

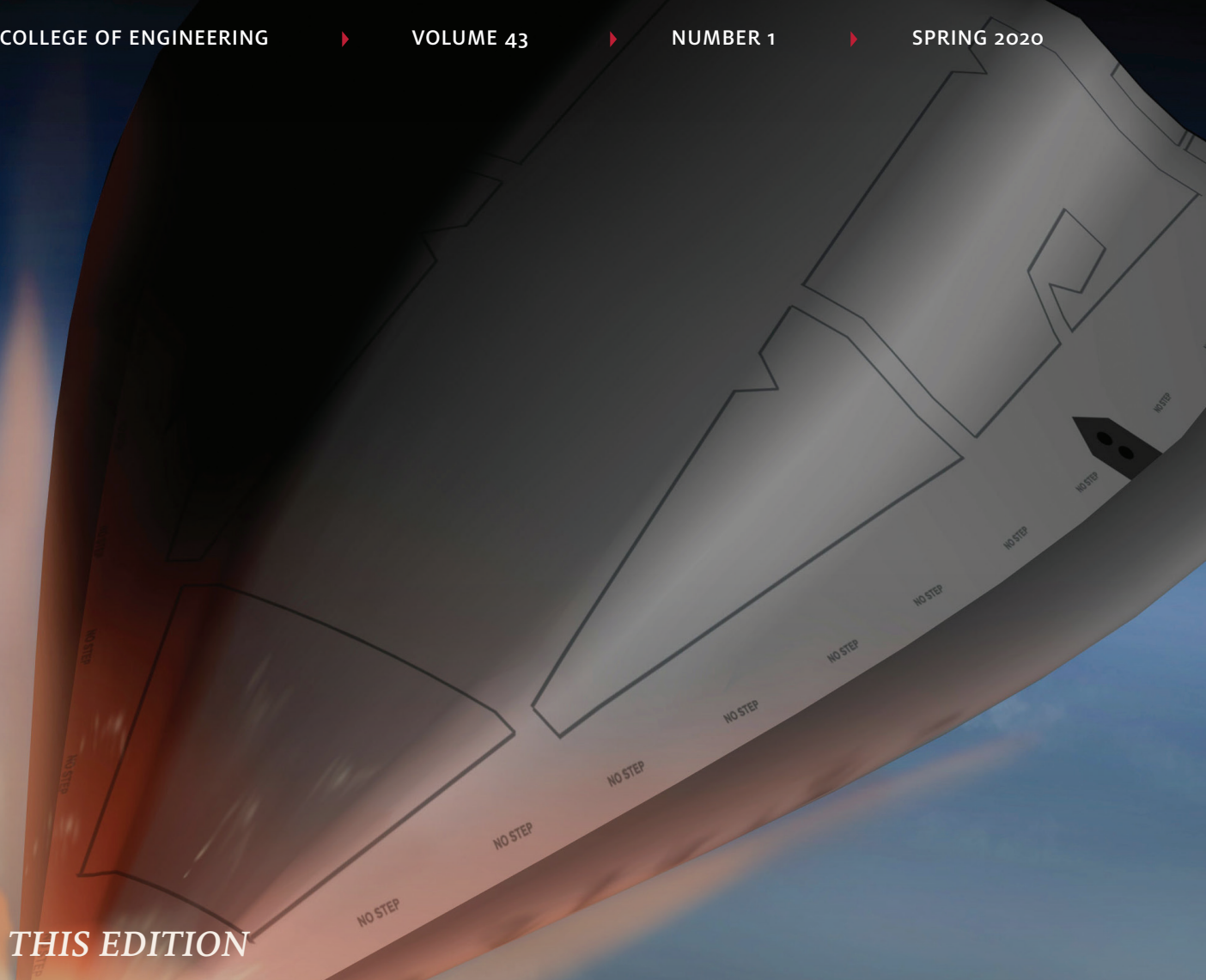
ARIZONA ENGINEER

COLLEGE OF ENGINEERING

VOLUME 43

NUMBER 1

SPRING 2020



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the **Future**

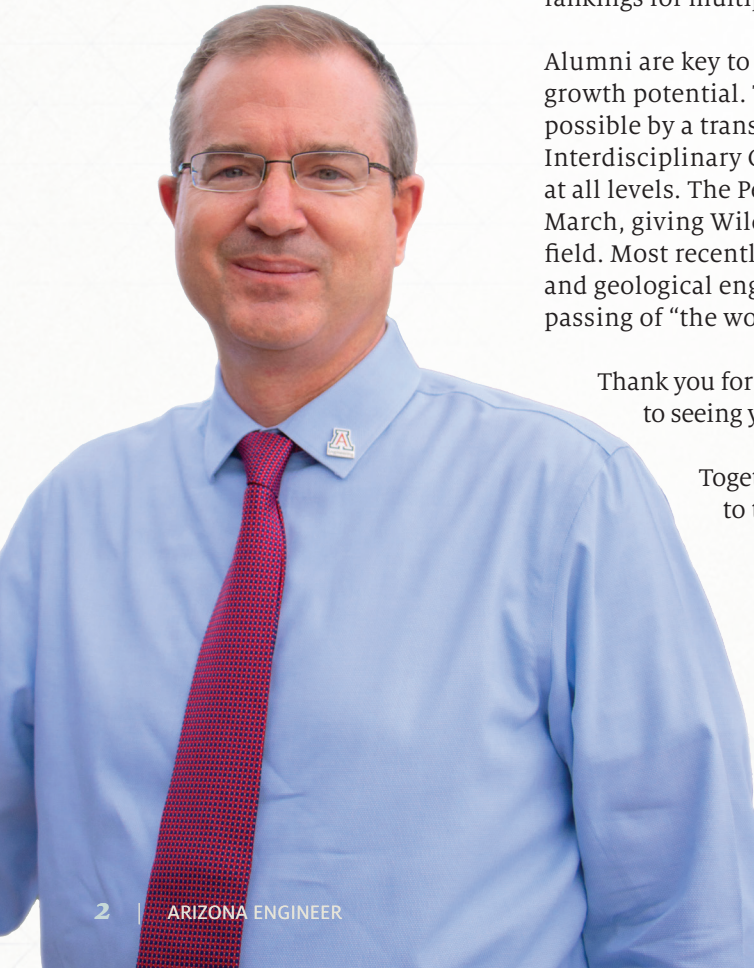
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Reflections from My First Year: Laying a Foundation for Growth

*The entire college
community has persevered
and adapted beautifully
during one of the most
difficult periods in
modern history.*



WHAT A FIRST year this has been! I am filled with gratitude and hope as we release this edition of the alumni magazine packed with news about the ingenuity and resolve that define our college.

