

50M BRILLA

SPRING
SUMMER
2019

MAGAZINE

THE UNIVERSITY OF TEXAS AT SAN ANTONIO | SOMBRILLAMAG.COM



LIFE TRANSFORMING EXPERIENCE

UTSA STUDENTS GET IT—AND PAY IT FORWARD.
HOW UTSA'S EXPERIENTIAL LEARNING CULTURE CREATES
OPPORTUNITY THAT RIPPLES ACROSS THE GLOBE.

22 Life-Changing Experiences

Experiential learning projects put students into "real world" endeavors that effect community and personal development.

➤ A student works on the final project that analyzed revitalization issues in San Antonio's Mission San Jose and Quintana Road neighborhoods.

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The university's cold-case research organization turns students into a brainpower bloc for reviewing old crime files.

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UTSA's professional writing scholars research topics and write documentation that serves Texans.

29 No Place Like Home

Students are researching historical land documents to help some Texans who find themselves in hot water with real estate.

30 Focus Is Think & Do

UTSA's Urban Future Lab is a think-and-do tank that tackles projects to improve the way people navigate their daily lives.



FROM THE PRESIDENT'S DESK

BY TAYLOR EIGHMY

The Future Is Bright

I've been known to evangelize about the power of experiential learning and its ability to transform students' lives. I know this topic well because I've lived it. Way back in 1975 I stopped-out from Tufts University after a less-than-stellar



freshman year. Luckily, when I returned a year later I met the faculty mentor who would change the course of my life, Dr. Jan Pechenik. He invited me into his marine biology lab, where I studied the larval form of adult slipper limpets, something few scientists were studying. The thought that I was creating knowledge was thrilling. None of this would have transpired without Dr. Pechenik taking the time to show me the possibilities of a scientific life. His belief in the power of undergraduate research helped me find my big dreams.

Indeed, experiential learning opportunities—internships, service learning, study abroad, undergraduate research, and the like—can have a profound impact on student learning outcomes and their future career success. It's why I'm so proud of the work Provost Kimberly Andrews Espy and her team are doing on UTSA's new Classroom to Career Initiative. Launched in September, this initiative is putting all the infrastructure into place to provide our students with real-world applications of their classroom learning. We have a big goal to go with this big idea. By 2028 we are aiming for 75% of UTSA students to have some form of experiential learning by the time they graduate.

We don't have to look far to find outstanding examples of students who are cohering their academic studies and professional interests in phenomenal ways. Take, for example, Sanah Jivani, who was named a Truman Scholar in 2018 and a Fulbright semifinalist this year for her public service and leadership as CEO of the Love Your Natural Self Foundation. We had two accomplished Truman Scholar finalists this year, Maria Victoria Alonso and Jay'Len Boone, making UTSA one of only two Texas schools, with Rice University, to have more than one finalist for this national program.

Our National Science Foundation Graduate Research Fellows are also terrific examples. The research that Travis Mark Kotzur, Lynée Massey, and Rebecca Revilla did as UTSA undergraduates resulted in competitive fellowships that will allow them to continue their research at the graduate level. We have so many more students at UTSA who are being recognized for their excellence inside and outside the classroom, including 17 Gilman Scholars, 23 Mellon Fellows, 88 Terry Scholars, and 36 Archer Fellows. All these prestigious programs are clear illustrations of the success that comes from blending classroom learning with career-engaged experiences.

This issue of *Sombrilla Magazine* is packed with stories about the practical applications of experiential learning and how our students are helping to create life-changing possibilities for the people of San Antonio and beyond. With students like Sanah, Maria Victoria, Jay'Len, Lynée, Travis, and Rebecca as our leaders of tomorrow, our future is bright indeed.

Taylor



JIVANI



ALONSO



BOONE



KOTZUR



MASSEY



REVILLA

SOMBRILLA
MAGAZINESPRING | SUMMER 2019
ISSUE 81TAYLOR EIGHMY
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TO WATCH

UTSA IS A HUB OF ACTIVITY

{ 1 }

Graduate School Rankings

UTSA has been recognized once again for the quality of its degree programs. Graduate programs placed in *U.S. News and World Report's* annual 2020 U.S. News Best Graduate Schools Rankings, demonstrating the university's growth and momentum as a destination for student success and research excellence. The programs in this year's rankings are business administration (ninth in Texas and 127th in the U.S.), education (ninth, Texas; 134th, U.S.), engineering (eighth, Texas; 148th, U.S.), public administration (sixth, Texas; 123rd, U.S.), and social work (fifth, Texas, 77th, U.S.).

{ 2 }

Architectural Elevation

UTSA's master of architecture and master of science in architecture programs have been awarded a unique STEM designation by the Texas Higher Education Coordinating Board. UTSA is now the only Texas institution—and one of few in the nation—to hold the designation. This will help the university recruit high-caliber students who want to access STEM-related architecture opportunities.

{ 3 }

Housing Plan Advances

The University of Texas System Board of Regents has approved the schematic design for the Guadalupe Hall dorm, making it part of the system's Capital Improvement Program. 🏠

PLAZAS & PASEOS

4 NASA taps UTSA to help develop homes for future missions to the moon and Mars.

6 A new stop sign by UTSA researchers could help reduce traffic accidents on rural roadways.

7 UTSA's virtual reality experts make strides in overcoming the phenomenon of cybersickness.

8 Research reveals how use of other forms of drugs could contribute to the opioid epidemic.

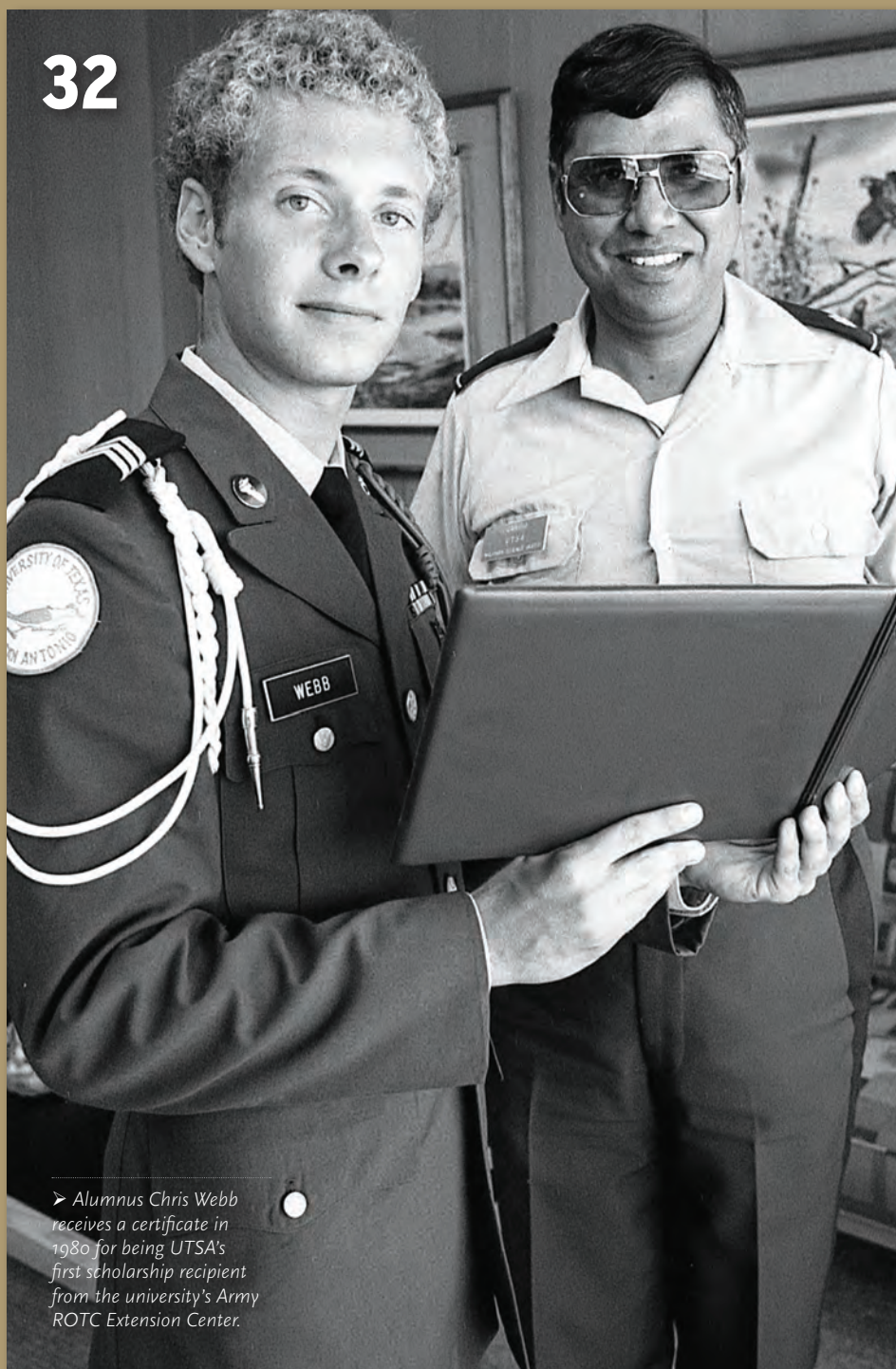
9 Experts uncover the disconnect between the brain's dopamine and cocaine addiction.

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➤ Alumnus Chris Webb receives a certificate in 1980 for being UTSA's first scholarship recipient from the university's Army ROTC Extension Center.

'RUNNERS & SHAKERS

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34 Administrators have a multiyear plan in mind when making Peggy Jo Tholen '76 the face to help market the fledgling university.

36 Derrick Gervin talks about becoming UTSA's first athletics superstar when he suited up for Roadrunner basketball in the 1980s.

39 Music educator Helen Wolf M.Ed.'77 signs up as the Alumni Association's first lifetime member.

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Documenting in photos the important, the beautiful, and the memory-worthy moments of life at UTSA.

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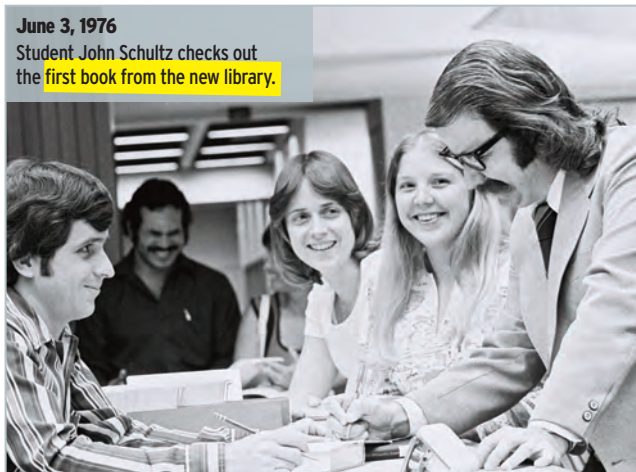
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(#)UTSA WATCH NOSTALGIA EDITION

SHOWCASING ROADRUNNER PRIDE FROM THE ARCHIVES

June 3, 1976

Student John Schultz checks out the first book from the new library.



January 19, 1978

Students view an exhibit in JPL for the fifth anniversary of the start of classes.



May 25, 1979

Students sign a card ahead of UTSA's sixth birthday.

About SOMBRILLA MAGAZINE



SOMBRILLA (SPANISH):
UMBRELLA
(SOHM-BREE-YAH)

SOMBRILLA MAGAZINE is the official publication of The University of Texas at San Antonio. It is published three times a year and distributed without charge to students, faculty, staff, alumni, and friends of UTSA. The magazine strives to capture the intellectual, cultural, and social life of the university while tackling relevant global issues.

University Communications and Marketing produces SOMBRILLA MAGAZINE and other publications that highlight the achievements and impact of Roadrunners throughout the world. The division is responsible for promoting the university's mission of academic and research excellence.

CONTACT US

Are you interested in sending an update for Class Notes or sharing news with other Roadrunners? Send submissions to:

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STORIES TO WATCH

UTSA IS A HUB OF ACTIVITY

This will allow UTSA to move Guadalupe Hall into the design-development phase, another milestone in the advancement of the university's strategic vision to prepare for enrollment growth of 45,000 students by 2028. Guadalupe Hall is one in a series of housing developments planned for the Main and Downtown campuses to enhance student success.

{ 4 }

Student Advisory Council

President Taylor Eighmy has established a President's Student Advisory Council to provide him with insights regarding the student experience at UTSA. The council will be made up of 16 undergraduate students representing various academic programs, cocurricular experiences, and demographic backgrounds. The group will meet regularly with the president to provide feedback on student priorities and university strategic initiatives.

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Engaging Program

UTSA has launched a program to boost student engagement and retention.

The Biomedical Engineering Research for Active Military and Veterans will target undergraduate students, including those at two-year colleges or who haven't declared majors, and place them in a summer research lab program to work on projects such as regeneration of damaged tissue and treating soldiers in the battlefield.



EXTRATERRESTRIAL HABITATS
ENGINEERING

A Moon WITH A VIEW

UTSA TO WORK WITH NASA ON DEVELOPING
OPTIMAL HOMES FOR THE MOON AND MARS

BY MILADY NAZIR

The National Aeronautics and Space Administration has tapped UTSA researchers to join a team that will build homes on the moon and Mars. As exploration

missions beyond Earth become more ambitious, NASA must consider new technologies to keep habitats operational when they are not occupied by astronauts.

To help achieve this the space agency has selected UTSA to be part of its Space Technology Research Institutes to advance space-smart habitat designs, or Smart Hab. This research will complement other NASA projects to help mature the mission architecture needed to meet exploration goals.

UTSA, led by Arturo Montoya, an associate professor with dual departmental appointments in civil engineering and mechanical engineering, will join NASA's Resilient ExtraTerrestrial Habitats institute. RETHi seeks to design and operate resilient deep-space habitats that can

adapt, absorb, and rapidly recover from expected and unexpected disruptions. It plans to leverage expertise in civil infrastructure with advanced technology fields such as modular and autonomous robotics and hybrid simulation.

As part of the RETHi program UTSA will receive

PLAZAS & PASEOS

Virtuality Reality
Tackling
Cybersickness

7

Brain Health
Understanding
Addiction

9

Technology
Alternative
Charging

10

financial support to build computational models, including the algorithms needed to create resilient moon and Mars future homes.

"This grant will allow UTSA and its students to play a key role in solving the challenge of deep-space habitation, while building partnerships with NASA facilities, universities, and industries," Montoya says.

Through an integrated effort, RETHi will mature deep-space habitats that can operate in both crewed and uncrewed configurations. The institute plans to create a cyberphysical prototype testbed of physical and virtual models to develop, deploy, and validate different capabilities. The RETHi team includes Purdue University, the University of Connecticut, and Harvard.

