission.

The Society of Women Engineers selected Finger as a SWE Fellow – one of four individuals in the country bestowed with the distinction this year. The WEP director who has taught in the Civil and Environmental Engineering Department since 1997 will be celebrated during the organization's annual conference in October.

The honor follows her recognition as one of SWE's national advisers of the year for her leadership of Cal Poly's Women's Engineering Program and multiple national awards, including from the American Society for Engineering Educators for her work to promote diversity in the industry.

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August 7, 2023

Cal Poly Environmental Engineering Students Win ECi International Competition for 2nd Consecutive Year

For most people, answering tough questions from judges live on stage wouldn't be cited as their favorite part of an international student competition, but it was for Cal Poly environmental engineering student Julia Loew.

Loew, who along with teammates Indigo Banjo, Christian Campos, Santina Gatti, Sada Hitzemann, Emma Giordano, Matthew Watts and Corinne Watson won the 2023 Environmental Challenge International (ECi) in Orlando, Florida, in early June, said the poster judging portion was clearly her top highlight.

"Each of the judges played a different stakeholder role and asked specific questions about their unique concerns," said Loew, the Cal Poly team lead. "They were judging whether we had considered every perspective, and this really put our solution to the test – and forced us to think on our feet to respond thoroughly and concisely."

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August 1, 2023

Electrical Engineering Students Finish 3rd at International Competition

Countless hours of work in the lab spanning three quarters paid off for Cal Poly electrical engineering master's students Shreyansh Suman and Kyle Chang.

Taking on an international field of mostly doctorate students, Suman and Chang finished third at the 19th High Efficiency Power Amplifier Student Design Competition in mid-June in San Diego.

Part of the 2023 IEEE International Microwave Symposium, the competition had students building high-power amplifiers like those used in wireless communications that have both high efficiency and linearity — a measurement used to minimize signal distortion — over a relatively broad frequency band.

Suman said he was a little shocked after Cal Poly finished behind the winning team from Friedrich-Alexander-Universität Erlangen-Nürnberg, Germany, and the second-place team from University College in Dublin, Ireland.

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July 14, 2023

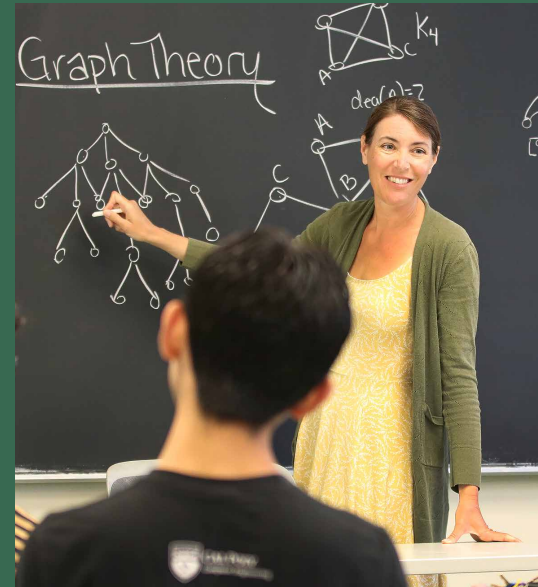
Bridging the Engineering Gender Gap

Cal Poly alumnus Mike Hammons wanted to do something that would benefit the future of engineering. Hammons and his wife, Keri, thought systematically about how to help while making the biggest impact.

“We aren’t producing enough engineers,” Mike said. “How do we improve that? There’s a whole part around STEM education getting people interested in engineering and STEM at earlier stages – middle school, high school. Then, once you get people into engineering, how do you ensure you have higher graduation rates?”

Mike explained that he didn’t want the cost of higher education tuition to be an obstacle for future engineers, so he and Keri decided to create an endowment.

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July 14, 2023

Computer Science Professor Honored with Engineering Division Mentor Award

Cal Poly Computer Science Assistant Professor Theresa Migler was honored with the Engineering Division Mentor Award for fostering enriching research-based relationships with undergraduate students.

Twice a year, the Council of Undergraduate Research gives out awards to outstanding faculty members in engineering whose mentoring has influenced undergraduate research.

“I am so fortunate to be at Cal Poly and work with these incredible students,” Migler shared.

[READ MORE](#)

Student Spotlights



December 5, 2023

CENG Student Spotlight: Rocky Frank

Computer Engineering

What made you choose engineering?

I really enjoy spending my time trying to figure out how certain things work. When I was younger, I would go around looking for old electronics to take apart in an attempt to understand them better. I also enjoy the process of taking a cool idea and spending time building and perfecting it until it's a tangible object in front of me. It's exciting when that thing is so complex that I previously thought it was well beyond my understanding, but now I can look at it and think, "I built that."

[READ MORE](#)



November 27, 2023

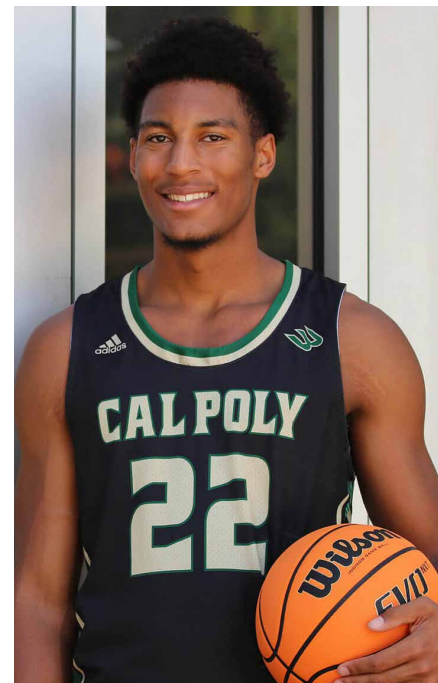
CENG Student Spotlight: Marissa VanDeVeer

Biomedical Engineering

What made you choose engineering?