The caring everyone has shown for our students and one another during the COVID-19 pandemic has been extraordinary – from a sudden shift to online classes and the first-ever virtual Craig M. Berge Design Day, to coronavirus research and biomedical device innovation.

I am grateful to the many faculty, staff and friends of the college who worked diligently to see students through the spring 2020 semester and are now laying the groundwork for their safe return to campus. Amid social distancing and facility closures, our faculty kept teaching and students kept learning, from their garages and living rooms. Mentors and sponsors guided seniors remotely to successful completion of some fantastic capstone projects. And departments honored graduates with digital convocation ceremonies.

INTO THE FUTURE

As many college-bound students across the nation weigh whether to delay their plans or attend school closer to home, UA Engineering's projected fall enrollment is nearing last year's total. This comes as we are embarking on a multi-year plan for significant growth. I remain confident that prospective students will increasingly see the value of UA engineering degree programs.

On the research front, I am excited about expanding capacity with our new wind tunnels to support hypersonics and first-of-its-kind quantum communications hub. Research expenditures are tracking at or above last year. We've hired a dozen new faculty to support the college's strategic growth and are about to onboard an associate dean for research. Professional organizations, the state and the university recognized several faculty members for their outstanding teaching and research. Further, national rankings for multiple college programs are on the rise.

Alumni are key to the college staying the course and meeting our tremendous growth potential. The Craig M. Berge Engineering Design Program was made possible by a transformative alumni gift. It launched late last year to expand on the Interdisciplinary Capstone course and provide experiential learning for undergrads at all levels. The Peter and Nancy Salter Medical Device Design Lab opened in early March, giving Wildcat Engineers a distinct advantage in a vital and fast expanding field. Most recently, the J. David Lowell family endowed a leadership chair in mining and geological engineering. Sadly, the gift announcement came just days before the passing of "the world's best mine finder," for whom the chair is named.

Thank you for your continued support of the college and our students. I look forward to seeing you soon, perhaps at Homecoming or when I visit your hometown.

Together, we will continue building on our strengths, growing, and rising to the top. Bear Down!

Warm Regards,

A handwritten signature in dark ink that reads "David W. Hahn". The signature is fluid and cursive, written in a professional style.

David W. Hahn
Craig M. Berge Dean, College of Engineering

ARIZONA ENGINEER

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COVER PHOTO

Wind tunnel upgrades make possible more research on hypersonic vehicles, like this missile.

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\$1.7M in Department of Defense funding boosts wind tunnel capabilities and elevates UA's national aerodynamics reputation.

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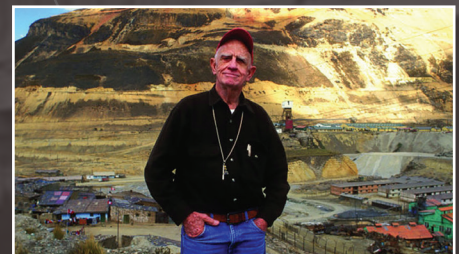
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Arizona Engineer is published twice a year for alumni and friends of the University of Arizona College of Engineering.

Stories in this print edition have been edited for length, and it is not feasible to include related multimedia such as photo galleries, video and audio files, and links to related websites. Visit Arizona Engineer online at news.engineering.arizona.edu for full stories, news archives, people profiles, and photo and video galleries.

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Researchers Design 3D-Printed Medical Masks for Front-Line Workers

Engineering and health sciences team up to address the shortage of personal protective equipment in local health care facilities.

A GROUP OF University of Arizona researchers is designing, 3D printing and testing masks to shield health care workers against COVID-19. The masks are expected to ease shortages of personal protective equipment for Tucson health care workers and beyond. In testing, they have exhibited performance superior to N95 respirators, which filter out 95% of airborne particles.

“These researchers are actually developing prototypes that can be printed out in communities all over the world,” said David Hahn, Craig M. Berge Dean of the College of Engineering.

The college helped purchase 10 3D printers with cameras and Wi-Fi control to automate the process, so

researchers can practice physical distancing.

Materials science and engineering, or MSE, researchers Doug Loy and Krishna Muralidharan are leading the design and printing. Dr. Sairam Parthasarathy, of the Department of Medicine, and chemical and environmental engineering professor Armin Sorooshian are overseeing testing to ensure compliance with National Institute for Occupational Safety and Health standards. They’ve also enlisted a group of MSE, chemistry and biochemistry students to help with designing and printing.



Researchers test the efficiency of a 3D-printed mask prototype.

“They say necessity is the mother of invention,” said Parthasarathy. “This is an example of how there are pockets of support and resident expertise from engineering and health sciences. And now we are coming together to help make this a reality.”

Alum’s Craft Distillery Shifts from Spirits to Hand Sanitizer

‘Wildcat spirit’ takes on a new meaning for couple providing simple, but critical, product for community safety.

ALUMNUS RYAN KANTO and his wife, Sarah, are among business owners who changed their production models during the pandemic to respond to public health needs. The Kantos started making hand sanitizer at their craft distillery in March.



The Kanto family looks in on the production room at Quantum Spirits.

Distilleries are a go-to for hand sanitizer shortages because they have the most important raw ingredient: alcohol. Hand sanitizer is 80% germ-killing alcohol – isopropanol or ethanol – combined with moisturizing glycerin and spore-killing hydrogen peroxide.