"Our participation in efforts to map a reality of extraterrestrial habitation as part of this initiative helps to support President Eighmy's vision for UTSA as a great multicultural discovery enterprise and being world-engaged," says JoAnn Browning, dean of the College of Engineering. "This grant also illustrates our emphasis on multidisciplinary research, since it brings together the fields of autonomous robotics, advanced computing methods for hybrid simulation, and sustainable civil infrastructure design."

UTSA with the other collaborators will be funded by NASA's Space Technology Mission Directorate, which is responsible for developing the cross-cutting, pioneering, new technologies and capabilities needed by the agency to achieve its current and future missions. 🐼

DRIVING
ENVIRONMENTAL RESEARCH

Brake IT DOWN

ENGINEERS DEVELOP AN INEXPENSIVE,
SMART STOP SIGN TO IMPROVE DRIVER SAFETY

BY MILADY NAZIR

It's dark on the back road as a motorist speeds toward the intersection. Up ahead, the stop sign blends with the night and in seconds a deadly crash occurs. According to the U.S. Department of Transportation, more than half of all roadway fatalities occur on rural roads. Now, engineers at UTSA are building and testing a system that will detect vehicles, improve the visibility of stop signs, and prevent deaths.

"Stop signs on rural roads are difficult to notice, and this leads to dangerous accidents," says Ayetullah Biten, a doctoral candidate in the Department of Electrical and Computer Engineering.

Rural roads account for 70% of the nation's byways and the location for 54% of all fatalities, according to the Federal Highway Administration. Without access to a power supply, they are more likely than other roads to lack signals and active traffic signs.

To improve driver safety, Sara Ahmed and Samer Des-

souky, professors in UTSA's College of Engineering, created a low-cost, self-powered intersection detection and warning system to alert rural motorists about potential dangers. The next-generation stop sign uses a multipixel passive infrared sensor that detects a vehicle as it approaches an intersection. Once the vehicle is within the sensing range, a signal beacon triggers the stop sign's flashing system.

"The sensor observes thermal signatures and processes them to detect passing vehicles," says Zachary Balcar, an electrical and computer engineering master's student. "It distinguishes the vehicle's direction of travel, estimates the velocity of its thermal signature, and determines the classification of the vehicle."

Overall, the smart system has a 90% vehicle detection rate and a vehicle classification accuracy of 72%. Compared to current traffic sensing technologies in urban areas—such as magnetic loop inductors,

video image processors, and microwave radar—the new system consumes less power and offers better accuracy. The new technology is also much less expensive to produce. Current safety systems can cost as much as \$5,000. UTSA's detection technology promises to be a fraction of the price—at \$60 to \$100 per unit.

"Our off-roadway system can be installed on urban or rural roads completely independent of the utility power grid, because it is powered by small solar panels and functions in all weather conditions," Ahmed says.

The low-power rural intersection detection and warning system was developed with support from the Connect program, a collaborative research program that is cofunded by UTSA and the Southwest Research Institute.

The project team has filed an invention disclosure for the system, which was recently recognized nationally by the American Road and Transportation Builders Association. 🌞





VIRTUAL REALITY
COMPUTER TECH

CYBER Relief

BY MILADY NAZIR

For people using virtual reality they may get feelings of dizziness, nausea, and loss of equilibrium and balance. Although it might appear to be symptoms of an oncoming illness, the diagnosis is possibly a state of cybersickness. Thanks to research by cyber experts at UTSA, this experience might be relegated to cyber past.

John Quarles, an associate professor in the Department of Computer Science, has won a grant from Intel Corp. to create an algorithm called Cyberwell, which automatically reduces the negative side effects of virtual reality on the end user. "We are studying what is causing cybersickness and how we can predict it earlier," says Quarles. "What are the aspects of each individual that we can use to predict better and personalize reducing cybersickness."

Cybersickness is similar to motion sickness and symptoms may even include dull headaches. It occurs when there is a conflict or mismatch between the visual system—what the user of VR perceives—and the vestibular system, which is responsible for balance and spatial orientation in a person. "Imagine you are driving in a virtual car. You think you are

driving forward in the car, but your sense of balance will tell you that you are not driving forward," Quarles explains. "There is a conflict between two sensory systems; theoretically that's what makes you nauseated."

The need to mitigate the effects of cybersickness is urgent. Although heavy game users may have grown accustomed to simulated environments, it's the rest of the population that will experience unease. According to Quarles, among nonheavy users of VR or games, between 50% and 80% of people will experience some discomfort. The high incidence of side effects in simulated realities can serve as a barrier for VR penetration that could be used beyond the gaming world and serve as a medical or educational training tool. Already, UTSA has the Dex Lab, which allows students to simulate work with chemicals in

a virtual environment to learn about lab safety.

The Cyberwell approach will be undertaken by Quarles with the collaboration of professors Paul Rad, Dakai Zhu, and Yufei Huang. This group, which brings multidisciplinary approaches to the work, including artificial intelligence and bioinformatics, will design a series of experiments that will measure participants' physiological responses, including electrical brain activity through EEGs and galvanic skin responses during a VR simulation. The feedback will be tracked and input into a computer program that will then utilize deep-learning models to

recognize the patterns that indicate when cybersickness is about to occur. The end goal is that the virtual simulation will immediately make individual adjustments to personalize cybersickness reduction. ?



DISCOVERY AT UTSA

NATIONAL ACADEMIES:

Bernard Arulanandam, the Jane and Roland Blumberg Professor in biosciences at UTSA and interim vice president for research, economic development, and knowledge enterprise, has been inducted as a fellow of the National Academy of Inventors.



The honor recognizes Arulanandam for demonstrating a prolific spirit of innovation in creating and facilitating outstanding inventions that have made a tangible impact on quality of life, economic development, and the welfare of society.

PEER RECOGNITION:

Floyd Wormley Jr., the Microsoft President's Endowed Professor in the College of Sciences, has been named a fellow of the American Association for the Advancement of Science with his peers recognizing Wormley's distinguished contributions to the field of medical mycology, immunology, and host-pathogen interactions. Wormley's research has the potential to lead to the development of vaccines, immune-based therapies, and novel antifungal drugs.

DISCOVERY AT UTSA

THE DEALMAKER:

San Antonio Business Journal has named President Taylor Eighmy its inaugural Dealmaker of the Year. The honor is part of the publication's new Building San Antonio Awards, which



celebrate standout real estate projects in San Antonio. UTSA has been undergoing a renaissance since Eighmy began his service as the university's sixth president in 2017. He has set in motion a series of key initiatives, the first phase of a 10-year strategy to make UTSA San Antonio's premiere multicultural institution. An integral part of Eighmy's plan is to accelerate the development of the Downtown Campus as a destination for producing highly skilled professionals across disciplines that include big data analytics and cybersecurity, to advance economic development in the urban core, and create prosperity for San Antonio.



BY KARA SORIA

On average, 130 Americans die every day from an opioid overdose and, according to the Centers for Disease Control and Prevention, almost 218,000 Americans died from overdoses related to prescription opioids from 1999 to 2017. Researchers at UTSA have studied the opioid epidemic in a representative sample from the U.S. and have found that the majority of people misusing prescription opioids are also using other licit and illicit substances.

Timothy Grigsby and Jeffrey T. Howard, who are both assistant professors in the Department of Kinesiology, Health and Nutrition in UTSA's College of Education and Human Development, have

RESEARCHERS EXAMINE PATTERNS OF PRESCRIPTION OPIOID MISUSE AND OTHER SUBSTANCE USE

published their findings in *The American Journal on Addictions*. According to their study, males and younger respondents (adolescents aged 12–17 and young adults aged 18–25) were more likely to report using more than one other drug in the past month.

Grigsby, the lead author on the study, says most individuals who reported prescription opioid misuse in the survey also reported the use of cigarettes, alcohol, marijuana, or hard drugs. In addition, the researchers discovered that prescription opioid misusers who used more than one other drug in the past month had the

greatest odds of reporting behavioral problems (for example, stealing property worth \$50 or more, selling illegal drugs, contracting an STD), mental health problems (suicidal ideation and major depressive episode), and the need for substance abuse treatment.

"If we want to end the opioid epidemic—and stop another similar one from taking its place—then we need to consider the entire clinical picture of the patient, including their use of other substances," says Grigsby.

National Survey on Drug Use and Health data indicate that the primary reason for misuse of prescription painkillers

is pain (62.6%). Individuals with existing physical, behavioral, and mental health problems may be at a higher risk of prescription opioid misuse due to associated pain-related symptoms or as a coping mechanism for psychological and behavioral problems.

"So much of the public discussion focuses on the opioid epidemic as though it is happening in a vacuum when, in fact, so many people misusing prescription opioids are also engaging in other substance use," explains Grigsby. "I wanted to get a better sense of what patterns of prescription opioid misuse and comorbid substance use existed and how these patterns were associated with different health outcomes." ?

DRUGS
BRAIN HEALTH

Addiction SWITCH

BY MILADY NAZIR

Researchers at UTSA have revealed significant insight into cocaine addiction, a phenomenon that has grown significantly in the United States since 2015. New data by UTSA shows how the release of the neurotransmitter dopamine changes when working for cocaine. The human brain naturally releases dopamine to reward us for working hard for something gratifying, such as enjoying a piece of chocolate. Yet when it comes to

illicit substances like cocaine, the harder the effort put into getting cocaine, the less likely there will be a large jolt of dopamine.

With the new understanding that there is a difference between how the brain responds to additional effort in relation to a specific object of desire, either food versus illicit drugs, the data suggest

that this new finding into the dopamine production complex could help guide future solutions for drug addiction.

"By identifying these differences," says Matthew Wanat, assistant professor in the Department of Biology, "you can come up with pharmacological or behavior strategies so that you can maintain normal responses for natural rewards but at the same time manage the responses for drugs."

Dopamine is a neurotransmitter that plays key roles in the brain and body. The chemical messenger is involved in regulating physical movement. It's a catalyst for a person to be able to engage in motivated behaviors and also facilitates learning. Scientific studies show

that a disruption in dopamine production can lead to neurological disorders such as Parkinson's but also drug addiction.

Wanat's previous research showed that there is a larger dopamine response when we delay gratification for food. Now his work on cocaine aims to solve the complex puzzle of the impact of illicit drug use on brain chemistry. His latest research will be published in *The Journal of Neuroscience*.

Professor Wanat and post-doctoral fellow Idaira Oliva, the lead researcher on the project, used rats that were trained to work for infusions of cocaine. In order to obtain the desired stimulant, the rodents had to engage in a progressive series of nose pokes before getting another dose of cocaine. Later, measurements of the dopamine levels in the rats' brain were taken while they worked to obtain cocaine.

As to why there is an opposite effect of dopamine surge in cocaine usage with added effort is still not fully understood. However, UTSA scientists don't necessarily think it's related to the actual drug.

"We think there might be a change in the subjective value. It's just perceived as less valuable. It fits in with the idea that you don't like the drug as much," says Wanat. Drug users "want it, but they don't like it as much as they would."

Although much of the recent U.S. drug crisis has centered on opioids, cocaine usage in the U.S. has surged since 2015. The latest Centers for Disease Control data suggest that, after marijuana, cocaine is the second most abused illicit drug, and deaths have grown by 37%. 🐼



DISCOVERY AT UTSA

BELOW THE SURFACE:

UTSA has received an in-kind donation of software, known as MOVE, valued at \$2.2 million from Europe-based company Petroleum Experts. The software will facilitate the study of the geometry of rock deposits in the earth's subsurface while also helping students and researchers better identify underground liquids like groundwater, oil, and gas. Alexis Godet, assistant professor in the Department of Geological Sciences, will lead the university's efforts to test and use the software.

ALTERNATIVE FUELS:

The U.S. Department of Energy has tapped UTSA to assist with the development of new accident-tolerant fuels that will permit nuclear plants to better sustain accidents like the one in 2011 at the nuclear power plant in Fukushima, Japan. "What we are looking at is actually changing out the fuel," says Elizabeth Sooby Wood, an assistant professor who specializes in materials physics. "We want to replace conventional fuel with something that has higher thermal conductivity so that if we do have an accident, the stored energy in the core is reduced. The great thing about nuclear energy is that it produces an enormous amount of energy, but the nature of these reactions doesn't give us a precise off button."



ELECTRONICS
MILITARY RESEARCH

LEAD THE Charge

RESEARCHERS AIM TO HARNESS
ELECTRONS' SPIN TO POWER TECH DEVICES

BY MILADY NAZIR

Building on the Air Force's need to develop tech devices that require minimal charging in the field, UTSA experts are using principles in quantum science and engineering to build a graphene-based logic device. This new technology will improve the energy efficiency of battery-dependent devices—from smartphones to computers. "We are developing devices that can operate almost batteryless," says Ethan Ahn, assistant professor in electrical engineering.

UTSA engineers are using spintronics, the study of an electron's intrinsic quantum mechanical property called spin, to allow low-power operation with a possible application in quantum computing. "An electron is a little but very strong magnet," Ahn says. "Just imagine that an electron spins on its own axis, either up or down."

Traditional tech devices use the electronic charge of electrons for power. In spintronics, researchers are tapping the inherent spin of electrons as a new

power source. With this new approach, devices will require fewer electrons to operate.

There are hurdles, however, in harnessing the power of spin. In quantum computing that harnesses spin of electrons to transmit information, the challenge for researchers is how to capture spin as efficiently as possible. "If you have 100 electrons injected to the channel to power the next logic circuit, you may only get to use one or two spins because the injection efficiency is very low. This is 98% spin lost," says Ahn.

To prevent the loss of spin, Ahn has developed the new idea of the zero-power carbon interconnect by using nanomaterials as both the spin transport channel and the tunnel barrier. These nanomaterials are like a sheet of paper, a two-dimensional layer of carbon atoms just a few nanometers in thickness, and it's the point of contact where spin injection is input into the device. Ahn's prototype is an interconnect built with a reduced graphene oxide layer. "It's novel because we are using graphene, a nanomaterial, to

enhance spin injection. By controlling the amount of oxide on the graphene layers," Ahn says, "we can fine tune electrons' conductivity."

Graphene has widespread appeal because it's the world's strongest nanomaterial. In fact, the room temperature conductivity of graphene is higher than that of any other known material.

If successful, the interconnect that Ahn is creating with his collaborators at UT Austin and Michigan State University would be integrated into the logic component of a computer chip. The device, once developed, will be submitted to the U.S. Air Force Office of Scientific Research, which is supporting UTSA's work with a three-year grant.

"The military needs smaller devices that can operate in remote fields without need to recharge batteries," says Ahn. "If we are successful, it will improve the efficiency of graphene spintronics—a crucial step in advancing the next generation of low-power electronics like quantum computing." 🐼

GOING Cellular

UTSA researchers have launched a project combining behavioral data with cellular testing, an effort that could shed light on the development of diseases like dementia and Alzheimer's.

