

# SPIRIT

How a \$4 billion campaign will spark a new era of learning, discovery and innovation at Texas A&M University.

# Lead by Example

12th Man Engineering

Education Dentistry Exploration



## Improving Lives Through Entrepreneurship



One of the greatest joys of being part of the Texas A&M Foundation team is creating win-win opportunities and results for both our donors and Texas A&M University. Helping the university grow requires an entrepreneurial mindset that is based on generating value each day, regardless of the endeavor and regardless of the challenges.

My military and for-profit leadership experience taught me that problem-solving and adaptability are fundamental to creating value. In the military, the currency was life and death, stability and peace. In business, it was finding ways to ensure that our efforts resulted in better lives and opportunities for our employees, customers and communities. Teamwork and coping with adversity, scarce resources and ambiguity were common factors. Both life experiences influenced my view on the world and my conception of entrepreneurship and impact. Similarly, my discussions with donors often lead to the topic of value creation and impact.

This past year, we worked with dozens of organizations, families and faculty to create ideas and strategies that support Texas A&M's mission. Three entities that deserve special recognition include the Mays Family Foundation, the McFerrin family and the Charles Koch Foundation. They challenged my team and the university to grow entrepreneurial opportunities through innovative teaching and research experiences. Their multimillion-

dollar gifts will help increase the quality and quantity of Aggies entering businesses and organizations in all sectors. (Read more on p. 28.)

While we commonly associate entrepreneurship with new technologies and products, it's also a mindset that can be developed. The cornerstone of entrepreneurship is the development of teamwork and creative problem-solving skills, leadership abilities and adaptability in an ever-changing environment. With these investments in entrepreneurship, Texas A&M can develop the next generation of Aggies who love learning new things; who have ideas to improve the status quo; who believe in themselves; and who want to create value to make the world better.

Higher education and an entrepreneurial mindset are keys to solving real world problems, and the Foundation plays a unique role on and off campus in furthering both. Through the *Lead by Example* campaign, we are working toward the betterment of our educational system, our society and the future of our country. With your investment, you too can enforce, reframe and reshape our educational foundation.

As you read this special campaign edition, think about the next generation of entrepreneurs in business, education and government, and how your ideas and passions can help fuel an even brighter future.

Thanks for all you do.

A handwritten signature in blue ink, appearing to read 'Tyson Voelkel '96'. The signature is stylized and fluid.

Tyson Voelkel '96

PRESIDENT, TEXAS A&M FOUNDATION



# issue

**STUDENT IMPACT**  
**Labor of Love**

Inspired by her late father's battle with cancer, Alex Lacey '17 researched pediatric cancer to help others beat the disease.

34

**COVER FEATURE**  
**Start Something**

Recent gifts totaling \$35 million will establish Texas A&M University as a leading school for aspiring entrepreneurs.

28



**TRAILBLAZERS**  
**The Architect Artist**

Meet the Aggie behind the design of AT&T Stadium and some of the world's most impressive sporting arenas: Bryan Trubey '83.

38

**ASK PROFESSOR X**  
**The Buzz on Pollen**

A Q&A with Dr. Vaughn Bryant, one of the world's prominent palynologists.

44



**SPECIAL FEATURE**  
**Coast Guard**

Two Texas A&M University at Galveston researchers propose a plan to protect the Texas coast from hurricane damage.

48

### 04\_Letters/Corrections

### 06\_On Campus

New Human Clinical Research Facility opens; synthetic canine supports experiential learning for future veterinarians; Blackstone LaunchPad promotes entrepreneurship.

### 08\_Lab Work

Texas A&M and NASA collaborate on Robonaut; engineering students develop lunar rover prototype; Texas A&M competes in AutoDrive challenge; Sea Aggies aid endangered sea turtles.