I chose biomedical engineering because I knew that I wanted to do something to help others. Since I have been interested in the medical field most of my life, biomedical engineering felt like the perfect option. I still remember the day that my high school math teacher told me that she thought engineering would be a good fit for me! Pursuing biomedical engineering has been a great way to combine my passions for both the medical field and innovation. I absolutely love it and couldn't imagine doing anything different.

[READ MORE](#)



November 2, 2023

CENG Student Spotlight: Aaron Price

Electrical Engineering

What made you choose engineering?

I love problem solving, doing math and building things!

What is your favorite place in San Luis Obispo County and why?

I love Avila Beach because I have a lot of good memories with my teammates there, and we don't have any water or beaches in Vegas where I'm from, so it was unreal getting to see a beach for the first time.

[READ MORE](#)



October 26, 2023

CENG Student Spotlight: Benjamin Jimenez

Biomedical Engineering

What made you choose engineering?

My family member has autism and needs prosthetics to help her walk. In the future, I want to use my knowledge to help design prosthetics for those who need them. Cal Poly is a phenomenal school for engineering and will push me in the right direction to accomplish my dream.

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October 2, 2023

CENG Student Spotlight: Warren Taira

Mechanical Engineering

What made you choose engineering?

I've spent the majority of my life designing practical solutions to real-world challenges, and I think that almost everyone has, at some point, engineered solutions to problems in their own lives. The opportunity to study and work in engineering formally just serves to strengthen the technical background that goes into this problem solving. I love that engineering provides a platform to apply theoretical principles in creative ways, essentially turning problem solving into a puzzle where a deeper understanding of theory allows for more efficient resource utilization to achieve goals. I chose to study engineering to build that understanding and apply it to improve peoples' lives.

[READ MORE](#)



August 24, 2023

CENG Student Spotlight: Emily Lieber

Aerospace Engineering

What made you choose engineering?

Since elementary school, I have wanted to study the universe. As I worked my way through high school, it was obvious that math and science just made sense to my brain. I loved seeing how numbers on paper could have real-world applications. When I started looking into majors, aerospace engineering immediately felt right. Further research encouraged me to pursue engineering, and I've never looked back.

[READ MORE](#)

Faculty & Staff Spotlights



August 21, 2023

CENG Student Spotlight: Caroline Allman

Environmental Engineering

What made you choose engineering?

When I first started the recruiting process for softball, I was only a freshman in high school and I had no idea what major I wanted to pursue. I was always drawn to math and problem solving growing up, but I wasn't exactly sure which path to take. When my sister, who also played on the Cal Poly softball team, started studying biomedical engineering, I realized that engineering was something I could see myself doing for the rest of my life. Engineering requires me to constantly think and problem solve, and I hope to eventually solve real environmental issues with the aid of my education at Cal Poly.

[READ MORE](#)



October 16, 2023

CENG Staff Spotlight: Colin Bonnicksen

Associate Director of Development and Advancement

What brought you to the Cal Poly College of Engineering?

My wife and I decided to move our family from Missoula, Montana, to the Central Coast because we love it here. Once we made that decision, I knew a dream place to work would be Cal Poly. I was aware of the reputation of the school, and to work in the College of Engineering is a dream because I absolutely believe that engineers are the problem-solvers who are going to create tangible, positive change in our world.

[READ MORE](#)



September 28, 2023

CENG Staff Spotlight: Pedro Zepeda Beas

Human Resources Support Coordinator

What brought you to the Cal Poly College of Engineering?

When I was in elementary school, my brother was admitted into the Mechanical Engineering Department within the College of Engineering. I fell in love with Cal Poly when visiting the campus with him. Years later, I was admitted as a business administration major with the Orfalea College of Business. After working off campus for a few years, I saw the job opening on Cal Poly's job board and felt like it was meant to be. Luckily, I was offered the job and accepted.

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September 19, 2023

CENG Faculty Spotlight: Liz Thompson

*General Engineering
Program Director*

How can engineering education institutions like Cal Poly foster an environment that empowers women to thrive in their engineering careers?

Because engineering has traditionally been oriented toward those who have been socialized as men, with an emphasis on military, competition and individual work, many of us who have been socialized as women find the culture doesn't fit our passions and ways of being. I think everyone in engineering needs to practice self-reflection to make sure our culture is attractive to all. I believe Cal Poly is doing a good job at shifting to a community that welcomes a variety of people regardless of their gender identity, but deep, cultural change takes vigilance and commitment. "It's a marathon, not a sprint," as we are apt to say about culture change.

[READ MORE](#)



August 16, 2023

CENG Faculty Spotlight: Kira Jorgensen Abercromby

Aerospace Engineering

What made you choose engineering?

My husband and I were working at Johnson Space Center in Houston, Texas, and were looking to move. I remembered Cal Poly as an excellent school when I was in college and so we looked to see if there were any openings. Luckily for me, the Aerospace Department was hiring, and I was fortunate enough to get accepted.

Tell me about your research interests and why you are passionate about this topic.

My interest is in space! I wanted to be an astronaut and work for NASA as a kid and was able to fulfill part of that dream when I worked for NASA for eight years. My research areas stem from that early dream of space research. My main areas of research are orbital debris (the human-made kind), orbital mechanics and space environmental effects on materials, specifically atomic oxygen effects. I think it is amazing to be able to push boundaries on spaceflight.

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2023 SURP Symposium: Computer science students Rajvir Harshvardhan, center, and Nidhi Raviprasad describe their project, “DEI: Exploring academic reflections using natural language processing to create a roadmap of student success and foster inclusive engineering education.”



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