Called the Quantu Project, the research seeks to predict the progression of neurodegenerative disease by tracking individuals' day-to-day behaviors and physiological indicators. Participants will wear Fitbits, devices that provide a wealth of personal health information such as heart rate, daily steps, and sleep patterns. That information will be compared against an individual's cells, as extracted from blood samples.

Researchers hope to collect an enormous amount of data for the project by recruiting more than 100,000 local participants over the next five years. The pool will include healthy individuals as well as people with cognitive conditions like dementia or sleep disorders.

Information will

RESEARCHERS WILL TEST BLOOD CELLS IN VOLUNTEERS TO SEE IF DATA CAN PREDICT DISEASE

be analyzed using computer models that will "predict individual people's behavior and what someone who is starting to have cognitive decline's behavior would be," says lead researcher Amina Qutub, an associate professor in the Department of Biomedical Engineering. The goal, she says, is to identify how daily behavior correlates with neurodegenerative disease and its progression in the body.

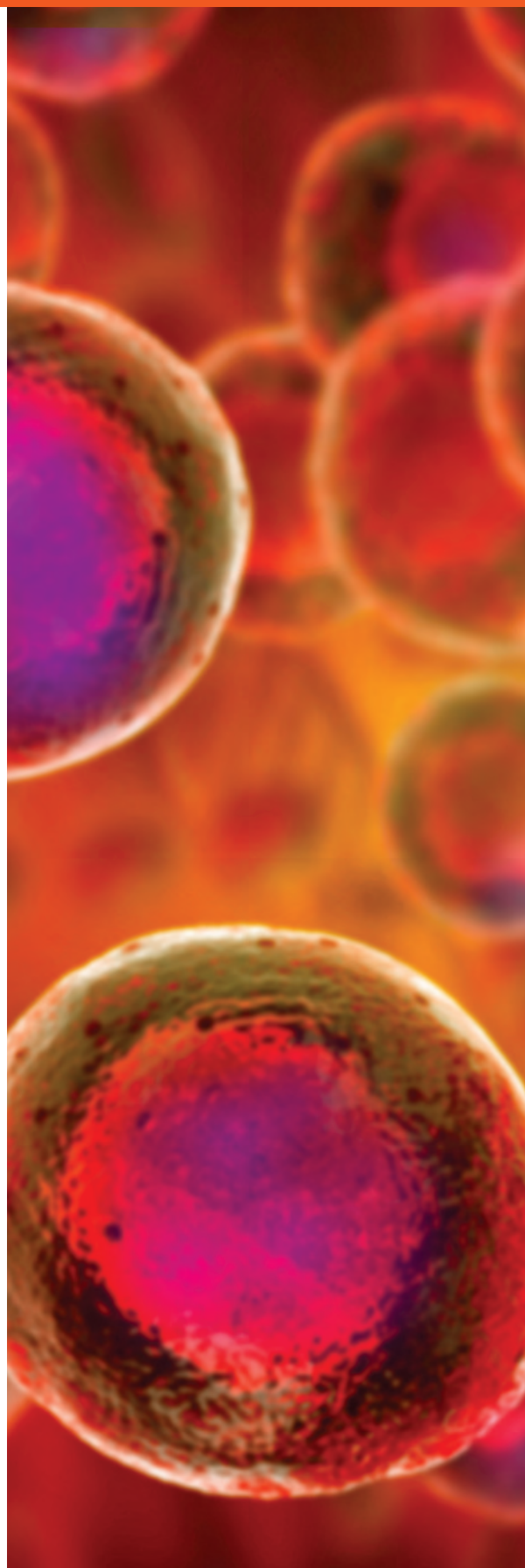
"We're mapping daily behaviors to the ability of new neurons to form for the same individuals," Qutub says. "Our goal is to figure out if there's something that you're doing on a daily basis that changes the ability of your cells to repair."

Researchers cannot expect participants to volunteer their brain cells. Instead, Qutub says, they will use cells taken from blood draws every six months. Working with UTSA's Stem

Cell Core, peripheral cells from a person's blood will be extracted and injected with a solution that changes a cell's gene expression. The process reprograms the cells to form parts of functional brain tissue, according to Qutub.

If researchers could predict early changes associated with cognitive decline, Qutub says, there would be an opportunity to step in and provide treatment or adjust a person's behavior. "Can we pick up decline 10 or 20 years before there's any of the symptoms that would show up clinically?" she says. "Can we intervene at that point and even reverse what would happen?"

The Quantu Project team plans to partner with health institutions in the area to help recruit participants, collaborations that can give researchers access to additional information from clinical assessments and tests. 🐼



JUSTICE SYSTEM
CRIME RESEARCH

WHAT MAKES A Crime?

BY INGRID WRIGHT

There is evidence that federal charging practices vary across district courts, according to experts who say that several court characteristics impact what charges might be pursued for similarly situated defendants. UTSA professors of public policy Richard Hartley and Rob Tillyer have studied what factors affect the determination by prosecutors to decline to charge someone arrested for a federal crime.

Research regarding decision making in federal criminal courts has revealed disparities related to charging decisions, charge reductions, guilty pleas, pleas rewards, trial penalties, selection processes in screening, and between prosecutor variation in

plea bargaining. The purpose of the UTSA research is to understand prosecutorial discretion and its influence as gatekeeper of the federal criminal justice system and whether this might benefit or disadvantage certain types of defendants.

Reporting their work in the journal *Justice Quarterly*, Hartley and Tillyer examined charges and prosecutor's decisions to decline to pursue a case. "We know that the decisions made by prosecutors [prosecutorial decisions] are highly discretionary and that these decisions affect later stage decisions such as those of sentencing judges," says Hartley. "However, one

of the main obstacles in exploring these cumulative effects has been the lack of, or availability of, data."

To overcome the limitation of a lack of knowledge of prosecutorial decisions, the researchers linked data on federal arrests to data on prosecutorial charging decisions producing a data set that covers 10 years and has nearly 1 million cases. The source of the data sets they merged is the Federal Justice Statistics database housed within the National Archive of Criminal Justice Data.

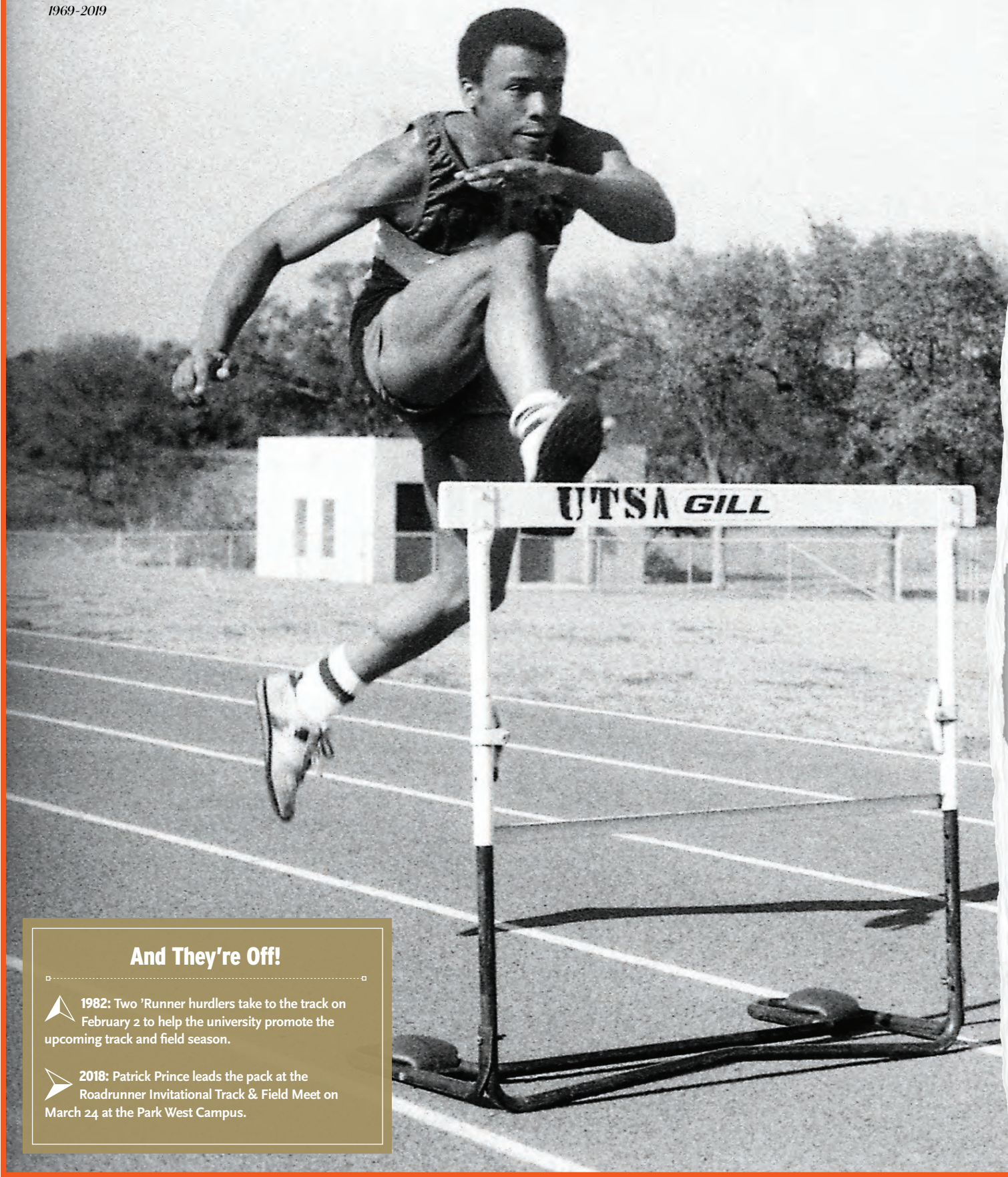
The research showed that federal prosecutors declined to prosecute in about one quarter of all cases across the 10 years

of data, but this percentage varied by type of offense. Violent and drug cases were most likely to be declined for prosecution, while immigration offenses had the highest likelihood to be prosecuted.

Regarding legally relevant factors, the researchers found offenders with more charges were more likely to have their case declined for prosecution in a federal court. Part of the explanation for this might be that in the federal system 90% of defendants plead guilty through some sort of plea agreement. Having more charges against you, therefore, may increase the possibility that defendants do not

enter into a plea agreement and the prosecutor has to examine how the case might be viewed at trial, which could result in a higher likelihood of declining to prosecute the case. It may also be that a state- or county-level prosecutor agrees to prosecute the case due to overlapping jurisdiction and therefore the federal prosecutor declines to prosecute the case in federal court.

The UTSA researchers also found some differences in these decisions across gender and race. Their analyses revealed that men and nonwhite defendants were more likely to have their cases declined for prosecution; however, men also made up 90% of offenders in the data. 🐼



And They're Off!



1982: Two 'Runner hurdlers take to the track on February 2 to help the university promote the upcoming track and field season.



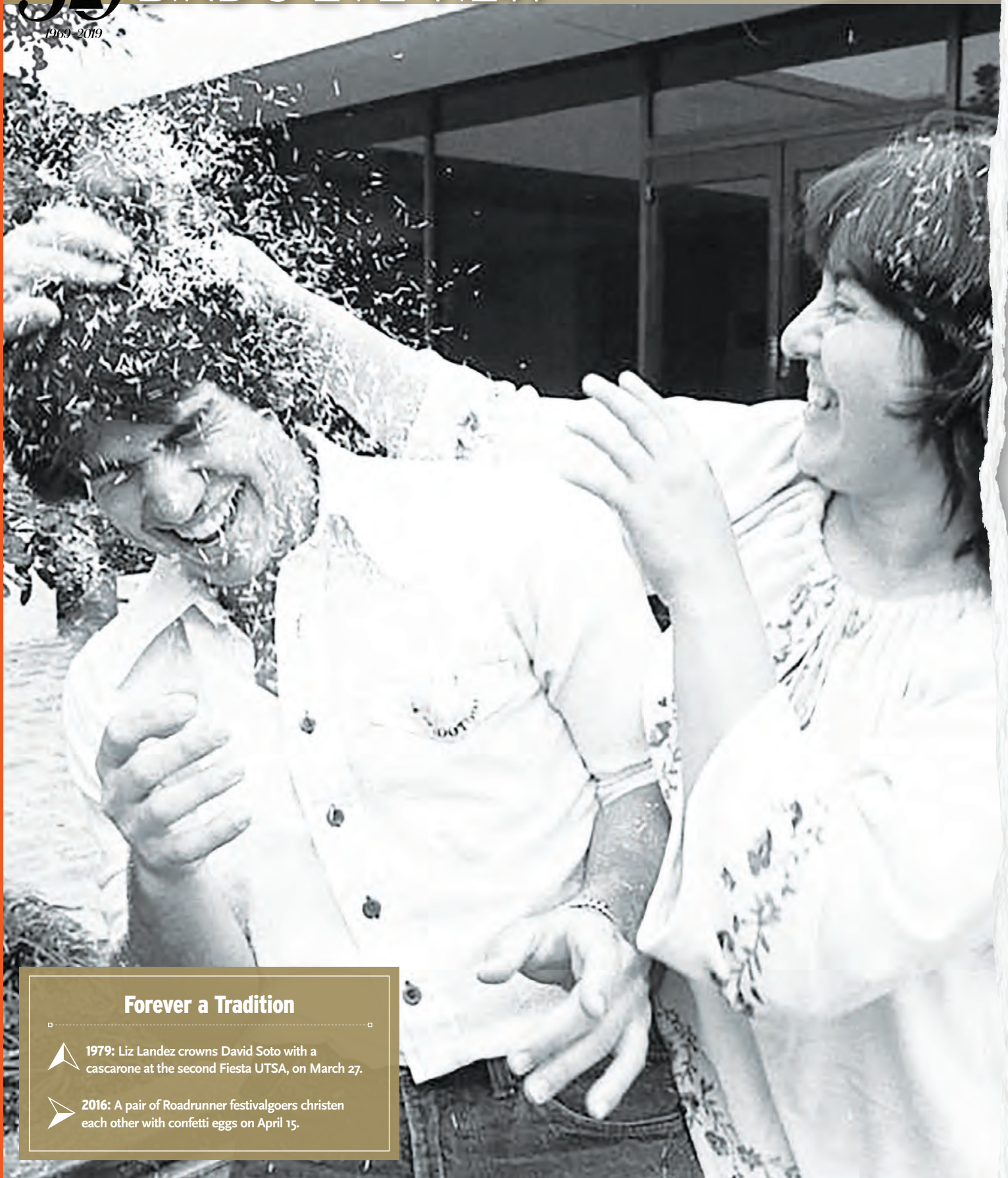
2018: Patrick Prince leads the pack at the Roadrunner Invitational Track & Field Meet on March 24 at the Park West Campus.