“We make ethanol, which is the most important part,” said Ryan.

The Kantos, who opened Quantum Spirits in Carnegie,

Pennsylvania, in 2018, sprang into action when their local utilities and first responders put out a call for help. They produced nearly 1,000 gallons of hand sanitizer over a few months, providing it initially to local first responders and then the public. They also worked with the Pennsylvania Distillers Guild to produce 1.2 million 4-ounce bottles, which the state distributed to areas needing it most.

“It’s not all bad news,” said Ryan. “There’s a lot of good humanity.”

The company also continued its social media feeds, with content such as cocktail-making tutorials.

“When you’ve been trapped at home or don’t have a lot of social contact, things like that really help,” said Ryan, who earned his bachelor’s degree in chemical engineering and engineering management in 2007.

“Engineers, we’re all about problem solving and entrepreneurship and being creative. Without that background and those skills, I don’t think I would have been able to pull it off.”

Students, Alumnus Collaborate on 3D-Printed Face Shields

WHEN CAMPUS CLOSURES foiled capstone project plans, one team turned to helping health care workers.

Since the students didn't have access to equipment to wrap up an automated 3D-printing process, sponsor Micro FDM enlisted their help on another project that incorporated some work they'd already done.



A Micro FDM employee models a 3D-printed face shield.

"How about we change gears and build a printer, at lightning speed, that can print face shields?" said UA alumnus Erik Orwoll, co-founder of the company and the team's mentor.

The six students didn't need convincing. They helped design a shield that was easier to print and a process for producing four shields at a time. The company planned to distribute 5,000 shields every 10 days.

"Our team decided that any footprint we could leave on the road to decreasing the number of COVID-19 cases, we were willing to do," said team leader and mechanical engineering major Scott Bankofier.



UA President Robert C. Robbins, Nancy and Peter Salter, and Dean David Hahn gather for the lab's opening

Gift of Industry-Grade Medical Device Lab Gives Students an Edge

THE PETER AND NANCY Salter Medical Device Design Lab opened on March 3, 2020, giving engineering students unmatched access to advanced equipment for developing medical devices. The Salters donated \$1.5 million for the student-centric space establishing a first-of-its-kind facility on campus and a rare sight at any university.

"I've been around labs, and I've been around what we call 'shops' in the industry," said UA alumnus Peter Salter, who in 1976 founded Salter Labs, maker of respiratory and anesthesia products. "This would have to be called a lab, as sophisticated as this place is."

"This is a tremendous asset for our students to be able to get real-world, hands-on experience."

UNIVERSITY OF ARIZONA PRESIDENT ROBERT C. ROBBINS

The lab, which opened a couple of weeks before COVID-19 closures, houses a laser cutter, a water jet, a 3D printer, electrical analysis tools, and a biosafety and chemistry hood. In tandem with the lab, biomedical engineering faculty developed a new design course for juniors.

Visitors who toured the lab with the Salters marveled at how students could start at one end with an idea and make their way through the space to design, prototype and test a device.

"Being able to walk in for a job interview and provide concrete examples of real engineering projects I've completed is invaluable," said Jakob Bakall Loewgren, a student in the course last spring and president of the Medical Device Club.

Living Room Labs



Social distancing guidelines put lab courses out of students' reach. So biomedical engineering professor Urs Utzinger shipped 42 individual kits of microcontrollers and other parts to the homes of his sophomores, and hands-on learning continued.

SPEEDING INTO THE FUTURE

*\$1.7M in funding
boosts wind tunnel
capabilities and
elevates UA's national
aerodynamics
reputation.*

THE DEPARTMENT OF Aerospace and Mechanical Engineering wind tunnels are used to study how aircraft behave in high-speed flight. Now they're getting \$1.7 million in upgrades to boost the capabilities of aerodynamics research.

Assistant professor Stuart "Alex" Craig received \$450,000 from the Office of Naval Research, and Jesse Little, associate professor and associate department head for graduate studies, received \$600,000 from the Army Research Office. In addition, the Air Force Office of Scientific Research awarded \$125,000 to Craig, \$285,000 to Little and \$245,655 to professor Hermann Fasel.

"Hypersonics is a key part of the university's strategic plan," Little said. "Our department has a legacy in fluid mechanics and aerodynamics, and we are building on decades' worth of research done by colleagues. We will be able to experiment from Mach 0 to Mach 5, at scales relevant for real problems, not just theoretical ones."

Exploring the Transonic Range

The college has wind tunnels that operate in the subsonic and supersonic ranges in Little's Turbulence and Flow Control Laboratory. Wind tunnels in Craig's Boundary-Layer Stability and Transition Laboratory cover the hypersonic range.

The transonic range, from about Mach 0.8 to 1.3, contains a mixture of subsonic and supersonic behavior that makes experimentation difficult. However, because transport aircraft, rotorcraft, turbomachinery and various projectiles operate in transonic conditions, experimentation in this range is critical. Little's grant will fund the ability to run tests in transonic conditions, giving the university a nationally unique capability in this area.

"Investment in this type of infrastructure is essential," said Matthew Munson, program manager for fluid dynamics at the Army Research Office. "It also provides students at the University of Arizona with an uncommon opportunity to be trained in this largely unexplored area of science."

Creating Flightlike Conditions

Craig's research focuses on boundary layer transition – the shift from laminar, or smooth, to turbulent in the flow of air around an aircraft. The type of flow affects how much friction and heat vehicles experience when flying at a high Mach number.

"Designing a vehicle that can survive that heat is a really big part of the challenge," Craig said. "To do so in such a way that the vehicle is not so heavy it can't fly is another."

The Mach 5 tunnel in his lab can only produce a noisy flow, meaning that the velocity and pressure of the air flow fluctuate. One grant is funding a nozzle that enables the tunnel to produce quiet flow, which more closely approximates what occurs



Stuart "Alex" Craig and Jesse Little are upgrading wind tunnels.

with flight in Earth's atmosphere. "What you need is to mimic a flightlike noise environment," Craig said. "A conventional wind tunnel can't do that, but this nozzle can."