### 10\_New Gifts

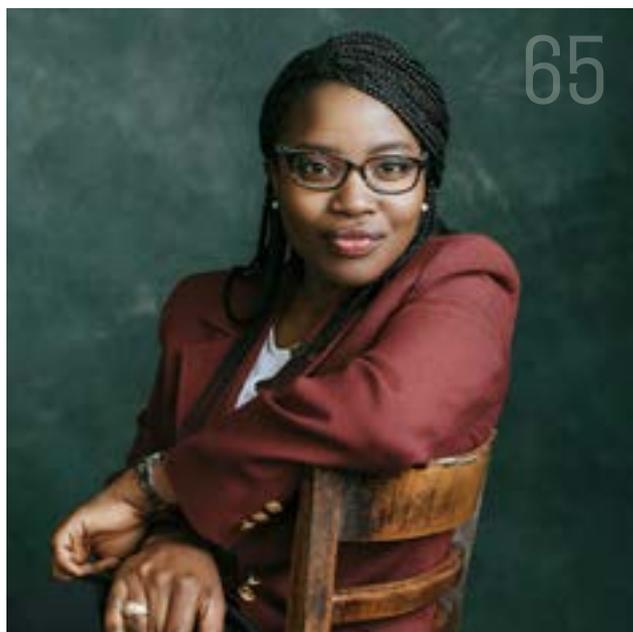
Pilgrim's Corp. funds poultry feed mill renovation; Cathy and Bill Davis '75 endow student conference; accounting department naming underway; Nobel laureate David Lee supports quantum studies.

### 14\_The Legacy

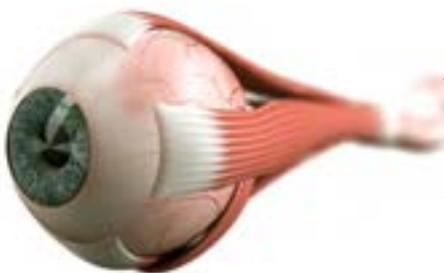
A planned gift supports transformational learning experiences for animal science students.

### 16\_One Voice

Why teaching is one of today's most important professions, and why I want to tackle the job. By Merari Boffill '18



*In the 1980s, Charles Munnerlyn '62 revolutionized vision correction by designing and building the first excimer laser system. The procedure, more commonly known as LASIK, affords millions of people the freedom from wearing eyeglasses while achieving 20/20 vision.*



## 54

### 20\_Viewpoint

The College of Engineering plans to send 2,000 engineers abroad annually.

### 22\_Leaders of Character

The Hollingsworth Leadership Excellence Program prepares cadets for life beyond the Quad.

### 26\_Pres Perspective

Aggie students, faculty and researchers help humanity through discovery and innovation. By President Michael K. Young

### 54\_Time Capsule

In the 1980s, Charles Munnerlyn '62 revolutionized the optics industry with a new procedure that still helps millions achieve 20/20 vision: LASIK.

### 56\_Opportunity

The Bush School of Government and Public Service celebrates 20 years of impacting the globe. By Dr. Chuck Hermann

### 60\_Campaign Update

Journey down the path of the *Lead by Example* campaign, from 2012 to the present.

### 65\_Back Page

Eunice Fafiyebi '17 aspires to lead by example as a global pediatric surgeon and health policy advocate.

### BC\_Final Review

The College of Liberal Arts integrates big data in the digital humanities.



Read *Spirit* online at [spirit.txamfoundation.com](http://spirit.txamfoundation.com).

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Photo on p. 58, bottom right courtesy of Lorraine Eden

Texas A&M College of Architecture (p. 42, top)

Texas A&M College of Science (p. 11, top)

Texas A&M Corps of Cadets (p. 5, bottom)

Texas A&M Graphic Art Services (p. 58, bottom left)

Texas A&M Mays Business School (p. 10, bottom)

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## Aggies Lead the Way

Welcome to a special issue of *Spirit*! As Texas A&M University is nearly halfway through the public phase of its *Lead by Example* comprehensive campaign—an initiative to raise \$4 billion by 2020 to support the university's capability to be among the nation's best—we felt it was appropriate to dedicate an entire issue of the magazine to this momentous endeavor.

Inside, you will find that we have structured the magazine differently. We've included our usual editorial sections, but we've organized them by the campaign's three fundraising pillars: Transformational Education for all Students; Discovery and Innovation for the World; and Impact on the State, Nation and World.

As you browse through this issue, it is our goal that you gain a better understanding of what this campaign stands for and why it is so important for Texas A&M. The stories in here exemplify the campaign's goals: providing outstanding out-of-classroom learning experiences for students; recruiting leading faculty and funding exceptional research; and supporting programs that identify real-world solutions to societal challenges.

Also included with your copy of the magazine is a 12-page booklet and catalog with additional information about the campaign and how you can support it through a gift to one of Texas A&M's four fundraising organizations: the Texas A&M Foun-

ation, The Association of Former Students, the 12th Man Foundation and the George H.W. Bush Presidential Library Foundation. Perhaps one of the magazine's stories will inspire you to make your own contribution to this movement.