JEFF HUEHN / UTSA ATHLETICS

50
1969-2019

BIRD'S-EYE VIEW



Forever a Tradition



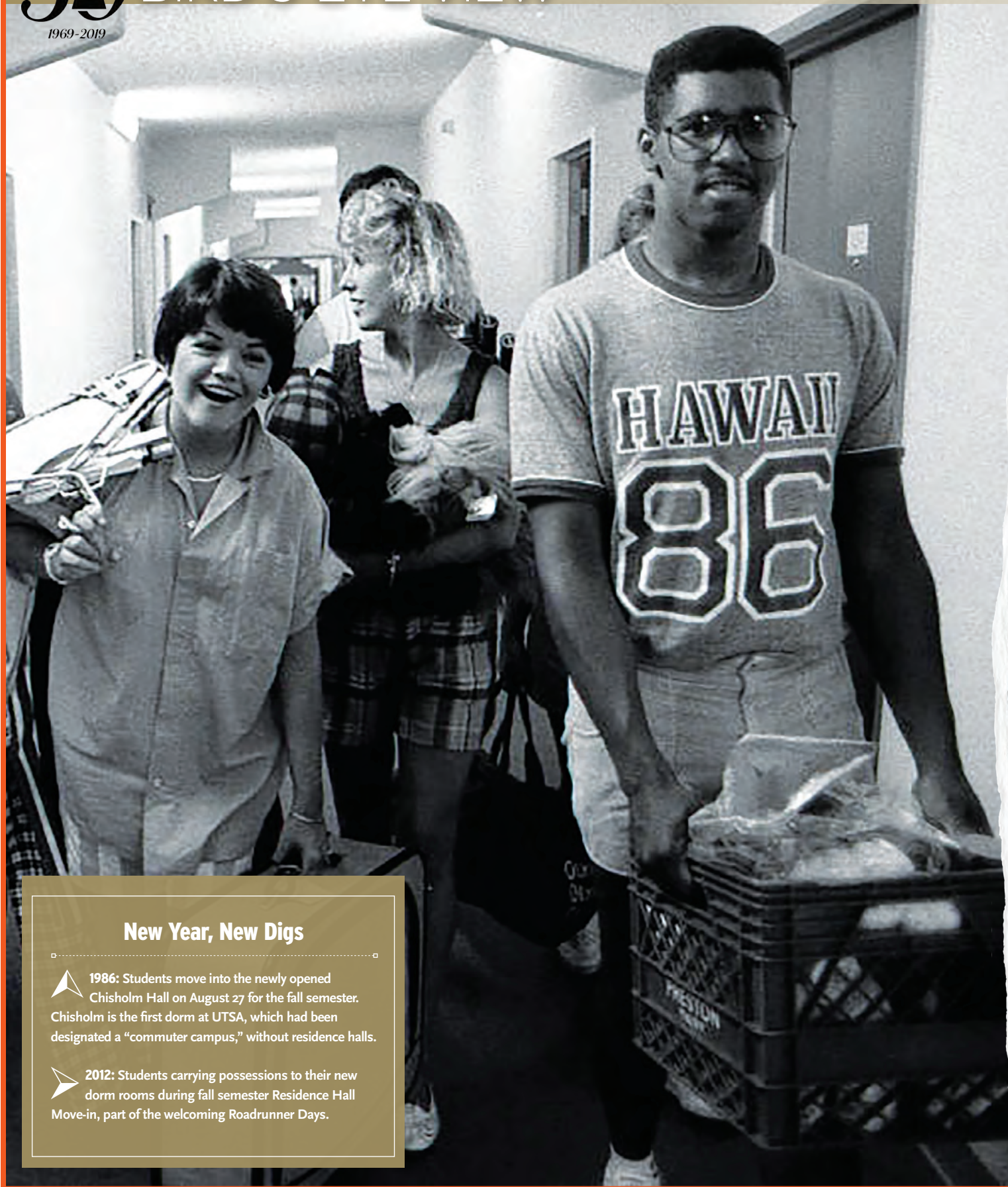
1979: Liz Landez crowns David Soto with a cascarone at the second Fiesta UTSA, on March 27.



2016: A pair of Roadrunner festivalgoers christen each other with confetti eggs on April 15.



COURTESY OF FIESTA SAN ANTONIO



New Year, New Digs

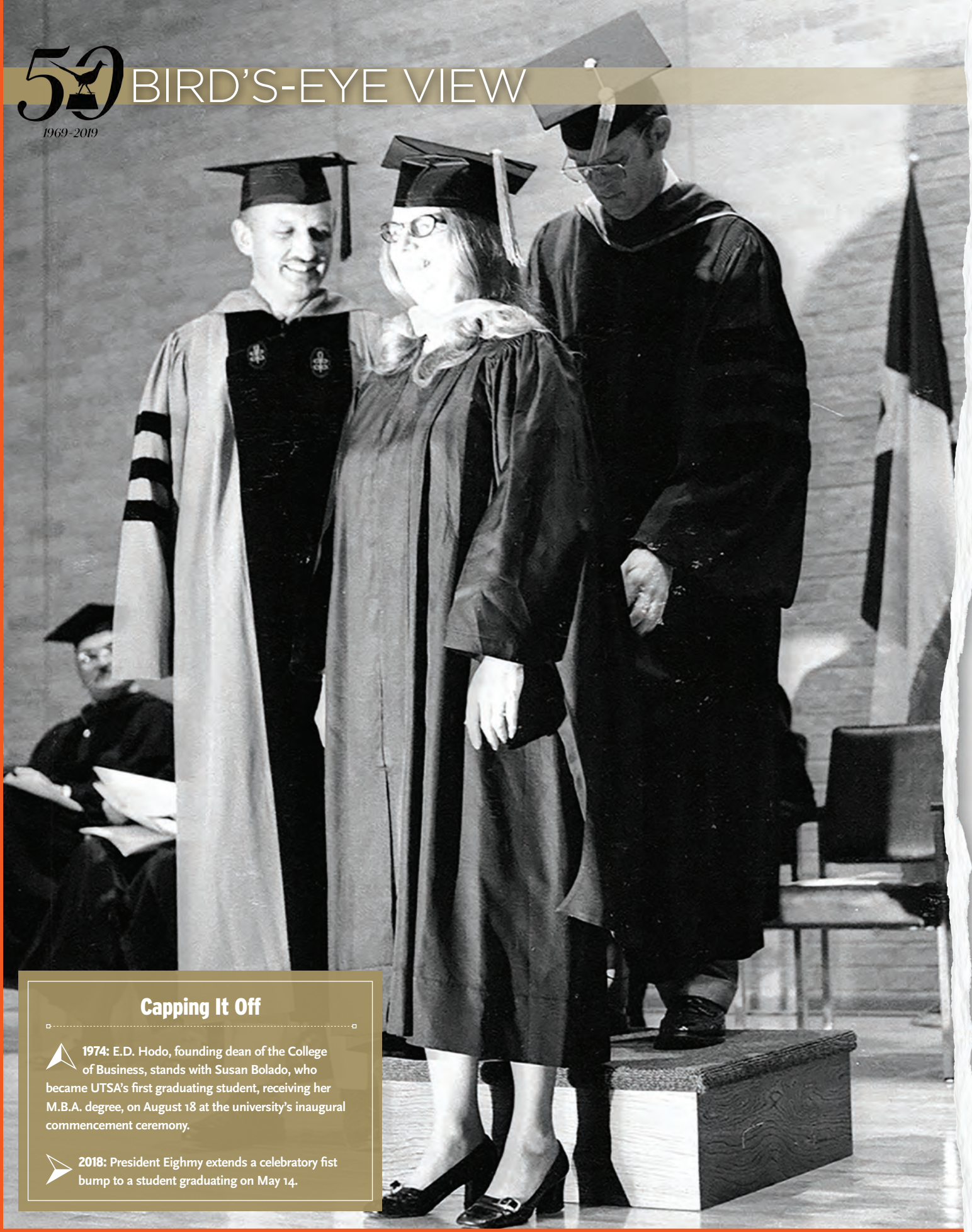


1986: Students move into the newly opened Chisholm Hall on August 27 for the fall semester. Chisholm is the first dorm at UTSA, which had been designated a "commuter campus," without residence halls.



2012: Students carrying possessions to their new dorm rooms during fall semester Residence Hall Move-in, part of the welcoming Roadrunner Days.





Capping It Off



1974: E.D. Hodo, founding dean of the College of Business, stands with Susan Bolado, who became UTSA's first graduating student, receiving her M.B.A. degree, on August 18 at the university's inaugural commencement ceremony.



2018: President Eighmy extends a celebratory fist bump to a student graduating on May 14.



COURTNEY CAMPBELL / UNIVERSITY COMMUNICATIONS AND MARKETING



LIFE OF TRANSFORM EXPERIENCE

COVER STORY
EXPERIENTIAL LEARNING

LEARNING IMPACT

UTSA helps its students create their future by providing an immersive educational experience. The university's goal is to have, by 2028, at least 75% of all students participating in hands-on research and engagement. Just as important as students gaining life-changing proficiency, these opportunities enable every participant to have an impact on the lives of others as they take on projects not just locally but globally. Here, *Sombrilla Magazine* explores some of these endeavors and how they are transformational for Roadrunners.

Submersed in San Antonio

CITYMESTER TAKES UTSA STUDENTS OUT OF THE CLASSROOM
TO HELP SOLVE CIVIC ISSUES

BY SHEA CONNER

Jay'Len Boone is a jovial guy, the kind who flashes a big smile by the minute. That warm charm never fades as the junior and Truman Scholarship finalist speaks with excitement about Sustainable Youth in Action—the nonprofit he founded to empower students to solve social issues—or his hometown of Ypsilanti, Mich. When he brings up the work he's done with Caritas Legal Services as part of the Citymester program, however, he becomes solemn. He takes a deep breath and says, "It's been, in one word, humbling."

Boone describes some of the tales he's encountered at Caritas—from the Russian man who's missing one small piece of documentation that's preventing him from living in America with his love to the politically impassioned immigrant who was repeatedly turned away from voting booths. Regina Parra, a junior majoring in political science, is another Citymester student who has helped out at Caritas, and she echoes those sentiments. Over the course of the spring semester she has researched legal pathways for refugees and undocumented immigrants and translated legal documents from English

to Spanish. "I have gotten a different perspective of San Antonio," she says, "and its most pressing needs."

Gaining a different perspective of San Antonio is exactly what Citymester is all about. The Honors College program takes UTSA students out of the classroom for a semester and places them in local internships in addition to partnering them with nonprofit organizations or civic offices throughout the city. Citymester students also explore essential local landmarks and institutions each Friday.

While Citymester was created to give students more valuable internship experiences and bolster their sense of service, the program was also intended make their bond with San Antonio stronger. By exposing students to the city's greatest assets and getting them involved with solving the city's most prominent issues, San Antonio benefits from community improvement while sporting a better chance of retaining talented students after they graduate. On the flipside, program coordinators seek out Honors College students that are passionate about the Alamo City.

"We want to know that they're interested in more than just an internship—that they're

committed to being civically engaged and learning about San Antonio in ways that haven't really been in the curriculum before," program manager Elisa Perkins says.

Civic engagement has been the most rewarding aspect of senior psychology major Kristina Gonzalez's experience. This spring she has been working with the Texas Department of Family and Protective Services on cases in which parental rights were up for termination. She has also been pitching in at the Guadalupe Community Center, where she's contributed to gardening projects, afterschool programs and food pantry efforts. "I leave every shift," she says, "feeling like I've made a positive impact in my community."

Another goal of Citymester is to provide experiential learning opportunities to students earlier during their college years. Perkins says that while the program happily welcomes seniors, the Honors College would like to see more juniors, sophomores, and even second-semester freshmen apply. Jonathan Gonzales was the lone freshman of the spring 2019 cohort, and although he admits Citymester was incredibly challenging, the history major already sees the value of what he's accomplished

through his contributions at Caritas and the Institute of Texan Cultures. "Not many 18-year-olds can say that they have 300 internship hours at a credible immigration law firm," he says, "or 75 hours learning how to market and put together exhibits at a Smithsonian-affiliate museum."

From Freetail Brewing to CivTechSA, there are several success stories of Citymester internships leading directly to job offers. That said, most Citymester participants would tell you that the connections they've made in the program are what really lasts. Networking with city leaders and collaborating with their ingenious peers through Citymester has already given a few dozen motivated UTSA students the opportunity to envision a greater future for San Antonio.

"We're members of the community and we're not distant from our community," says Boone, who interned with CivTechSA and saw his SYA nonprofit expand significantly with the aid of a few Citymester companions. "Citymester is a program that not only UTSA needs; they need this at Trinity and at San Antonio College, a program where the students can come out of their bubbles and unite for the city." 🌱



Citymester Trifecta

THREE STEPS TO ENSURE REAL-WORLD EXPERIENCE

Since its pilot was launched at UTSA in 2017, more than three dozen Honors College students have participated in the Citymester program. With an emphasis on real-world experience, community service, and creating solutions to civic issues, Citymester participants must fulfill three requirements over the course of a semester.

City Skills: For this internship component students work at a local business or institution for 300 hours during the spring semester (or 150 hours during the ab-

breviated summer session). Students are matched with partners that not only align with their career interests but will provide them with valuable experience. The interns have been placed at locations like the Witte Museum, the San Antonio Police Department, Freetail Brewing, the San Antonio Zoo, the Texas Department of Family and Protective Services, the Metropolitan Health District, CivTechSA, and Bandera Family Medical Group.

City Solutions: For this service-learning component,

students work with nonprofit organizations or civic partners on a weekly basis to identify and come up with solutions that will improve the San Antonio community. Students have partnered with entities such as the Guadalupe Community Center, RAICES, Caritas Legal Services, and Sustainable Youth in Action, among others.

City Sites: For this exploratory component, participating students visit important San Antonio destinations and landmarks where they learn while connecting with

city leaders in government, industry, and philanthropy to discuss related issues. Students are often inspired to share and promote these experiences and critically think about any improvements that could be made. These City Sites periods have included meetings with Robert Rivard of the *Rivard Report* and the San Antonio Spurs organization, a downtown scavenger hunt, and visits to the Alamo, the Pearl, Confluence Park, and the First Friday Art Walk. 🌿



With a Critical Eye

TRANSDISCIPLINARY RESEARCH EFFORTS
HELP TO SHED NEW INSIGHTS
ON CRIMINAL CASES GONE COLD

BY MICHELLE MONDO

Experiential learning doesn't have to be associated with a class, as the student organization Cold Case Investigative Research Institute proves. Launched by sociology professor Terri Earnest and student-turned-lecturer Colton Daniels, the organization brings together students of all disciplines to review cold case files that are passed on to them through the national organization of the same name.

The cases need fresh eyes, Earnest says, and having a multidisciplinary group can help see things that others didn't. "They are young, they think outside the box, and they aren't as conditioned," she says. "We've had an engineering student and one studying business, and it was the business major

who brought something up on a case that I hadn't thought of. And it was something that might help investigators move forward with the case."