"We will be able to experiment from Mach 0 to Mach 5 at scales relevant for real problems."

JESSE LITTLE,

AME associate professor and associate department head for graduate studies

This will be the only tunnel in the nation that can produce quiet flow at Mach 5, filling a gap for the study of cruise missiles and other objects that fly at this speed.

Supporting Future Engineers

Fasel's grant is funding high-fidelity direct numerical simulations of laminar-turbulent transition. This computational infrastructure complements other experiments in the department.

While trained graduate students are the primary operators of the new equipment, it also is used to demonstrate concepts in undergraduate courses. Additionally, high school students in university outreach programs will have opportunities to tour the facilities.

"These projects align with so many of our top priorities," said University of Arizona President Robert C. Robbins. "Researchers in the College of Engineering have secured support that will enable them to create real-world conditions that are critical in aerospace experiments. At the same time, they will be using these state-of-the-art wind tunnels to spark the

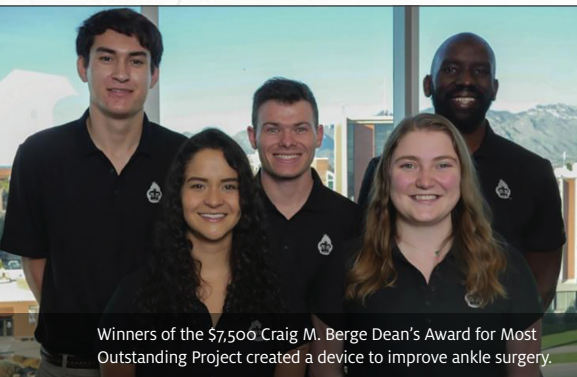
interest of high school students and undergraduates, who hopefully will imagine their future selves in facilities like these, pursuing STEM degrees or working as engineers."

DESIGN

DAY 2020

Engineers Triumph at First Virtual Design Day

FOR NEARLY TWO decades, Engineering Design Day has been a celebration of seniors, who spend their yearlong capstone course designing and building technology for industry and university sponsors. When COVID-19 restrictions shortened timelines and eliminated in-person meetings, the Class of 2020 exemplified what good engineering is all about: creativity, ingenuity and problem-solving skills.



Winners of the \$7,500 Craig M. Berge Dean's Award for Most Outstanding Project created a device to improve ankle surgery.

Physical distancing also meant that students' work was showcased and rewarded differently. All 115 capstone teams submitted video presentations of their projects for evaluation by external judges and award sponsors. At the first-ever virtual Design Day awards ceremony on May 5, Associate Dean for Academic Affairs Jim Baygents announced the winners of \$44,750 in prizes.

David Hahn, Craig M. Berge Dean of the college, welcomed more than 450 online attendees, saying, "After these numerous unprecedented challenges, Design Day is a celebration. It's a celebration of your success and of the Wildcat spirit."

Moving Design Day online was not the only big change. For the first time, the day was celebrated as part of the college's new Craig M. Berge Engineering Design Program.

Craig M. Berge earned his degree in mechanical engineering at the UA in 1957. After his passing in 2017, his family, including his wife and fellow UA alum Nancy, made a generous gift to the college. The funds endowed the dean's chair and named a program that provides hands-on design experiences for undergraduates at all levels.

"Craig loved to design and build things," Nancy Berge said in an opening message to students. "So, I know he would cheer you on as you faced every obstacle this year. He'd smile at the creative solutions you came up with. And he'd be thrilled by your brilliant designs. But

most of all, he would love the caring and support you've given each other."

The winners of the inaugural \$7,500 Craig M. Berge Dean's Award for Most Outstanding Project created an osteotomy guide for distal tibia deformity correction for Paragon 28, a company specializing in products for foot and ankle surgeries. This surgical procedure involves either removing or adding a wedge of bone to a patient's tibia to properly align it with the ankle joint and alleviate osteoarthritis symptoms. The current method requires an extremely skilled surgeon and still holds a high risk of error.

"Our device improves upon these issues by allowing surgeons to make accurately measured and repeatable cuts," said biomedical engineering team member Melissa Requist.

The \$5,000 Raytheon Missile Systems Award for Best Overall Design went to a biomedical

project as well. The team, which also won the Rincon Research Award for Best Presentation, created a sensor to measure the levels of fluid reagents for sponsor Roche Tissue Diagnostics.

"It's a celebration of your success and of the Wildcat spirit."

DAVID W. HAHN
Craig M. Berge Dean

Some Projects Originate With Students

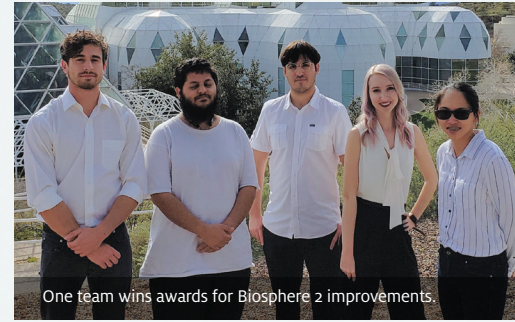
TWO OF THIS year's capstone projects were spearheaded by students. Electrical and computer engineering senior Sam Badger created the startup Façade Technologies to develop a software called Facile, which creates application programming interfaces, or APIs, for other software.

The team won both the Ball Aerospace Award for Best System Software Design and the ACSS, an L3 Harris and Thales Joint Venture Award for Most Robust Systems Engineering.

Biosystems engineering student Lia Crocker, who asked her home department to sponsor a project through the Biosphere 2, led a team in creating a controlled monitor system for coral

raceways. The team won the Mensch Foundation Award for Best Use of Embedded intelligence and the Steve Larimore Award for Perseverance and Recovery.

“Scientists are trying to find a species of coral resistant to conditions caused by climate change,” Crocker said. “It’s important to have really accurate monitoring of what those conditions are.”



One team wins awards for Biosphere 2 improvements.