Regardless, when you close this issue, I hope you are filled with promise. I hope you are encouraged by Texas A&M's future and that you gain a sense of the wonderful work happening every day by ambitious students and faculty.

As the campaign continues, you can expect to see a campaign update spread in each issue of *Spirit*. But remember, progress toward achieving the campaign's objectives doesn't end just because our next issue won't be labeled "special campaign issue." Our goal with every *Spirit* is to show how Aggies are leaders and to illustrate how philanthropy enables individuals to do more for the world. Think of every issue, then, as a campaign issue.

A handwritten signature in dark ink that reads "Duna Crenwelge". The signature is fluid and cursive.

Duna Crenwelge '15

EDITOR, SPIRIT MAGAZINE

# letters

**Share Your Comments:** We always enjoy receiving our readers' reactions to *Spirit*. If the magazine's content moves you to write, please email us at [info@txamfoundation.com](mailto:info@txamfoundation.com) or send a note.

DUNAE CRENWELGE '15  
Editor

*Stories in the summer 2017 issue of Spirit generated a number of Bevo heist recollections from readers.*

## Our Common Thread

I have read *Spirit* magazine for many years. The summer 2017 issue was the finest, most enjoyable that I have ever read. It is the stories of professors, students and former students that I find most interesting. I am impressed by what motivated, inspired and allowed them to accomplish the fantastic things that I found myself reading about. The magazine is so well done and informative, and I read it from cover to cover. Our accomplishments so far in the *Lead by Example* campaign are astounding as well. I think that the common thread is always our love for Texas A&M and our desire for it and our students to be and accomplish the very best that we can.

—DAVID HARRIGAN '68  
Spring, Texas

## Reminiscing About Bevo

Bill Tompkins '65 wrote a nice summary in the summer 2017 issue of *Spirit* about Bevo's stealing in 1963. As another member of Squadron 11, I remember the incident well, although I didn't take part in the heist myself. At one point, however, we did discuss taking Bevo to my father's farm in Dime Box. Thankfully that didn't happen, as my father would have been in the middle of something bigger than anyone imagined at the beginning of the incident.

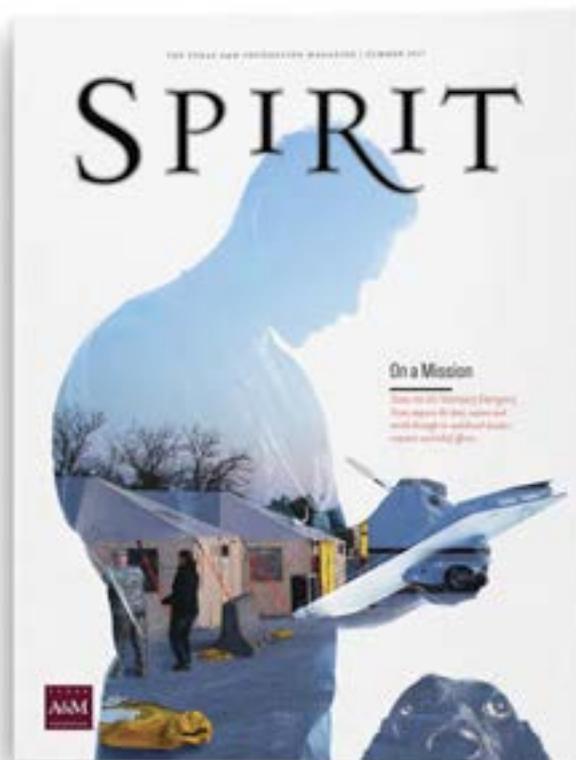
There certainly was a lot of excitement around the event! The Texas Rangers put the fear of God into those directly responsible for the heist, and the threat of cattle rustling charges unsealed many lips quickly. What a time we had back in the old days!

—DONALD MARBURGER '65  
Rockwall, Texas

## Remembering the Heist

**Editor's note:** A group of 1966 classmates presented us with this version of the events surrounding Bevo's capture in 1963. Franklin "Gus" Harris Jr. '66 shares their story below.