One recent case involved a person who was shot to death while driving. Earnest stresses the group isn't out to solve crimes, in that they aren't knocking on doors, interviewing those involved, or collecting evidence. "The goal is to help solve it, but we do that by reviewing the case folder, and we issue a report of recommendations and things we might have seen that could help."

For Daniels, a sociology lecturer and Ph.D. student, the organization helps him with his research and also understand more about what he wants to pursue in the future. As a lecturer, Daniels says he sees that students want more experiential

It's truly wonderful because it links sociology, psychology. You get a gist of emotions and human behavior, and that's allowed me to apply social psychology to my research.

learning and says there is a balance to be made between more traditional classroom lectures and gaining real-world experience.

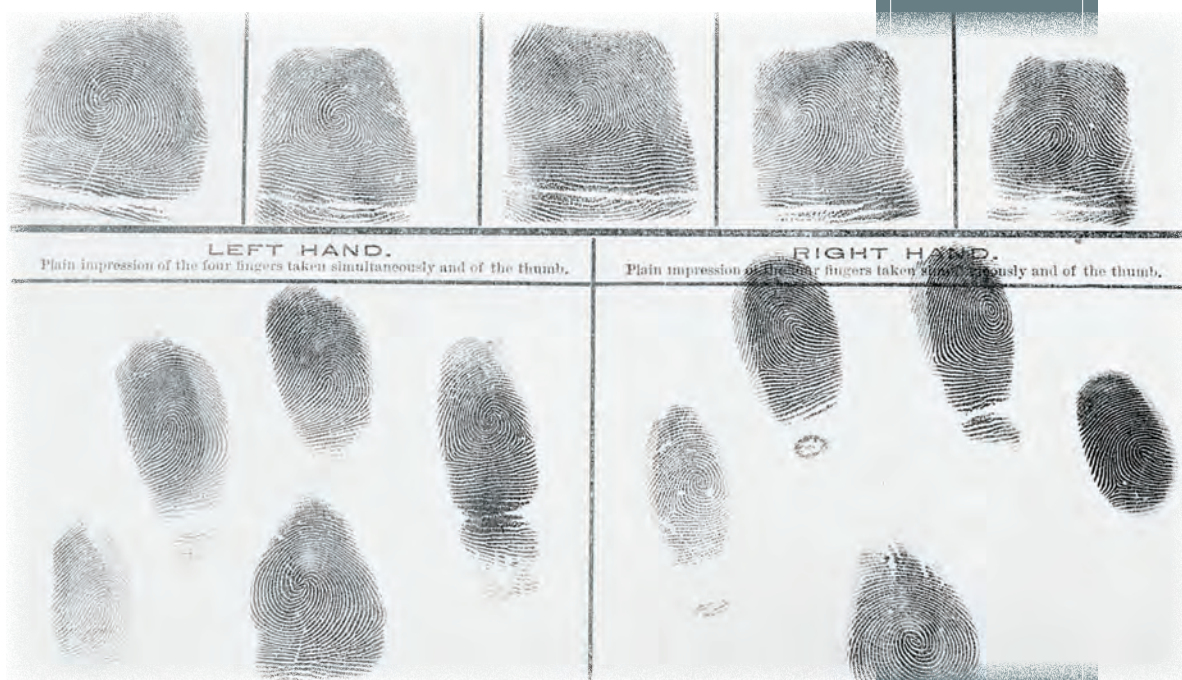
"Criminology has always fascinated me," Daniels says. "Once I started taking classes with Terri Earnest, the organization fueled my passion, and this became my first outlet to get a glimpse of how this can truly be part of my career path. Right now I'm working on my doctorate in demography with an emphasis in sociology. It's truly wonderful because it links sociology, psychology. You get a gist of emotions and human behavior, and for me that's allowed me to apply the social psychology method to my research."

Students often find out about the organization through Earnest's classes, which is how current organization president Brendon Decker learned about the group. "I took Dr. Earnest's behavioral profiling class last semester and was hooked," he says. "I have a keen interest in how serial killers are created via the nature-versus-nurture debate, such that I hope to conduct research on the topic upon earning a Ph.D. in psychology."

For undergraduate student and organization member Amber Trevino, the group fits with her path to getting her master's degree in forensic psychology and landing a job with a federal agency. She says even though she knows what career path she wants, the work done by the organization has taught her about the kinds of skills she will need to bring to the job.

"Before this I knew what I wanted to do but you go off what you think the job might be or what you see on TV," she says. "That's how people think cases work, that they get solved quickly. But they don't. They come with dead ends, or some evidence gets ruined, and this organization shows you how much work it takes to solve a case. We work on cases an entire semester and even in that you gain only an inch or two."

The mentorship provided by Earnest and Daniels has also been beneficial, according to Trevino. "For students considering joining," she says, "you should join, no matter what the discipline. Everyone can bring different dynamics. It's not a hinderance but a big plus." 🐾



Giving Voice

A NEW EFFORT AIMS TO EXPAND MILITARY HISTORY
THROUGH THE STORIES OF WOMEN VETERANS

BY SHEA CONNER

Associate history professors Kirsten Gardner of UTSA and Valerie Martinez of Our Lady of the Lake University were awarded a \$100,000 grant in late January from the National Endowment for the Humanities to create a digital archive of oral histories from women who have served in the military. The expectations of the project were clear: to broaden the scope of military history to include more firsthand accounts from female veterans, particularly minority women, and to give humanities students at UTSA and OLLU the opportunity to conduct oral histories.

What they didn't expect was the outpouring of support they'd receive from female veterans, from San Antonio and beyond, when funding for the two-year project was announced. "We've already had so many women reach out to share their stories," Gardner says. "They want to be part of the project, and that's very humbling."

Since World War II, when approximately 350,000 women enlisted, the percentage of women serving as U.S. military personnel has increased exponentially. Women now make up more than 16.5% of active duty military personnel, and since the barriers that kept women from direct combat roles were eliminated in 2013, women in the military have gained new service opportunities and additional paths to promotion and career specialization. Although men



and women servicemembers are perceived as equals on paper, military history and the surrounding culture have yet to catch up.

"Their work has been perceived as less important, like they're playing an auxiliary role," Gardner says. "I think women in the military, and the men who have served with them, know how untrue that is."

Roberto Martinez will be working on the oral history project, and he knows all too well about the strength and breadth of women veterans. Martinez is both a junior at UTSA studying communication with a concentration in digital media and a Mellon Pathways Fellow pursuing humanities research. He's also part

of a big military family from the west side of San Antonio. All six of his aunts and uncles served in the military. His brother has served for six years in the Navy, and his sister left for Naval boot camp in January. "I genuinely understand the saying that 'the whole family serves,'" Martinez says.

By documenting these women's stories, Martinez hopes to draw connections to the history of San Antonio to better understand how being in the military shapes identity, culture, familial dynamics, and the geospatial landscape of the community. In other words, the students and researchers participating in this project aim to honor a legacy

that's so much bigger than most realize. That goal is what drew UTSA graduate student and Army veteran Jason Boan '18 to the project, but he also realizes the benefit that he and others will gain from their participation. "Having the opportunity to learn from experts in the field," he says, "and then guide other students in learning about collecting oral histories is a bonus."

The multiple-semester project is launching in May with the Oral History Institute. During the institute, faculty and graduate students will hear from five experts on oral history, while learning best practices in collecting veterans' oral histories to implement during their courses next year. Over the course of the project, graduate and undergraduate humanities students will learn hands-on about the oral history process—from interviewing, transcribing, and annotating to digitizing, analyzing, and writing interview synopses. "It really gives them a professional skill set that they can put on their CV," Gardner says. "But it also gives them the independence of applying what they've learned in the classroom in the real world."

When the research project is completed in 2020, UTSA Libraries will host and maintain a digital repository of the interviews and photos of the women's notable keepsakes. Gardner and Valerie Martinez hope to write an edited anthology that highlights selections from the veterans' stories that could serve as assigned reading in history courses across the country. 🐾

Sending a Message

UTSA'S SPECIALIZED PROFESSIONAL WRITING SCHOLARS GET HANDS-ON EXPERIENCE WITH REAL CLIENTS

BY SHEA CONNER

There's a decent chance that you've seen the handiwork of students from Diane Abdo's specialized professional writing class at some point in your life. The distinguished senior lecturer in the Writing Program at UTSA will never forget the day when her husband, an attorney, came home from the Bexar County courthouse with a pamphlet distributed by the National Alliance of Mental Illness. "He said, 'Isn't this the brochure your class created? They're handing them out at Probate Court 2!'"

That brochure was only one of many professional materials that have been developed in Abdo's class. Other examples include biographies and articles for the HoneyNet Project, various materials for San Antonio Youth Literacy's Book Buddies initiative, and a reference guide distributed to all UTSA faculty regarding classroom incivility and mental illness. Each fall specialized professional writing students work in teams with a nonprofit client to create written materials that will be widely distributed.

The benefits are twofold. The clients get to pick and choose elements from several student submissions to craft much-needed content, while the students experience the all-too-real process of catering material to fit a client's needs. Throughout the semester students develop skills in writing for public relations, business communications, advertising, and marketing, which has included teaching moments about brand voice, strategic messaging, and even the occasional rejection. "We've had clients come in and say, 'I don't really like this,' and they've had to start over," Abdo admits. "But those were

all lessons learned."

Erin Boren '14 says the hands-on interaction with clients that she experienced in Abdo's class, as well as the mix of short-term deadlines and long-term projects, fully prepared her for the expectations she would need to meet in her career. Boren now serves as a flight operations communication specialist for Southwest Airlines. She doesn't hesitate to compare the messages she crafts in collaboration with Southwest's flight operations teams—balancing edits and changes they request with best practices in communication—to the work she did on the classroom incivility and mental illness brochure in Abdo's class. In both cases she absorbed constructive criticism and implemented it in a productive way. "It was helpful to learn then," she says, "what is true to my everyday career—the first iteration of a newsletter, memo, or presentation is almost always completely different from the final draft."

While Boren and many other students learned how to write for specific

Writing about a real need using real data makes the assignment feel more like a job than an assignment.

▼ Erin Boren '14, a flight communication specialist with Southwest Airlines, credits the UTSA Writing Program experience with preparing her for her career.

audiences, edit by style guide, and create communication plans in the specialized professional writing class, Caitlin Capps '18 found the course's introduction to grant writing "immensely helpful" as she embarked on her career. She works in media relations and partner engagement for iHOPE for Kids, a foster care and adoption agency. iHOPE for Kids has won two grants in Capps' time at the agency, and she often wonders if her grant writing would have been as effective had she not taken Abdo's class.

"I would have had to spend a lot of time at my current job googling grant writing and wondering if the information I read online was accurate," Capps guesses. "I still refer to my notes and practice grant from Specialized Professional Writing when I write grants for my current job." Abdo assigned grants using the grant template from the San Antonio Area Foundation in an effort to show her students what information real foundations would ask from nonprofit organizations. Capps says, "Writing about a real need using real data makes the assignment feel more like a job than school."

During that fall 2017 semester Capps also designed and wrote materials for the Book Buddies initiative, which aims to provide children in underprivileged schools with free books. Abdo hopes that more San Antonio nonprofits reach out to her in the future to use the skills of her specialized professional writing students. "It helps the nonprofits, yeah, but it also helps the students," she says. "Shirley Chisholm once said that 'service is the rent we pay for the privilege of living on this earth,' and that's an attitude I'd like to instill in everyone in my class."



When All's Right at Home

RESEARCH IS UNCOVERING INSIGHTS TO HELP
LOCAL HOMEOWNERS WITH RIGHTS PROBLEMS

BY MICHELLE MONDO

From a meeting between San Antonio councilwoman Shirley Gonzales and university faculty to discuss needs of residents in her district and, in particular, creating additional opportunities for home ownership, UTSA's Policy Studies Center launched a new initiative called Project RHEP, or Roadrunners Helping with Estate Planning, to help residents with property-title issues and estate planning in an effort to prevent or resolve homeownership issues.

Along with Gonzalez's district, the Mexican American Unity Council, National Association for Latino Community

Asset Builders, and LiftFund collaborated on the project, which focused on residents of low or moderate income.

RHEP students have created a resource guide, written in both English and Spanish, to raise awareness of the issues that can arise from not having a clear title to a property. The resource guide has encouraged homeowners to be proactive about maintaining a clean and marketable title to their property and to make certain to have a succession plan in the event of their death. A housing fair held last year attracted more than 400 residents and 327 registered with RHEP or the Mexican American Unity

Council for assistance. RHEP opened 78 cases, closed 27, and referred five cases to other organizations.

Along with the experience of helping the residents, Project RHEP paired UTSA students with a licensed attorney to receive simple estate-planning information, such as details regarding wills or so-called deeds on death. Participating students could become a certified notary in Texas and receive one-on-one training to help prepare simple estate-planning documents. Project RHEP also has assisted in identifying resources for residents who may have complex concerns, such as title clearing and rehab loans. ☛

Think & Do

STUDENTS TRANSLATE COMMUNITY VISION
INTO VALUE AND ASPIRATION
IN UTSA'S URBAN FUTURE LAB

BY MICHELLE MONDO

Getting ready for an end-of-semester exhibition late last year, architecture students in professor Antonio Petrov's Urban Future Lab busied themselves with last-minute details. There was a projector to set up, pieces needed to be attached to models of two south side San Antonio neighborhoods, and the wealth of information on panels hanging from the ceiling required a review.

One of the students, senior Azelya Alvarez, was born and raised on San Antonio's south side, but she says she didn't expect to see her community in a whole new light before she became involved in the project that researched the Mission San Jose and Quintana Road neighborhoods. "For me, this project was quite personal," Alvarez says. "The Quintana Road neighborhood is where I grew up. I'm familiar with all of this. But then, at the end, I realized maybe I don't know as much as I thought about where I came from. I really learned a lot."

The Urban Future Lab collaborated with the Southside First Economic Development Council, local tech startup Cityflag, and Local Initiatives Support Corp. to research the economic past and present of the communities to help bring revitalization in the future. The Mission San Jose and Quintana Road neighborhoods are two of the lowest income communities in the city, existing in proximity to major economic entities.

The exhibit was a culmination of a year and a half of work that created whole new data sets for the neighborhoods. One discovery was that the neighborhoods have a cash-based economy that mirrors that of the Rio Grande Valley more than it does its neighboring north side of San Antonio. Just one detail like that can change the way revitalization and development comes into a neighborhood, Petrov says. "At the Urban Future Lab we care about how visions translate into values, responsibilities, and collective aspirations to catalyze new inquiries and the

mechanisms necessary to deliver them. This has been a long process and we listened to the community. The trust we've developed is remarkable, and it made all of this possible."