Enjoy the **WONDER** of Design Day today!

View all of the 2020 project presentations at page.video/UADesignDay2020

Sustainability Takes Center Stage

SEVERAL OF THIS year's teams focused on sustainability efforts, such as a water reclamation system for a car wash, or a plan to build vertical vegetable farms in abandoned shopping malls.

The first-prize winners of the Bly Family Award for Innovation in Energy Production, Supply or Use developed

a transportable renewable energy system for sponsor Tucson Electric Power to use in remote locations without power lines. The second-prize winners, sponsored by the Department of Chemical and Environmental Engineering, explored the idea of powering cellphones with microbial fuel cells.

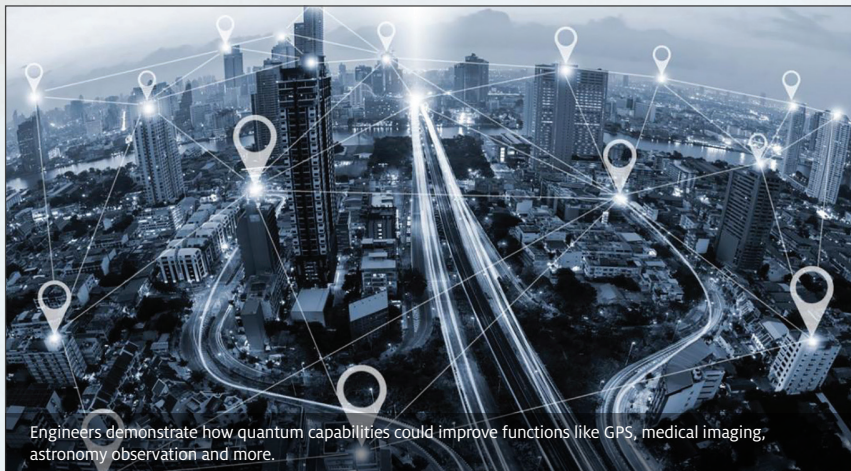
“When COVID-19 became a global pandemic, we had to stop our prototyping,” said chemical engineering student Stanley Wong, whose team created a method for building bricks out of recycled plastic for emergency shelters. “However, we did not let what we had accomplished in person together go to waste.”



Quantum Entanglement Offers Unprecedented Precision for GPS and Beyond

DPHONE GPS, WI-FI and communications on aircraft are all powered by radio-frequency waves, which carry information from a transmitter at one point to a sensor at another.

For example, a GPS sensor determines its location by using the amount of time it takes to receive a signal from a satellite. The more precisely the sensor measures the time delay, the more accurately it determines location.



University of Arizona researchers have demonstrated how combining radio frequency photonics sensing and a technique called quantum metrology gives sensor networks an unprecedented level of precision.

“This quantum sensing paradigm could create opportunities to improve GPS systems, astronomy laboratories and biomedical imaging capabilities – really, any application that requires a network of sensors,” said Zheshe Zhang, assistant professor of materials science and engineering and optical sciences, and principal investigator of the university’s Quantum Information and Materials Group. Quntao Zhuang, assistant professor of electrical and computer engineering, is also involved with this project.

Device Casts Light on Brain’s Inner Workings

THE MAMMALIAN BRAIN is capable of processing thousands of stimuli simultaneously to analyze patterns, predict changes and generate highly measured action. How the brain does all this – within fractions of a second – is still largely unknown.



Researchers at the University of Arizona and partnering institutions have created an ultra-small, wireless, battery-free device that uses light to record individual neurons so scientists can see how the brain is working.

“As biomedical engineers, we are working with collaborators in neuroscience to improve tools to better understand how these individual neurons interact with each other while

we move through the world,” said lead study author Alex Burton, a biomedical engineering doctoral student working with biomedical engineering assistant professor and BIO5 member Philipp Gutruf.

Scientists Study Sweat, the Small Stuff

WHEN PHYSICIANS TAKE blood samples from patients, they send the samples to labs to be analyzed for biomarkers. These biological clues, which indicate everything from cholesterol levels to disease risks, can be used to monitor patient health or make diagnostic decisions. The same biomarkers also are found in sweat.

Erin Ratcliff, materials science and engineering assistant professor and head of the Laboratory for Interface Science of Printable Electronic Materials, is leading a project to develop new ways of collecting and analyzing biomarkers in sweat. This could allow physicians to replace taking patient blood samples with the more informative, less invasive method of taking sweat samples.



“The idea is that your sweat is reflecting your nervous system,” Ratcliff said.



Andre Schreiber fulfills childhood dream.

Undergrad Shifts from Surgical Robotics to Formula One Racing

FOR YEARS, electrical and computer engineering student Andre Schreiber hoped to combine his love of cars and electronics by working in Formula One racing. In late 2019, he won a coveted spot in the elite INFINITI Engineering Academy, training in the automotive and sports industries.

“I am really looking forward to working with both the Renault F1 Team and Infiniti,” Schreiber said.

About 3,000 people applied for only seven openings. Half of the academy’s alumni have gone on to full-time positions with Infiniti or F1.

“It’s a wonderful application of what he’s learning here in the College of Engineering,” said University Distinguished Professor Jerzy Rozenblit. Schreiber works in Rozenblit’s lab for computer-guided surgery training.

Student Makes Great Strides on the Field and in the Lab

MO ALMARHOUN came to the United States from Saudi Arabia to pursue chemical engineering and life as a student-athlete.

The UA junior wakes up before dawn to get to track practice. Then, he spends the day in classes for his chemical engineering major and engineering management minor. After a second workout in the evening, he heads to the



Mo Almarhoun is in constant motion from dawn until late at night.

library to do homework late into the night.

“I’m not sure how he does it,” said teammate Justin Lewis.

“He makes 24 hours in a day enough, somehow.”

Almarhoun received an honorable mention on his

transcript, for maintaining a GPA of 3.5 or above, and the athletics department has recognized him for outstanding academic achievement.