There were seven of us in the Corps of Cadets who planned and executed the heist of Bevo in November 1963. This included Bill Duncan '66, Lester Hatcher '66, Don Mika '66, Conrad Burks '66 and myself from Company B-2 (Buzzard Company), along with Joe Judith '66 and Bill Towery Jr. '66 from Squadron 1. We met to draw a map of the Austin hog farm where Bevo was kept and gathered our supplies. We then traveled to the hog farm around midnight on



*After Bevo was safely en route to the University of Texas campus, The Battalion published a front-page account of the events.*

“We never had intentions to barbecue or brand him, as some speculated; it was just Good Bull.”

—FRANKLIN “GUS” HARRIS JR. '66



Nov. 13, 1963, in two vehicles: a truck pulling a trailer and a sedan, our decoy car.

On arrival at the pens, we found the steer snorting and running around. Most of us, not being sure what to expect of an animal that size, stayed outside the pen while Lester and I went in and roped the steer. We were off. As we neared the farmhouse, a dog started barking, but we kept walking. Then the lights came on. We walked faster, sweating bullets. We made it back to the entry gate, where we tried to load the steer. At first his horns wouldn't fit in our trailer, but eventually we got him inside and headed back to College Station.

Bevo (still in the trailer) was paraded around the Quad with much hullabaloo from Aggies, who poured out of the dorms. At this point, we weren't sure what to do next. With all the prior planning on how to steal Bevo, we hadn't made plans as to what to do after. We never had intentions to barbecue or brand him, as some speculated; it was just Good Bull. The steer was penned up near campus, and the next day,

all of us posed with Bevo as a fellow corpsman took pictures.

Things started to get hot as the Texas Rangers began investigating the theft. Within a day, some other corpsmen took the steer to a different off-campus location without our knowledge. Soon, we found ourselves facing the Commandant and a couple of Texas Rangers. The rangers told us in a very convincing way that cattle rustling was an offense that carried severe penalties. We spilled our guts! The steer was located, taken to a veterinarian for a checkup and returned to Austin in the hands of the Texas Silver Spurs.

I guess we were lucky. We didn't end up in jail, and we weren't shot by the farm owner. A few days later President John F. Kennedy was assassinated, the bonfire was cancelled and the Bevo incident faded away.

—FRANKLIN “GUS” HARRIS JR. '66  
Orange, Texas

## digitaldialogue

My family has used Roku for many years. It's the only way we stream TV! I enjoyed reading the article about its creator, Anthony Wood '90, in the summer issue.

—CAMESHIA CARGLE  
College Station, Texas

I had no idea that the Roku founder was an Aggie! Congrats, Mr. Wood, on the success of company No. 6. My thanks to the Texas A&M Foundation for bringing this story to our attention!

—DAVID HYDE '79  
Vicksburg, Mississippi

It was good to see Professor Giardino in the summer issue! As a senior at Texas A&M in 1995, I went on a very similar field trip through the College of Geosciences and use knowledge gained on that trip in teaching my students today.

—KARLA MARTIN BURKE '95  
Mesquite, Texas

The Corps of Cadets work so hard to keep the amazing traditions at Texas A&M University front and center. I'm glad they're getting some renovated digs and much-needed updates to the Quad. Way to go on sending forth tomorrow's leaders in style!

—CHARLENE WOOD  
Midland, Texas





*The SynDaver Surgical Canine, a new component of the veterinary surgical training program, is made from materials that mimic the mechanical, thermal and physicochemical properties of live tissue.*

## Synthetic Surgery

Thanks to a new, ultramodern surgical model, doctoral students in the College of Veterinary Medicine & Biomedical Sciences can practice an endless number of surgeries without fear of harming live animals.

The SynDaver Surgical Canine, a new component of the college's surgical training program, is a synthetic yet lifelike animal that will better prepare students for their veterinary careers. Composed of water, fiber and salt, the surgical canine can breathe and bleed like a real dog. It has individual muscles, bones and organs and can be operated on repeatedly, allowing students to

practice invasive procedures that would not be practical to perform on a live animal.

"Innovation is at the forefront of all we do, and providing our faculty and students with this futuristic surgical model is another way we are teaching with the latest technologies in surgery," said Dr. Eleanor Green, the Carl B. King Dean of Veterinary Medicine. "We are pleased to participate in the advancement of state-of-the-art surgical procedures as we train our students to make a positive impact on veterinary medicine."