Petrov has directed the Urban Future Lab for two years within the College of Architecture, Construction and Planning. The interdisciplinary lab functions as a think-and-do tank and as a teaching laboratory that calls for action through research and public interest design to address challenges of contemporary urbanization reshaping the future of San Antonio and the region.

Students in the lab have done an extensive amount of research, including presenting to the public information on the Broadway Avenue corridor, partnering with the Witte Museum for tricentennial exhibits, and amassing a whole new data set on the Quintana and Mission San Jose neighborhoods as part of the south side pilot project. This project was featured at the 2018 International Downtown Association's annual conference and tradeshow, "Retropolitan: The New American City," which was hosted in collaboration with Centro San Antonio. In addition, the project was the subject of a featured article and cover of the *San Antonio Business Journal*, an article in the *Rivard Report*, and a feature by KSAT TV.

The Urban Future Lab is also an example of the push to create experiential learning opportunities for students to work within the community and get experience in their chosen field. That kind of learning is all a part of President Taylor Eighmy's classroom-to-career initiative. The initiative will drive UTSA's institutional goal to have 75% of students graduate with some form of experiential learning.

"I believe that experiential learning opportunities can greatly enhance classroom instruction and have a profound impact on student learning outcomes," Eighmy says.

For me, this project was quite personal. The Quintana Road neighborhood is where I grew up. But then, at the end, I realized maybe I realized maybe I don't know as much as I thought about where I came from.



➤ Students finalize displays of their research as part of UTSA's Urban Future Lab that focused on San Antonio's Mission San Jose and Quintana Road neighborhoods.

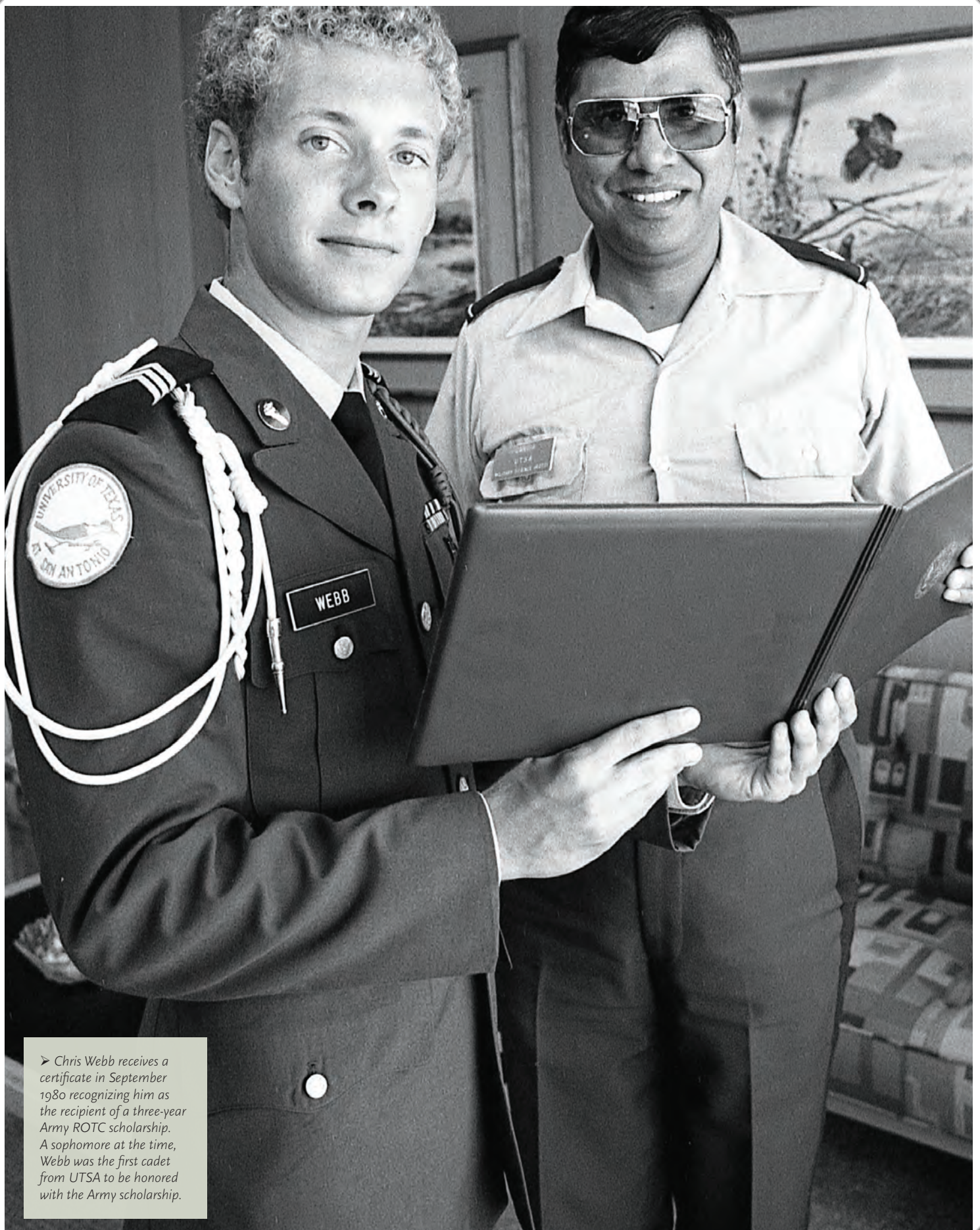


“These signature learning experiences—including internships, service learning, undergraduate research, and study abroad—directly contribute to a student’s success in college and in his or her chosen career.”

Senior architecture major Ana Vasquez joined the Urban Future Lab because she wanted something outside the traditional architecture classroom framework. “I got frustrated with architecture that seemed self-serving,” she says, “and wanted a method more grounded in the real world with real people.” The experience of going out into the community, not once or twice but over and over again, she says, helped her understand how architecture and the role of architects can be rooted within a community.

Challenges facing the future are significant, Petrov explains. “Globalization and rapid urbanization have widened the territory, and inquiries have become more complex and broader in scope. The proliferation of misinformation, climate change, environmental damage, demographic shifts, and global inequality have further increased the stakes for architecture, institutions, and the knowledge economy. In question are the ways we respond to the inflections the world is undergoing. At stake is the imbalance between global currents and local particularities—it seems as if one system is functioning on top of the other—and the policies that shape these conditions.”

Petrov argues for a recasting of teaching methodologies. More than ever, he says, it is about identifying institutional blind spots in learning, research, policy, and execution to safeguard the environmental trust. “Rather than continuing to float between new definitions of the problem, it is urgent to determine the scope of finding solutions,” he says. “At the Urban Future Lab we believe in active engagement, inside and outside of the classroom. As a result we care about how visions translate into values, responsibilities, and collective aspirations to catalyze new inquiries and the mechanisms necessary to deliver them. We are passionate about these opportunities and how they thrive at the intersection of the university and its local and global communities.”



➤ Chris Webb receives a certificate in September 1980 recognizing him as the recipient of a three-year Army ROTC scholarship. A sophomore at the time, Webb was the first cadet from UTSA to be honored with the Army scholarship.

PROFILE
ALUMNI

RUNNERS SSANCE MAN

From being a student government president and ROTC corps commander to innovating school spirit, CHRIS WEBB '83 has left a historic mark on his alma mater

BY SHEA CONNER

Chris Webb says he feels like he's the real-life Forrest Gump sometimes. "I've always just walked backward into the best things," he says. It's tough to disagree with him.

No, Webb never became an international Ping-Pong star or invested in "some kinda fruit company" called Apple, but he can weave an endless thread of Gumpian tales.

While he was a second lieutenant in the U.S. Army his first post was in dark, frigid Fairbanks, Alaska; he chose Fairbanks because it was home to the closest military base to the Soviet Union during the Cold War. He later served in public affairs during Desert Storm, briefing four-star generals Colin Powell, Norman

Schwarzkopf, and John Shalikashvili. He ran operations to misdirect Saddam Hussein. He twice received the Meritorious Service Medal. He would go on to join the board of directors for the Burleson Chamber of Commerce in North Texas and even write a spiritual self-help book called *The Gittite Way*. Yet despite all of

those postcollege achievements, Webb's impact will likely endure longest at his alma mater.

During Webb's freshman semester in fall 1979, UTSA was relatively isolated and frequented exclusively by commuter students. While the university's athletics programs were two years away from fruition and students

had selected the roadrunner as its mascot in 1977, Webb noticed a significant lack of school spirit on campus. He sought to change that. He recruited pals Matthew Murguia and Don Cork to form the Ootsa Men—a trio that would drape themselves in orange and blue to pump up their peers at events. "If there was something going on, man, the Ootsa Men showed up," Webb says.

From 1979 through the early '80s, the Ootsa Men were a huge hit. The group expanded to six members, giving opening speeches at Fiesta events and entertaining fans at basketball games during the inaugural season. "We were writing poems and doing cheers and just having a good old time with it," Webb says, adding that "I tried to get more people, but it's hard to get someone to put on blue towels, a cape, and do calisthenics and cartwheels." The Ootsa Men were so well-established that Webb was invited to join the panel to select UTSA's first cheerleaders.

However, his greatest contribution to UTSA's school spirit came on a fall day during that first semester in 1979. He and Murguia were hanging out near the walkway between the Humanities Building and Sombrilla Plaza trying to come up with a hand sign that was different from UT Austin's Hook 'em Horns. That's when Webb says he extended his thumb and his pinky to mimic a roadrunner's beak and tail. He says he and Murguia realized that they'd struck gold. The Ootsa Men introduced the hand sign at a few events, and it didn't take long for "Birds Up!" to become a bona fide tradition. "It was just instant," Webb says. He

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says they'd also wiggle their hands when making the sign to make it look like "the roadrunner was running," but it never caught on.

For his part in founding the Ootsa Men and cultivating the hand sign, Webb was the recipient of the School Spirit Award in 1983. He continues to hang the plaque proudly in his North Texas home. "It's probably my favorite one," he says. That's saying something considering the numerous military and ROTC accolades he's collected. Webb's decorated military career began at UTSA, where he was the very first recipient of a scholarship from the university's Army ROTC Extension Center, in September 1980. At the time students attending military science classes at UTSA were a detachment of the St. Mary's University Army ROTC program, but the success of cadets like Webb went a long way in UTSA establishing its own program just before his senior year in 1982. To no one's surprise, Webb was selected as a corps commander.

As if the Ootsa Men and the ROTC didn't keep him busy enough, Webb served on the Student Representative Assembly—now called the Student Government Association—for three years as well. He says he was largely frustrated by his experiences as a sophomore and junior representative because the SRA lacked student interest and didn't wield much power. He decided to give up the SRA as a senior, but the student body wouldn't let him. The popular OOTSA Man was an equally popular write-in candidate in fall 1982—so much so that Webb was elected SRA vice president even

though he wasn't listed on the ballot. When President Steve Southers graduated after the fall semester, Webb was elevated to the SRA presidency for the spring 1983 semester. "I'm maybe the only president of the SRA that was never running for office," he says with a chuckle. "I guess life unfolds the way it's supposed to even if you try to derail it."

Between meetings about flag contests and new laminated student ID cards, Webb recalls his shining moment as SRA president. In April 1983 students were vocal and vehement in their support of raising salaries for both tenured and non-tenured faculty. It reached a fever pitch during a rally in Sombriilla Plaza that drew the attention of local news outlets, as well as a fairly new national cable network called CNN. Webb channeled his inner Ootsa Man and fired up the crowd with a short but impassioned speech in support of faculty pay raises. Sure enough, he saw his remarks broadcast on CNN that evening while he was playing pool on campus. "I was trying to tell my parents about it. I was on CNN! And they were like, 'Uh...OK.'" They didn't have cable, but they were proud of their son nonetheless.

The day after Webb graduated from UTSA he was commissioned as a second lieutenant. The day after that, he was traveling to Fort Benning, Georgia, his last brief stop before Fairbanks. Webb never really had a moment to reflect on his college years at the time, but now that he's retired, he relishes the legacy he left at UTSA. "My life has unfolded really well," he says, "much to my satisfaction. And it all began at UTSA." 🐇

UNIVERSITY HISTORY

ALUMNI

FACE FIRST

Details in the 1970s of San Antonio's new university were practically inseparable from PEGGY JO THOLEN M.ED. '76

BY MICHAEL EDWARDS

The city and state power brokers who championed UTSA into existence were marketing geniuses who readily took advantage of any opportunity to promote San Antonio's new public university. In fact, the mere act of signing the document that legally created the university was a well-orchestrated landmark occasion.

On June 6, 1969, guests gathered in front of a raised stage decorated with red, white, and blue bunting—at the Alamo, no less. Gov. Preston Smith was there to sign the law—the first time in state history that a governor had signed a law outside Austin. And if all the pomp and circumstance weren't enough, Smith had San Antonio state Rep. Frank Lombardino, who authored the UTSA-creating legislation, stand and face away from him so that Smith could sign the law against his back in a dramatic photo op.

So it's really no surprise that UTSA's early leadership, guided by President Peter Flawn,

made opportunities to create a public face for the university. On March 30, 1973, Flawn, university registrar Richard Lewis, and UT System regent James Bauerle gathered for another photo op—with Peggy Jo Tholen, the first person whose application was received by UTSA and who would be given her letter of acceptance in person, all for the cameras. Subsequently a photographer followed Tholen, a San Antonio elementary school teacher, to her classroom to be photographed with her students; the event was featured in UTSA newsletter *The Discourse*, headlined "The Kids Love Her."

Cameras continued to follow Tholen around—for just over three years: on UTSA's first day of classes, June 5, 1973, while she was attending a lecture; in multiple setups with a cake in celebration of the university's first birthday, including taking the cake to Austin to share with Gov. Dolph Briscoe; and at commencement on May 16, 1976, when she graduated with a master's in education. 🐇

GIL BARRERA PHOTOGRAPHY COLLECTION / UTSA LIBRARIES SPECIAL COLLECTIONS





▲ Tholen poses for the university's photographer while lighting a candle for UTSA's birthday.

◀ A contact sheet of photos shot in Tholen's elementary school class.



▲ Tholen receives her acceptance letter March 30, 1973, from UTSA registrar Richard Lewis, UT System regent James Bauerle, and President Flawn.

➤ Tholen in an education class on UTSA's opening day, June 5, 1973.

➤ Tholen lights a candle to celebrate UTSA's first birthday on June 5, 1974, with Gov. Dolph Briscoe and wife Janey Briscoe.

➤ Tholen graduates on May 16, 1976.

▼ UTSA also promoted the university with other "first" students. Flawn gives acceptance letter to junior Margaret Aguilar, the first undergraduate, on January 28, 1975.

▼ President Flawn gives Gino Chincarini, UTSA's first freshman student, a tour around campus on June 2, 1976.