“If I didn’t have the support from the community here, making it this far would have been impossible,” he said. “I am fully blessed to be a student-athlete at the University of Arizona.”

Sky’s the Limit for Brooke Owens Fellow

JUNIOR AEROSPACE engineering major Lindsey Koelbel is helping develop a machine learning system for spacecraft to navigate asteroid surfaces. She creates 3D virtual realities of asteroid features, such as boulders and craters, so the system can practice navigating.

She also works on NASA’s OSIRIS-REX mission to

the asteroid Bennu – with Dante Lauretta, professor of planetary science and cosmochemistry in the Lunar and Planetary Laboratory and principal investigator of the project.

Her latest achievement is being named a Brooke Owens Fellow, an honor that provides top internship and mentorship opportunities

for students counted among historically underrepresented genders in the aerospace industry.

“Lindsey is in the top 1% of undergraduate students I have worked with during my 19 years at the University of Arizona,” Lauretta said. “She is a role model for young women across campus and around the country.”



Lindsey Koelbel lands in ‘top 1%’.

ECE Faculty Members Honored



IVAN DJORDJEVIC, professor, was elevated to IEEE fellow for his pioneering work in physical-layer optical communications.



WOLFGANG FINK, associate professor, was named a SPIE fellow for his achievements in vision science for the blind and tele-ophthalmic health care.



GREGORY DITZLER, assistant professor, received a \$500,000 National Science Foundation CAREER Award to support his machine learning research.

University Mourns Loss of Renowned Mineral Exploration Geologist and Philanthropist J. David Lowell

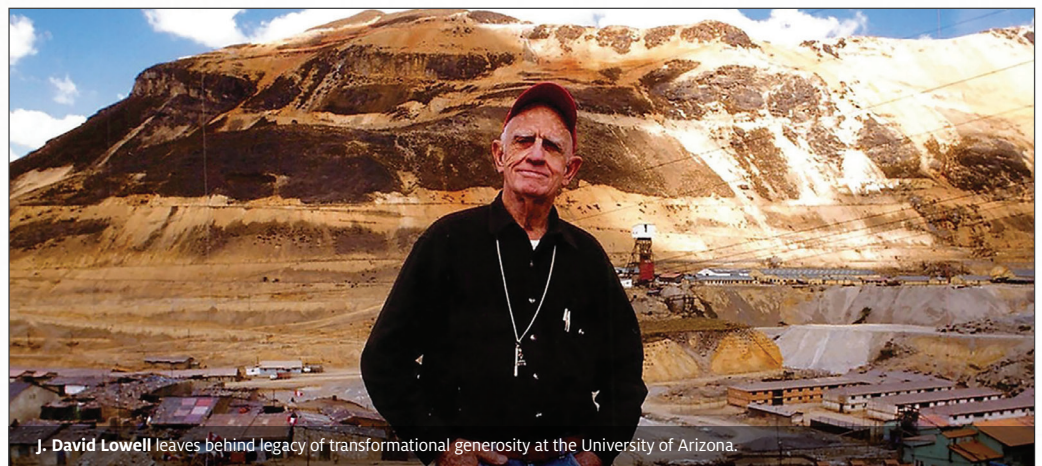
UA ENGINEERING ALUMNUS J. David Lowell, considered one of the mining industry's most successful entrepreneurs, died in May at the age of 92. He leaves a legacy of transformational generosity at his alma mater.

"The University of Arizona has lost a great friend and an extraordinarily accomplished alumnus," said UA President Robert C. Robbins.

Lowell and his wife, Edith Lowell, are

members of the University of Arizona Founders Society, and their major gifts to the school include establishment of the Lowell Institute for Mineral Resources, which serves as a catalyst for mining innovation.

Recently the Lowell family created an endowed chair to support the head of the Department of Mining and Geological Engineering. Moe Momayez, associate professor and interim department head, is the first to hold the title.



J. David Lowell leaves behind legacy of transformational generosity at the University of Arizona.

\$2.5M Funds Scholarships, Minerals Research

A \$2.5 MILLION award for workforce development, research and industry solutions from the Freeport-McMoRan Foundation is helping the university advance responsible mining and use of materials.

"This type of investment makes us much stronger and more able to meet the needs of the ever-increasing demand on minerals



Gaurav Gupta earned his MS in mining and geological engineering at the UA in 2018.

and mineral resources in our society today," said Brad Ross, director of the Geotechnical Center of Excellence at

the Lowell Institute for Mineral Resources

and professor of practice in mining and geological engineering.

The university plays a critical role in preparing future mineral resource professionals for a world focused on technological advancements and sustainably sourced materials. The QS World University Rankings place the mining engineering program third in the country.

"As the private sector increasingly competes for STEM graduates, the universities that maintain their mineral-related programs have become critically important in producing a future workforce for the industry," said Richard C. Adkerson, president and chief executive officer of Freeport-McMoRan.



Alumnae **Alyssa Hom** and **Shandi Spencer** represent G2OPS at the College of Engineering's 2020 iExpo career fair.

As a UA undergraduate, **William Sircy**, BS/ChE 2002, became the fifth generation of his family to work at the Morenci Mine when he spent a summer internship at Freeport-McMoRan. Last year, he received the 2019 Medal of Merit from the Mining Foundation of the Southwest.

▶ 2010s

Alyssa Hom, BS/MinEng 2016, is a systems engineer at G2OPS. She returned to campus this spring for iExpo, the university's engineering-specific career fair. "Our executives and recruiters go out of their way to come to the University of Arizona, because the engineers are superior."

Phillip Greenberg, BS/2015 AE, co-founded the company Copperhead Aeronautics, where he is working on new designs for electric vertical take-off and landing, or eVTOL, vehicles. He's collaborating with the University of Arizona Center for Innovation on commercialization efforts.



Amir Gohardani

a PhD in aerospace engineering and works as an adjunct associate professor of business at Westcliff University. He has educated more than 2,200 students across 20 subject areas over 20 years.