## A Healthier World



*The new Human Clinical Research Facility provides a centralized space on campus to conduct human clinical trials related to exercise and nutrition.*

A new Human Clinical Research Facility (HCRF) located on West Campus centralizes research and education in human health, performance, nutrition and well-being at Texas A&M University.

The 21,500-square-foot facility provides ample room for conducting human clinical research trials through an exercise and rehabilitation training facility, a metabolic kitchen for nutritional studies and a clinical

research unit with 12 overnight beds. The building also includes an education unit for collaboration and student mentoring.

The HCRF houses two research groups from the Department of Health and Kinesi-

ology in the College of Education and Human Development: the Exercise and Sport Nutrition Laboratory and the Center for Translational Research in Aging and Longevity, which focus on the role of exercise and nutrition in rela-

tion to performance and aging, respectively.

"This facility will help us improve individuals' quality of life," said Richard Kreider, professor and department head of health and kinesiology.



## Enterprising Minds

A new campus entrepreneurship resource, Blackstone LaunchPad (TAMU), is adding to the growing startup atmosphere at Texas A&M University.

Officially launched in spring 2017, Blackstone assists students of all majors who have

Texas at Austin and The University of Texas at Dallas.

The LaunchPad has a permanent location in the John J. Koldus Building for meetings and mentorship sessions, a mobile kiosk, and an online platform—the Ideator—



a business idea. Through mentorship, online courses, workshops, software and networking tools, the program helps students understand how to form and execute their business ventures. It also assists students who have already formed a company in achieving growth.

The program was created by the Blackstone Charitable Foundation, which works to establish entrepreneurship as a viable career option across American universities. The Foundation has selected 20 U.S. schools for its programs, including two other Texas universities: The University of

that allows student entrepreneurs to connect with other Aggies and students from other universities in the Blackstone network. Former students interested in mentoring future entrepreneurs either virtually or in person should email [sophia.mora@tamu.edu](mailto:sophia.mora@tamu.edu).

“We are excited that Blackstone LaunchPad can act as a central touchpoint for entrepreneurship on campus,” said Don Lewis ’86 ’92, director of the program and executive professor at Mays Business School. *Learn more at [give.am/BlackstoneVideo](http://give.am/BlackstoneVideo).*

How do you want to lead by example?

*“I want to be a charge nurse in a hospital and a mother who contributes to her community.”*

Katelyn Joyce ’15 ’17  
NURSING

*“I hope to obtain a management position in engineering, pursue philanthropic work, and be involved in my community and church.”*

Brian Polasek ’18  
COMPUTER  
ENGINEERING

*“I want to live a lifestyle that inspires people to emulate my actions.”*

Wynston Cooper ’18  
INDUSTRIAL  
DISTRIBUTION

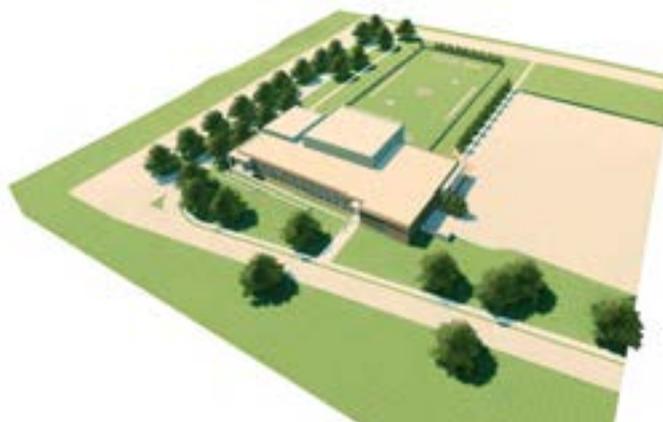
## Music Activities Center Breaks Ground

Texas A&M University administrators and key donors gathered Sept. 8 for the ceremonial groundbreaking of the new John D. White ’70–Robert L. Walker ’58 Music Activities Center, which featured performances by the Fightin’ Texas Aggie Band and the Singing Cadets.

The 70,000-square-foot facility will undergo construction on south campus and open in fall 2019. As the new home to Texas A&M’s 14 bands, choirs and orchestras, the facility will feature amenities including soundproof rooms, lockers for instrument storage, an artificial drill field and four state-of-the-art rehearsal halls.