FIRST HOOPS Superstar

Roadrunner basketball great DERRICK GERVIN stays close to the game through mentorship and a new podcast

BY SHEA CONNER

Derrick Gervin didn't suit up for the Roadrunners when UTSA played its inaugural men's basketball game against Arkansas in San Antonio's Hemisfair Arena in November 1981, but he was watching intently in the stands. "I can tell you the score. I'll never forget it," he says. "UTSA, 42; Arkansas, 71." It sticks in his memory because that was the night he began seriously considering a college basketball career at UTSA. "I could see that they needed some help."

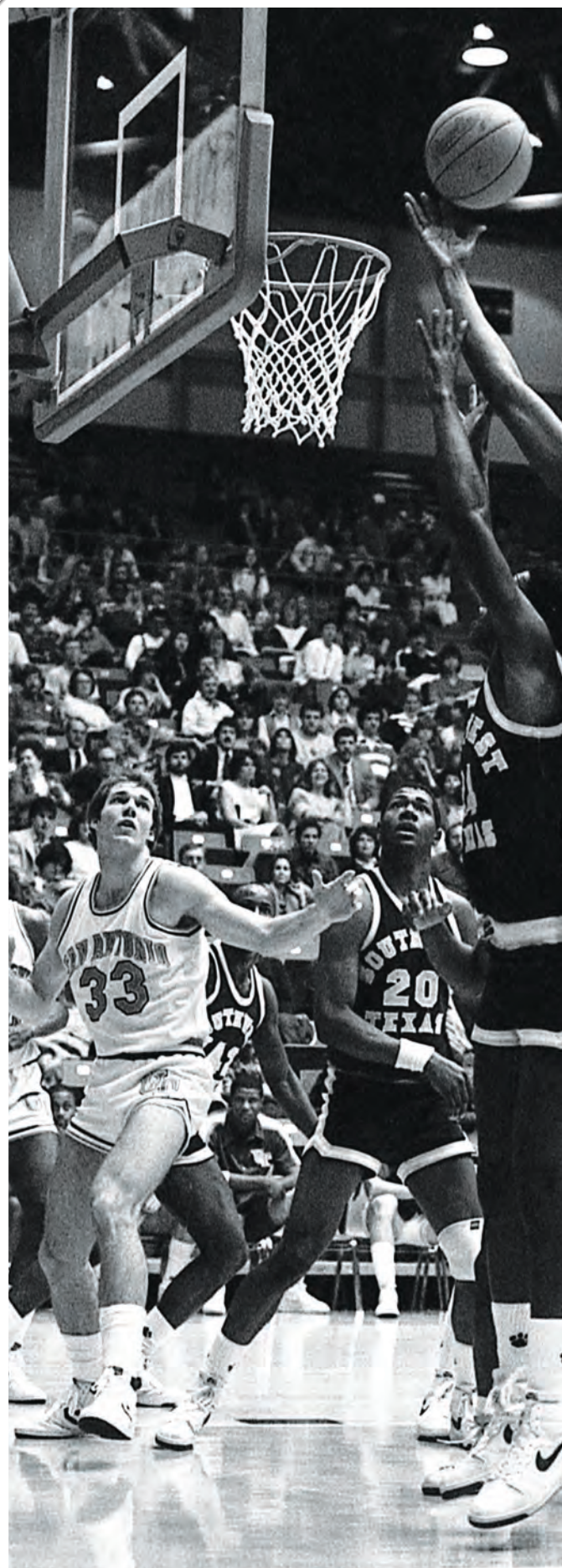
At that time Gervin and his mother had just moved from Detroit to San Antonio to be closer to his brother, Spurs legend George Gervin. Although Derrick Gervin was a fantastic basketball player at King High School in Detroit, he ran around with the wrong crowd and dropped out prior

to graduation in 1981. He renewed his focus on education in San Antonio, earning his high school diploma and committing to playing for coach Abe Lemons and his Texas Longhorns. When Lemons was fired at the end of the 1981–1982 season, however, Gervin flipped his commitment to UTSA. He liked the university, he had good friends on the team, and his mom and brother would be able to watch him play more often. "Coming to UTSA was a blessing for me," he says.

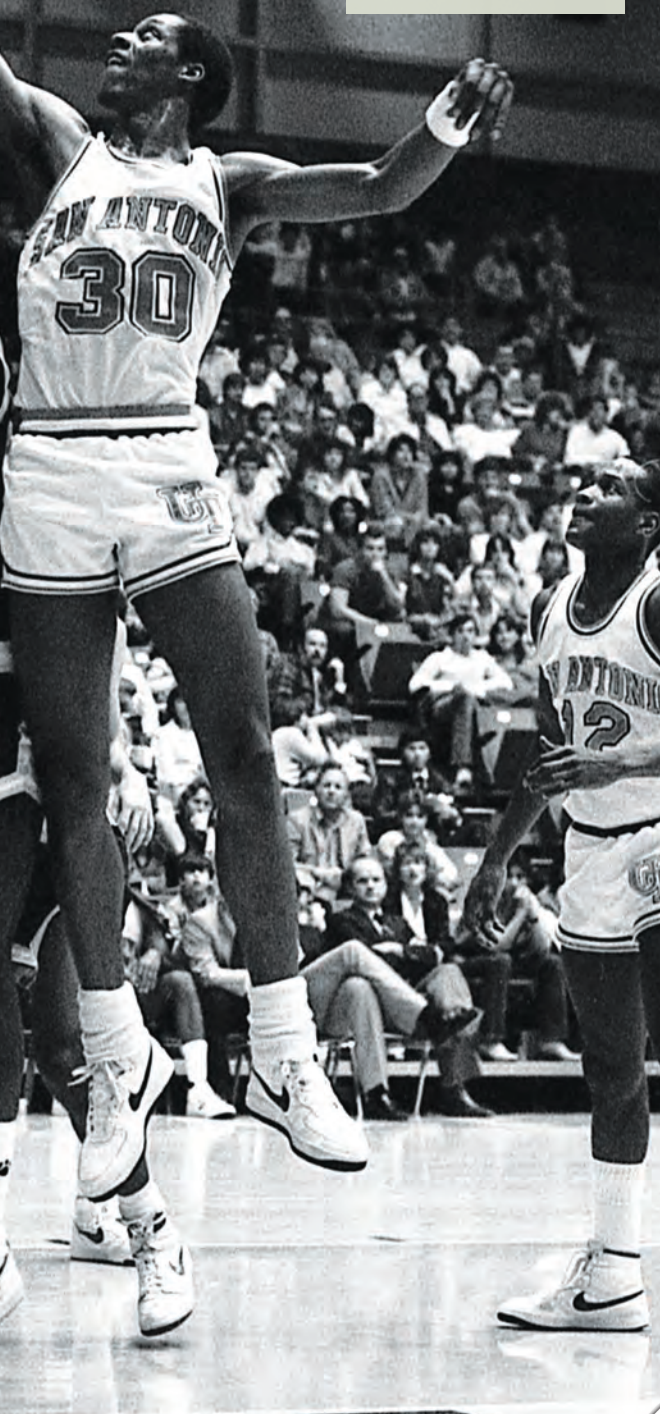
Roadrunner Nation felt equally blessed. Gervin quickly became a scoring sensation for the fledgling UTSA basketball program. After winning a total of only 18 games in its first two seasons, UTSA broke through with a 20–8 campaign in Gervin's sophomore year, the 1983–1984 season. Although UTSA fell short of the NCAA Tournament's

field of 48, the Roadrunners were the second-best independent team in Division I college basketball that year, notching a better record than independent powerhouses Notre Dame, Marquette, and Dayton. For his efforts in 1984 Gervin was named Sportsman of the Year by the *San Antonio Express-News*. He was truly UTSA's first athletic superstar. "Every week George was on one side of the newspaper, and I was on the other," he proudly states.

Gervin left the university after his junior season in 1985 to pursue a career in the NBA. Nevertheless, his three seasons at UTSA were absolutely prolific. He was named an Honorable Mention All-American by the Associated Press in both his sophomore and junior campaigns. He averaged 21.1 points per game, which remains a UTSA men's basketball record. In fact,



◀ Derrick Gervin snags an offensive rebound in a game against Southwest Texas State on February 9, 1985, at the Convocation Center. UTSA would win the game 83–76. A feature article about Gervin was published the following morning in the Dallas Times Herald and Los Angeles Times.



Don't Trade These Two!

If you picked up a pack of Upper Deck NBA trading cards in 1991, there's a chance you would have scored cards for former UTSA basketball star Derrick Gervin and current UTSA men's basketball head coach Steve Henson. Both were featured in the same series during the 1991–1992 NBA season. Gervin was drafted by the Philadelphia 76ers in 1985 and played for the New Jersey Nets from 1989 to 1991. Henson was drafted by the Milwaukee Bucks in 1990 and ended his NBA career with the Detroit Pistons in 1999. The two are friends. Gervin occasionally visits team practices and games, and Henson has appeared on Gervin's podcast.

he still holds 10 individual program records, including most field goals made in a game, season, and career. His number 30 jersey is one of only three retired in the rafters of the Convocation Center (along with Devin Brown's and Monica Gibbs').

His professional basketball career, though, was checkered with highs and lows. He was drafted by the Philadelphia 76ers in 1985 and promptly cut before the season started. He then became one of the best players in the Continental Basketball Association before finally getting his shot in the NBA with the New Jersey Nets. He cracked the Nets' starting lineup during the 1990–1991 season, but a nagging back injury left him searching for longevity in a league that scheduled fewer games. After parting ways with the Nets, he played professional basketball for another decade in Argentina, Italy, Turkey, and Israel.

He was the top scorer in the Israeli Basketball Premier League in 1996 and 1998.

It's hard not to be intrigued by the many tales he's amassed throughout his basketball journey—from frustrating Michael Jordan at Meadowlands Arena to getting crushed by his brother in their only professional face-off.

He's a natural conversationalist, which made him a sought-after radio show and podcast guest for many years. Gervin has since parlayed that success into his own podcast, *As Good as It Gets*. The sports podcast mixes current commentary with

bygone memories, and he's managed to fetch some incredible guests of his own in the podcast's first year. Famed college basketball broadcaster Dick Vitale, sports trivia sultan Howie Schwab, and basketball royalty Julius "Dr. J" Irving and Oscar Robertson have all appeared on the show. "It's saying something when you have people reaching out to you and you've only been in the podcast business for eight months," he says. "It's a pretty good feeling."

When he's not developing his podcast Gervin is working with grade-school kids through his youth mentorship program at the George Gervin Youth Center. Aiming to improve their fundamentals in both basketball and life, his lessons were inspired by his sister, Texas State Rep. Barbara Gervin-Hawkins. "I learned from her that you have to have a plan A, a plan B, a plan C, and a plan D. The more you try to learn different things and the more you keep your options open, the more valuable you'll be," he says. Gervin knows that most kids won't grow up to be college or NBA standouts, so he teaches them about other careers in basketball, such as video coordination, coaching, and event management.

He says he'll keep coaching and mentoring for as long as he physically can. Nothing excites him more than seeing San Antonio fifth- and sixth-graders trying to make the finger rolls that his brother made famous or knifing toward the basket the way he did at UTSA. "Being around that kind of stuff gets me on a high," the 56-year-old says. "That's something I hope to do until the day I die." 🐾



CLASS NOTES

Keep up with fellow Roadrunners as they make their mark on the world.

If you've had some life change, be sure to let us know. Whether a strategic career move or promotion, being honored with an award, or even cementing your roots with a new marriage, a new baby, or even a new pet (alma mater gear for any kind of family newborn or new adoptee always gets a birds-up)—whatever the news—share!

1977

SARA DYSART, M.A. in education, has been named an Outstanding Lawyer by the *San Antonio Business Journal*. She is the owner of Dysart Law Firm.

1978

GILBERT "GIL" GONZALEZ, B.B.A. in accounting, has been named U.S.D.A. Rural Development's chief of staff. Gonzalez has more than 30 years' executive experience in community economic development.

1982

Crowdstrike Inc. has announced the appointment of **ROXANNE AUSTIN**, B.B.A. in accounting, to its board of directors. She is president and CEO of Austin Investment Advisors, a private investment and consulting firm.

FARNAM JAHANIAN, B.S. in computer science, math, and systems design, has been named the 10th president of Carnegie Mellon University. He is a nationally recognized computer scientist, entrepreneur, public servant, and higher education leader. Being a Roadrunner runs in his family.

1987

DIANA BARRERA, B.A. in elementary education, M.A. in educational leadership '00, has been named superintendent of Kenedy ISD.

1990

Hilltop Securities Inc. announced that **VICTOR MEDINA**,

Leadership Recognition

BRETT SEYBOLD '09, M.B.A. in business, has been named Man of the Year by the *San Antonio Business Journal*. For the past 15 years he has worked his way up the ranks at USAA from an analyst to middle management. He was given latitude at the Fortune 100 company to explore aspects of finance and the organization from creating credit card securities to enterprise planning and financial forecasting, *SABJ* says. Woman of the Year is **MEGHAN GARZA-OSWALD '10**, M.P.A. in public administration, who is CEO of Community Housing Resource Partners, a national housing nonprofit that empowers families to grow and thrive beyond the constraints of poverty.

More Honors

Five UTSA alums have been honored by the *SABJ* in its 40 under 40 list of rising stars. They are **JOSHUA CUDE '02**, B.S. in civil engineering, CEO of Cude Engineers; InGenesis director of contracting and legal compliance **ANDREW CASILLAS '07**, B.B.A. in marketing; **RYAN PARKER '05**, B.B.A. in finance, CEO of BBVA Compass San Antonio; UTSA associate professor **KELLY NASH '09**, Ph.D. in physics; and **MICHAEL SINDON '07**, M.P.A. '10, assistant director of economic development for the City of San Antonio.

B.B.A. in management, the company's senior vice president and Fort Worth branch manager, has received the Minority Leaders in Business Award from the *Fort Worth Business Press*.

1996

ROBERT "BOB" BRYANT, B.A. in history, M.Ed. '99, has been appointed director of educational technology at the U.S. Air Force Academy.

MARIA VILLAGÓMEZ, B.B.A. in accounting, has been promoted from San Antonio assistant city manager to deputy city manager.

1997

TODD WYATT, B.B.A. in accounting, has been named CFO at Conifer Health Solutions.

1998

DANNY DERRICK, B.S. in architecture, has been named principal at Wigodsky & Derrick Architects. He joined the firm in 2005.

ROBERT GARZA, M.P.A. in public administration, has taken over as president of Palo Alto College.

Northside ISD superintendent **BRIAN WOODS**, M.A. in education, Ed.D. '12, was named the Texas Superintendent of the Year.

1999

JEANETTE BALL, M.A. in educational leadership, is now superintendent of Judson ISD.

HELEN PETRY STOWE, B.A. in English, was elected in November as a Bexar County judge. She has worked as a middle school teacher in the San Antonio ISD and as a Bexar County assistant district attorney.