ENR Southwest selected **Milos Vasiljevic**, MS/EngMech 2007, as a Top Young Professional. The distinction recognizes individuals for mastery of new technologies and dedication to educating fellow professionals about smart design and construction practices.

Alix Deymier, BS/MSE 2006, is an assistant professor of biomedical engineering at the University of Connecticut, where she studies how bones are affected by acid-based diseases. She has a PhD in materials science and engineering from Northwestern University.

James Gaulin, BS/CE 2003, joined Crown West Land Group as director of land. His expertise in land development will come in handy as he assists with the management of lots and property, including buying, entitling, developing and selling land throughout the Southwest.

▶ 1990s

Clemson University awarded associate professor **Mary E. Kurz**, BS/SE 1995, MS/SE 1997 and PhD/SIE 2001, with the Class of '39 Award for Excellence, which recognizes one faculty member annually who has demonstrated outstanding commitment to teaching, research, service and securing funding.



Mary Kurz (Courtesy of Clemson University)

Rene Lopez, BS/NE 1995, was named the vice mayor of Chandler, Arizona, in January 2020. He will serve in the position for about a year. Lopez has lived and worked in Chandler since 2007, and he is a third-generation U.S. Navy veteran and a third-generation Arizonan.

MaxQ Technology, a design and fabrication company co-founded by **Joe Martinez**, BS/ME, 1992, received a NASA Group Achievement at the 2019 NASA Honor Awards. "I learned it is rare for teams outside of NASA to get this recognition. I was honored and privileged to attend the ceremony."



Joe Martinez (center) at the 2019 NASA Honor Awards

▶ 2000s

During a postdoctoral fellowship in Wisconsin, **Kyana Young**, BS/CE 2009, started an outreach program for high schoolers underrepresented in STEM. She is now an assistant professor at Wake Forest University, where her research focuses on water quality and public health.



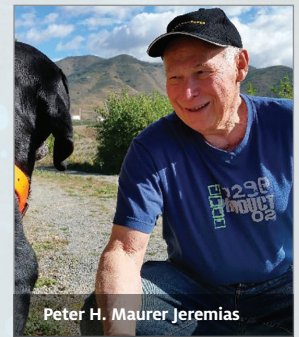
Kyana Young

Amir S. Gohardani, MS/ME 2008, was named the 2019 Turnitin Global Innovation Award winner in North America for his scholastic originality and work in teaching. He also holds



Mark and Lupe Woodson with Flagstaff Mayor Carol Evans and Flagstaff Council Member Charlie Odegaard on Woodson Engineering Day

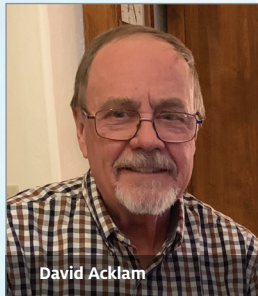
America and Europe. His last assignment, before retiring to Madrid, was as vice president of Nynas AB in Stockholm. "Last year I turned 80, and I am still proud of the degree I earned at the College of Engineering."



Peter H. Maurer Jeremias

▶ 1970s

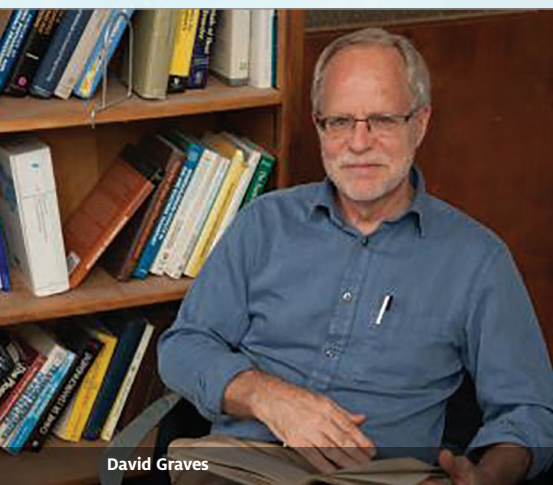
Mark Woodson, BS/CE 1979, and his wife, Guadalupe, started Woodson Engineering and Surveying, Inc. out of their home in Flagstaff in 1994. In honor of the firm celebrating 25 years in business, Flagstaff Mayor Coral Evans declared June 13, 2019, to be Woodson Engineering Day.



David Acklam

David Acklam, BS/EE 1975 and MS/EE 1977, now retired, is proud to have been a member of the team responsible for developing GPS. He spoke about his work in the 2018 documentary, "The Lonely Halls Meeting".

David Graves, BS/ChE 1978 and MS/ChE 1981, who has been a professor at UC Berkeley since 1986, was named the Princeton Plasma Physics Laboratory's first associate laboratory director for Low-Temperature Plasma-Surface Interactions. The lab explores plasma applications in nanotechnology.



David Graves

Brian "Todd" Troyer, BS/CE 1970, is now retired from the U.S. Army Corps of Engineers, Buffalo District, after 33 years of service. He is also a veteran of the U.S. Coast Guard. He and his wife, Sharon, have been married for 49 years and have four children, 10 grandchildren and one (so far) great granddaughter.



Brian "Todd" Troyer

▶ 1950s

John Myers, BS/MinEng 1959, worked for companies specializing in process equipment, gas turbines and reverse osmosis, then spent 18 years consulting. He and his wife of 66 years, Noel, are now retired. "I enjoyed all of my Earth sciences classes and was having difficulty deciding on a major. When the Phelps Dodge Corp. offered me a mining scholarship, plus a summer job where every two weeks I'd have a different assignment in the overall Ajo operation, there was no longer any question about a major."



Noel and John Myers

▶ 1960s

Peter H. Maurer Jeremias, BS/EE 1964, spent his career in the international oil industry, working throughout South

Rising to the Challenge

Now, more than ever, hearing from you about what you are thinking and feeling is vitally important.

I HOPE THIS edition of Arizona Engineer finds you and yours healthy and safe.

The past few months on campus have been nothing short of unimaginable. As I am sure you are aware, the university quickly responded to the COVID-19 pandemic by closing campus and moving all instruction online. University leaders asked that everyone work together, albeit remotely, to continue the important work of educating our students.