The facility’s construction is jointly funded through university funds and private gifts to the Texas A&M Foundation. To learn more about available naming opportunities or how to support the new center, contact Cindy Munson ’99 at (979) 845-7558 or [cmunson@txamfoundation.com](mailto:cmunson@txamfoundation.com).

*Located on the corner of George Bush Drive and Coke Street, the new Music Activities Center will include a 100-yard artificial turf practice field for the Fightin’ Texas Aggie Band.*



Texas A&M students of any major can now earn a **certificate in winemaking**. The new 15-hour enology certificate opened this fall and focuses on viticulture, wine etiquette and sensory evaluation.

The National Security Agency (NSA), along with the Department of Homeland Security, **designated Texas A&M University a National Center of Academic Excellence in Cyber Operations, Education and Research**, making it one of only a handful of U.S. academic institutions to hold all three NSA distinctions.



The New York Times placed Texas A&M University as one of the **top 25 colleges doing the most for the American Dream**, based on factors including its freshmen class size, Pell grant share and net price for low- to middle-income students.



**The Texas A&M Singing Cadets made several stops on a summer tour of the Northeastern United States.** In addition to appearing on Fox and Friends and at the John F. Kennedy Presidential Library (right), the group performed for former President George H.W. Bush and former First Lady Barbara Bush in celebration of the president’s 93rd birthday in June.



*College Station and Qatar Aggies collaborated on the design and production of a lunar rover prototype that can collect lunar samples while being controlled through the internet.*



## Lunar Rover Impresses NASA Scientists

A Texas A&M University undergraduate engineering team developed a lunar rover prototype that could be used in a future moon mission.

Developed by a 10-person team consisting of six College Station and four Texas A&M University at Qatar Aggies, the prototype can collect lunar samples while being controlled through the

internet. Built to maneuver diverse terrain, the rover has potential as a low-cost alternative to existing rovers.

The team presented its rover at NASA headquarters in Houston earlier this year, where it successfully navigated the facility's simulated Martian and lunar rock fields with ease.

"This is a really powerful concept,"

said Dr. Marc Fries, a NASA scientist. "Right now, if we want to collect lunar samples, we either send an expensive lander with lots of equipment but little movement capability, or a very large rover. This robot is a nice middle ground."

The College Station team developed the robot's electronic capabilities, while the Qatar team focused on

its mechanical aspects. "It's amazing coming from undergraduates," said Dr. David Draper, manager of the Astromaterials Research Office at NASA. "This kind of innovative, outside-the-box thinking is what we need to learn more about planetary science. Hats off!"

**“This is a really powerful concept and potentially transformative.”**

—DR. MARC FRIES, NASA RESEARCH SCIENTIST AT THE PLANETARY SCIENCE INSTITUTE



*Dr. Dezhen Song is collaborating with NASA's Johnson Space Center to improve the capabilities of a robot astronaut. Once complete, the Robonaut could perform dangerous tasks in lieu of a human.*

## Improving Robonaut

Dezhen Song, a professor in the Department of Computer Science and Engineering, is collaborating with NASA's Johnson Space Center and other Texas A&M University faculty to refine an astronaut robot (Robonaut) that can perform tasks at the International Space Station (ISS).

NASA has already developed a prototype with human-like arm and hand configurations. The focus now is to improve the robot's simultaneous localization and mapping (SLAM) capabilities, which will enable it to visualize a map of the ISS as well as its relative location in the area.

The group is experimenting with cameras, motion sensor technology and stere-

ovision, which will allow the robot to judge distances. Once complete, Robonaut will be able to navigate the ISS, transport items, perform panel maintenance and carry out dangerous tasks that would otherwise put astronaut crews at risk.

The versatile work done by Song and his team will aid a variety of fields. "If successful, we will significantly increase robots' ability to handle different environments, which can impact manufacturing, daily life, defense and other areas that benefit from the capabilities of mobile robots," Song said.



*The Upper Texas Coast Sea Turtle Patrol is one of six patrol units on the Texas coast that monitor and protect nesting sea turtle species.*

## Drive into the Future

Texas A&M University was selected by General Motors (GM) and SAE International as one of eight national universities to compete in the AutoDrive Challenge, a three-year competition that involves creating a fully autonomous passenger vehicle that can navigate an urban driving course.