2000

CATHY DIZON, B.A. in criminal justice, has been named chief operating officer of Active Capital, a San Antonio venture capital firm that she helped found.

RICK REED, B.B.A. in finance and a former UTSA basketball player, accepted a position with Avant Communications as senior director of channel sales for the south-central region.

ALEJANDRO "ALEX" SAN MARTIN, B.A. in communication, a legislative intern for the Texas House of Representatives, has been appointed by Gov. Greg Abbott to the State Independent Living Council, which develops resources to state and local organizations on independent living and issues for people with disabilities.

2001

San Antonio Business Journal has named **JOSHUA FRANDSEN**, B.S. in biology, who is a lieutenant with the San Antonio Fire Department's EMS unit, as one of its 2019 Health Care Heroes.

2006

LAURA CABANILLA, M.P.A. in public administration, vice president for community relations and community development for Wells Fargo, has been elected to chair the Southside First Economic Development Council.

ALYSSA HARTLAGE, M.B.A. in business, senior vice president at Broadway Bank, has been named treasurer of the Commercial Real Estate Women of San Antonio board of directors.

2008

CHRISTOPHER B. DAVIS, B.B.A. in accounting, M.Acy. '11, has been promoted to senior tax manager at Sol Schwarz & Associates.

2012

WILL GARRETT, M.B.A. in business, has become Port San Antonio's new vice president and director for cybersecurity development.

2013

Program manager of the Embrey Real Estate Finance and Development Program in UTSA's College of Business, **LAURA GILLILAND**, M.Ed., has been named director of communications of the Commercial Real Estate Women of San Antonio board of directors.

CALEB CHANCE, M.C.E. in civil engineering, has been promoted to vice president at Pape-Dawson Engineers.

2014

TESSA A. BENAVIDES, M.P.A. in public administration, has been named a New Leaders Council San Antonio fellow. A diversity specialist at H-E-B, Benavides is passionate about growing a community that supports, embraces, and is inclusive of all the cultures and people who make the community unique. The mission of the NLC is to train and support the next generation of progressive political entrepreneurs.

KIMBERLY FIELD, B.B.A. in information systems, has marked 30 years of federal service with the Defense Information Systems Agency San Antonio, located at Port San Antonio, where she works as a cybersecurity specialist.

2015

JOHN TEETER, M.B.A. in business administration, has been promoted to senior associate and is the department manager for the mechanical group at Dewberry's Raleigh, North Carolina, office. 🐘

Helen Wolf mastered multitasking before the term existed, directing choirs for six decades while raising a daughter and teaching elementary and high school music. Now 92, she was the first lifetime member of UTSA's Alumni Association.

Wolf's strong work ethic formed early in life. At 17, she was directing a church choir and teaching seven pupils in a one-room schoolhouse in LaSalle, Ill. By that time she already had worked in an ice cream shop. "We had a potbelly stove to keep us warm," she recalls of the school.

Wolf's music education began when she was 10 with piano and voice lessons. Her mother, a single parent, paid for her two daughters' lessons by laundering shirts. "My mother never knew I went back to college," she says. "She never knew that, but it was her sacrifices that made that possible."

At 18, Wolf married an Army private who had seen her picture in a newspaper while stationed in the Aleutian Islands. They corresponded, visited, wed, and moved to New Orleans and eventually to San Antonio. When Wolf was offered the job of choir director at her church, Highland Terrace Methodist Church on the city's South Side, she hesitated. "I said, 'No, I am not going to be your choir director. I have not had theory or harmony,'" she recalls. "When I was a little girl my teacher would teach only the boys [theory and harmony] on Saturday. And I felt bad about that all my life. I told my husband, 'If I could use that salary to get a course in theory and harmony, I'll take

that job.' He said an education is the best insurance policy you can buy."

So she took the job but also enrolled at San Antonio Junior College, as San Antonio College was then called, and then at Our Lady of the Lake University. In seven years she had earned a bachelor's degree in music education. Along the way, Wolf taught elementary, junior high, and high school music. "I did not get the degree to teach," she says. "I got the degree to be a better choir director. But then when UTSA came here, I got the [graduate] degree to be a better teacher."

It took Wolf five years to earn her master of education from UTSA in 1977 because she took classes during her summer breaks from teaching elementary school music.

After her first marriage ended, she married the manager of the Municipal Auditorium, Solomon Wolf. She met him while taking her high school chorus to the storied venue.

Wolf taught for 26 years in the San Antonio Independent School District while continuing to direct choirs at local churches. She threw herself into all aspects of the programs she and her students put on, from writing lyrics and playing the piano to sewing costumes when necessary. She retired from SAISD in 1982.

Yet Wolf's full schedule continued. In 1991, when her husband died, Wolf soon took up ballroom and round dancing. She was 65. She kept on dancing for 19 years, stopping only after a stroke.

Looking back on her education, Wolf reflects that



PROFILE
ALUMNI

Master MULTITASKER

Music educator HELEN WOLF M.ED. '77 holds the distinction of being the Alumni Association's first lifetime member

had she had scholarships, she would have been able to reach her goals much faster. "If I had had a scholarship right out of high school, I would have been able to get my degree in four years and probably continue my

master's. Instead I didn't get my master's until the year I turned 50. So it just shows how scholarships can shape a person's life."

Wolf's sister achieved professional success in nursing, she says, but also had to wait to pursue

her college degree.

"It's too bad we had to go through all of this," Wolf says of their delayed education. "We could have probably contributed more. But I tell you I couldn't have worked harder." 🐾

THE PRACTICAL
AND THE WOW
OF RESEARCH
AT UTSA

CUT. PASTE. REVOLUTIONIZE.

FROM CANCER TREATMENT TO “DESIGNER BABIES,”
NEWS ABOUT GENOME EDITING IS WILDLY PROMINENT
DUE TO THE INNOVATIVE CRISPR TECHNOLOGY. BUT
WHAT IS THE POTENTIAL? AND WHAT’S THE PERIL?

BY SHEA CONNER

The discussion surrounding gene editing has been getting a little nutty in recent years. Sure, we’ve seen stories about genetic engineering breakthroughs in leukemia treatment or a potential cure for malaria. But just as many have highlighted “designer babies” with a dash of eugenics fear, biohackers who are experimenting on their own genes, and a Harvard research team that’s aiming to resurrect the woolly mammoth by developing

elephant-mammoth embryos. None of this madcap media coverage would be happening without the rise of an innovative technology known as CRISPR.

UTSA’s John R. McCarrey and Brian Hermann are well-acquainted with CRISPR. Hermann, a biology professor and director of the UTSA Genomics Core, uses the technology to make genetic changes in mice to study spermatogenesis and male fertility. McCarrey, the Kleburg Distinguished University Chair in Cellular and Molecular Biology, uses CRISPR to re-create the development of mammalian germ cells for studies of epigenetic programming. *Sombril-*

la Magazine sat down with both of them to discuss the vast potential of this powerful scientific tool.

How do you typically explain what CRISPR is to someone who knows very little about it?

McCARREY: You see these cut-paste comparisons to a pair of scissors sometimes, and it really has afforded us the opportunity to go into cells and change the DNA sequence in a very precise and targeted manner. You can re-create a mutant gene that is existing in the population so you can study it in the lab, or more importantly, you can take a mutant gene and put it back to being a normal,

nonmutant gene, so in theory you can eliminate the cause of diseases such as type 1 diabetes, cystic fibrosis, muscular dystrophy, or anything that’s a genetic defect. CRISPR has such great potential. It’s exciting because it’s a great new tool for us to use in our standard research program, but it’s exciting well beyond that because it holds great promise for therapeutic application. It will undoubtedly be a Nobel Prize winner in the next three to five years.

HERMANN: That relative ease is light-years ahead of the ease with which it would occur before we had this technology. CRISPR allows you to make that break in the DNA sequence at a much, much higher frequency.

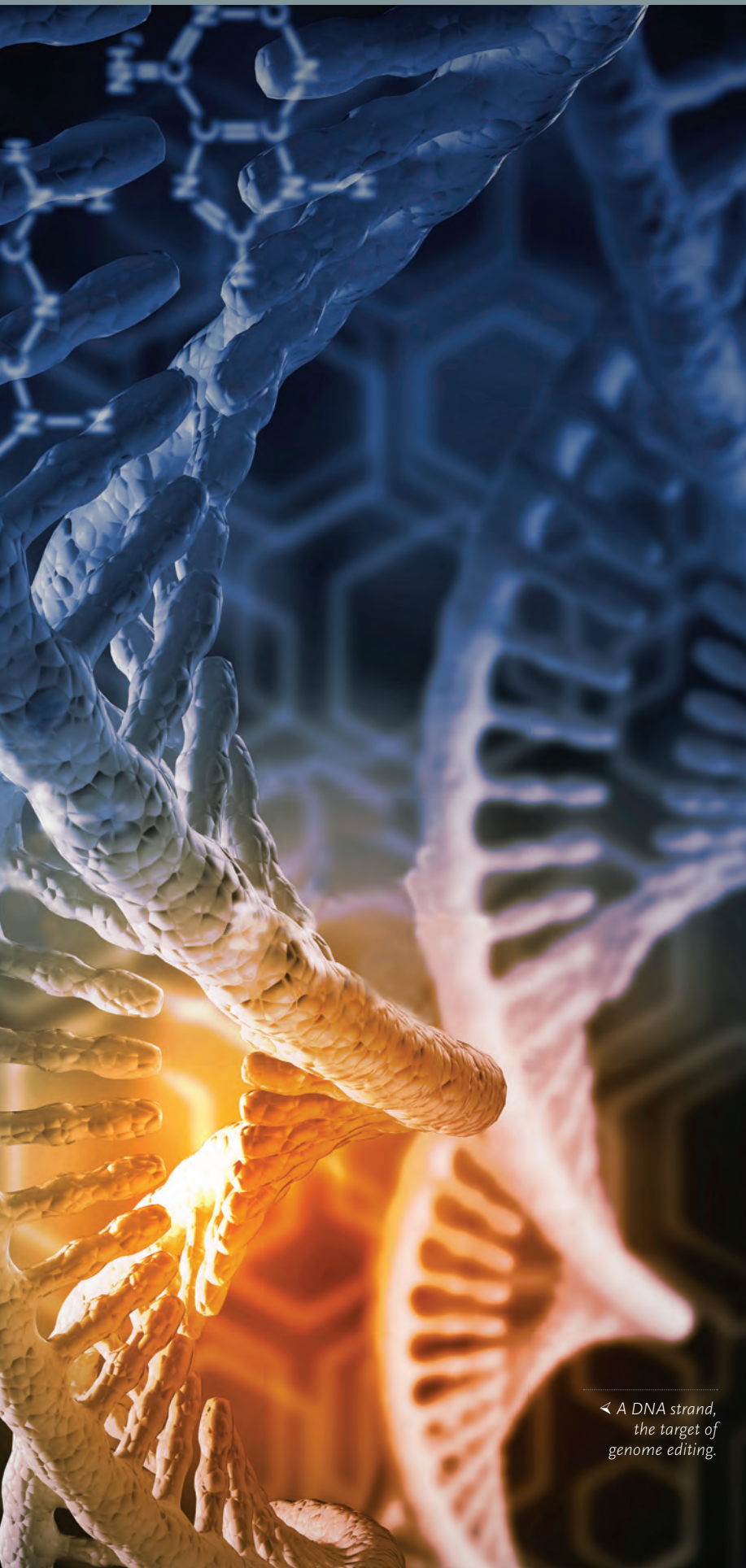
How much thought have you given to making changes that could eradicate certain genetic diseases?

HERMANN: There are a lot of diseases that arise from very small changes in gene sequences. If those changes could be corrected, then they could potentially eradicate that disease. Dr. McCarrey and I happen to work in the reproductive system, so if those changes could be made in cells that give rise to either sperm or eggs, you could theoretically pass on an otherwise normal genome to a child that has that defect corrected. That’s the kind of thinking he and I have put toward using CRISPR to address genetic disease.

McCARREY: Some of it

“There are a lot of diseases that arise from very small changes in gene sequences. If those could be corrected, then they could potentially eradicate that disease.”

Do you have a question about science or literature or any topic that’s always made you wonder “What? How? Why?” but you never got around to looking into it? Let us know at sombrilla@utsa.edu and we’ll find a UTSA expert to explain it.



◀ A DNA strand,
the target of
genome editing.

is going out for beer and talking about fantasies [laughs]. But we actually have a combination of skills in our labs—as well as knowledge between the two of us and the other folks in our labs—that make it *not* far-fetched.

Realistically, how far are we from a big breakthrough in which we eliminate a disease that's plagued humanity for generations?

HERMANN: Wiping out malaria—that's actually being done experimentally right now. I'm not sure if it's field work or if it's still laboratory work, but they're currently making mosquitoes that can't breed properly in order to eradicate certain strains or types of malaria-carrying mosquitoes. There's certainly debate about whether that should be done because once you release a genetic variant into the wild, you cede control over that brand. You have to consider all of the possible consequences when you make a new genetic version of an organism and let the organism out.

That reminds me of a segment from *Nova* about Kevin Esvelt, who's an evolutionary and ecological engineer at the MIT Media Lab. He's developing a heritable immunity to the Lyme bacteria in wild mice, and he said, "I worry every day that I might be missing something profound about the consequences of what we're developing." It

sounds like you two constantly live with that same kind of caution.

McCARREY: But it's worth it. Right now, a lot of the gene therapy approaches can be done only on cells other than your germline cells, so it will only impact *that* individual. Let's suppose you had cystic fibrosis, and I could go into your brain and cure it there. That's great. You don't have the problem. But your kids are still going to have that problem. If we can help you *and* fix it in your germline, we've eliminated propagation of that disease in your offspring and your subsequent lineage. To me, if we can feel like we're doing it safely, that's a pretty significant accomplishment.

What impact has CRISPR had on teaching here at UTSA?

McCARREY: In both the undergrad and graduate-level classes we want our students to be as up-to-date as possible. Within the labs that are using CRISPR students are getting hands-on experience with it so that if they want to go from undergrad to grad school or grad school to postdoc or into industry, they can say they've had some experience with this technology.

Is there anything else you'd like the readers to know about your research?

McCARREY: It's a very exciting time. There are always advancements, but I see a lot of technologies coming into play now. Brian's heading up an effort to analyze gene expressions at the level of single cells, as opposed to mass quantities of cells. That's a paradigm shift in what we can do. The single-cell thing will be a huge advance. CRISPR is a major advance. And that's why you're seeing things like immunotherapy that's treating cancer. That came from research like what's done in universities. The life expectancy went up about 30 years in the 20th century. Hopefully, it's going to keep rising because of those kinds of advances—some that we couldn't even think of 50 years ago. 🐼

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50
1969-2019



EXPLORE OUR HISTORY
As we celebrate 50 Years

utsa.edu/50