All things considered, this completely unprecedented learning experience worked more often than not, bringing forth phenomenal displays of creativity, resilience and goodwill. I think all alumni should be proud of how their university, and the College of Engineering in particular, faced these challenges.

Things have changed dramatically in the world of development and alumni relations as well. Most of our communication is coming to you via email or phone as our team works to connect with you safely.

I think we all realize that we are embarking on what will be a lasting change in how we do business and deliver the Wildcat experience. Hybrid models of teaching and connecting, made possible by technology, will become our new normal. But we also know how important and powerful it can be to come together in person, whether in a classroom, lab or on the UA Mall at Homecoming.

We are committed to welcoming our alumni and donors back to campus as soon as it is safely possible, as well as visiting you in your hometowns with Dean Hahn.

Nothing can replace sharing a meal or a cup of coffee and hearing firsthand about your student experiences and dreams of helping future Wildcat Engineers. So when we all feel safe, and you are ready, we'll start making plans to be there!

Presently we have more questions than answers about coming events. We are planning for the Annual Engineers Breakfast and alumni awards, but we don't know for certain what October will bring. While we are hoping for the best, we can't guarantee that events like football games and the college's annual scholarship reception will be the same as in previous years. And we don't yet know what on-campus and regional events will look like – or even if they will happen at all this fall.

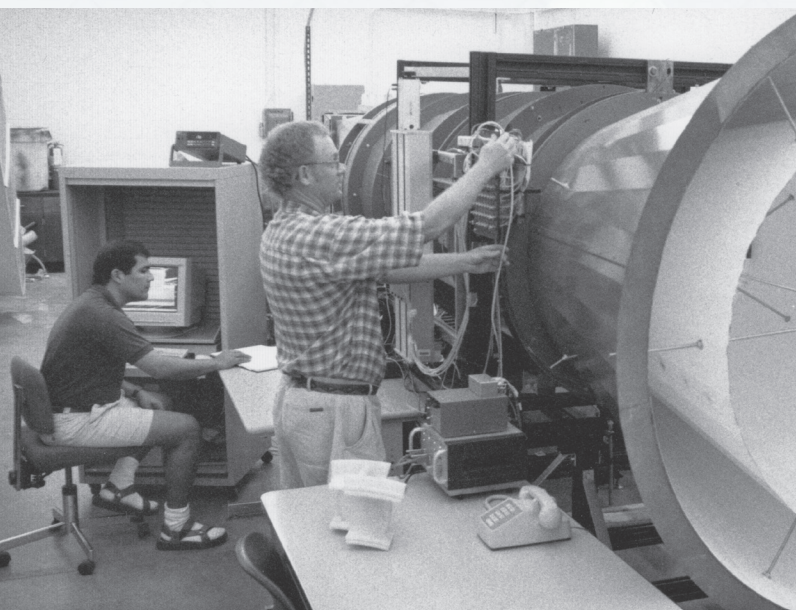
Perhaps the only thing I am certain about at this moment

is that now, more than ever, hearing from you about what you are thinking and feeling is vitally important. Please share your thoughts with me directly at puertaedson@arizona.edu so our team can take into account your needs, preferences and ideas as we move into the future. I look forward to hearing from you and responding, whether from campus or my remote worksite.

Wishing you the best in the months ahead,



Margie Puerta Edson, CFRE
Senior Director of Development
& Alumni Relations
520.626.0572
puertaedson@email.arizona.edu

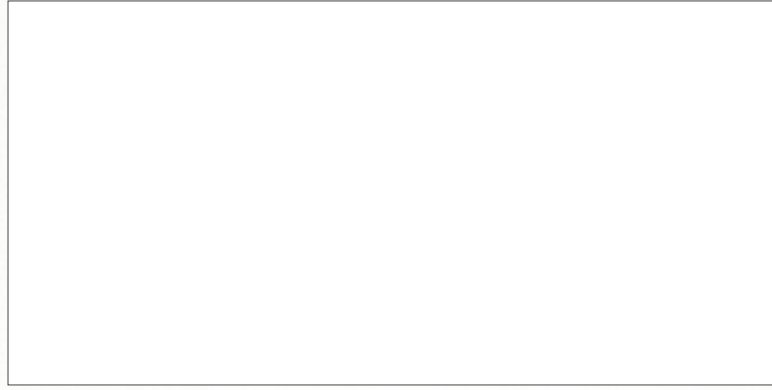


FROM THE ARCHIVES

Thanks to Lloyd Pollard, BS/ME 1993 and MS/ME 1997, Tony Abraham, BS/ME 1963, William Goble, BS/ME 2001, and Alfonso Ortega for helping us identify what's happening in this photo. Ortega, then an associate professor of aerospace and mechanical engineering, and Wayne Jouse, then an adjunct professor of nuclear engineering, are at work on a wind tunnel built to study a scaled-down part of an Allied Signal gas turbine.

Ortega also served as a thesis adviser to Pollard, who helped assemble the tunnel as part of his graduate work. One of Pollard's last assignments was to take it apart and move it across Speedway Boulevard to its home in the newly constructed AME building.

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CALLING ALL ALUMNI!

Where has life taken you since graduation? We'd like to know and so would your college classmates. Please email us with details (about 300 words) and be sure to include the following information:

- Name and year you graduated
- Major
- Degree (BS, MS, PhD, etc.)
- Details of your activities

We'd also be interested to see – and share – pictures of your family, your latest work project, that boat or hot rod you just finished building in your garage, or your blossoming gardens. Vacation photos are great, too. We'll publish your news and photos online and in the next print edition.

Please send your email to classnotes@engr.arizona.edu

BEEN IN THE NEWS LATELY?

Let us know if you've been getting some media attention. Just email us a link, and we'll continue to spread the news via the college website and social media sites.



FROM THE ARCHIVES

This photo has us stumped. There were no notes on the back of the print to give us a clue, so we need your help identifying the person and project.