For the competition, a team of students and researchers will be assembled from the Zachry Department of Civil Engineering, the Department of Mechanical Engineering, and the Department of Engineering Technology and Industrial Distribution. Each university is provided a



Chevrolet Bolt EV as the vehicle platform. During the challenge, the team will work with computing platforms, sensing technology and advanced computation methods to develop a fully autonomous system.

The AutoDrive challenge, which consists of competitions each May, will not only provide students with applied experience that will prepare them for the workforce, but will also foster interest in science, technology, engineering and math fields.

"The students and faculty at these schools bring deep knowledge and technical skills to the competition," said Ken Kelzer, vice president of global vehicle components and subsystems at GM.

## Sea Aggies Assist Sea Turtles

The Upper Texas Coast Sea Turtle Patrol, a collaboration between Texas A&M University at Galveston and Turtle Island Restoration Network, was back at work last summer as sea turtles laid their eggs along Texas beaches.

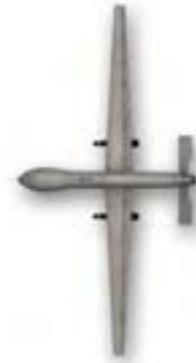
The patrol monitors and protects nesting sea turtle species along beaches from Rollover Pass to Surfside, Texas. Its primary focus is to help conserve and rehabilitate the Kemp's ridley sea turtle, the most endangered sea turtle in the world, which nests only in the western Gulf of Mexico.

From April to July each year, the patrol works closely with the National Oceanic and Atmospheric Administration and the Padre Island National Seashore to find and excavate turtle nests.

Part of its routine monitoring program involves attaching a tag to the mother turtle's foreflipper, which allows the team to collect long-term biological data and identify if the female has previously nested on the coast. The team also carefully excavates eggs and transports them to an incubation facility, where they have an increased survival rate. Since sea turtle sex is determined by nest temperature, the facility can raise mostly females, which benefits the population.

In addition to its conservation efforts, the patrol also trains future biologists through its close work with Texas A&M Galveston students and local volunteers.

Texas A&M scientists are utilizing **unmanned aircraft systems to fly over crop fields and collect data on plant characteristics such as crop height and bloom patterns.** The data will be synthesized by computer algorithms to give farmers information about crop yields. Higher yields are needed to keep up with population growth.



A species of tarsier, *Tarsius spectrum-gurskyae*, was renamed after Texas A&M anthropology professor Sharon Gursky to honor her decades-long contributions to the study of these enigmatic primates. Exclusive to the islands of Southeast Asia, tarsiers weigh about as much as a stick of butter and can swivel their heads 180 degrees.



A team of mechanical engineering researchers is trying to make the best use of energy waste. Led by Professor Ying Li, the group is refining a process that could **turn one of the world's most potent pollutants and greenhouse gasses—carbon dioxide—into hydrocarbon fuels** to help the environment and aid energy needs.



*A \$1 million gift from Pilgrim's Corp. to the Department of Poultry Science will enable extensive poultry feed mill renovations at Texas A&M.*

## Poultry Science Receives \$1 Million

The Department of Poultry Science in the College of Agriculture and Life Sciences received its largest gift to date—a \$1 million contribution from Pilgrim's Corp. to renovate the feed mill at the Poultry Science Research, Teaching and Extension Center.

"This gift comes at a critical time in our department's growth," said David Caldwell, poultry science department head. "Funds will allow us to modernize our feed mill with industry-relevant equipment and boost our feed manufacturing capacity. That added capacity will also expand research in poultry science over the next several decades."

The current feed mill is a 1963 system that was refurbished and installed for the

department in 1986. It can only produce one ton of feed per hour for the department's approximately 25,000 laying and broiler chickens, but new equipment will increase the mill's feed production to five to seven tons per hour.

"The research provided by Texas A&M is invaluable to the poultry industry, and this investment will help us rise to the challenge of feeding the world's growing population," said Bill Lovette '82, Pilgrim's CEO. "We are confident that Texas A&M will continue to be a leader in agricultural education and poultry science."

*A \$10 million fundraising campaign is underway to name the accounting department after James Benjamin, Deloitte Foundation Leadership Professor and longtime department head.*

Nearly \$7.5 million is pledged and committed toward a \$10 million fundraising campaign to name the Department of Accounting in honor of James Benjamin, department head since 1982.

Denise and David Baggett '81 and Ernst & Young contributed lead gifts of \$2 million each, while other supporters include KPMG LLP, Deloitte, Karen Pape '80, Karen and Rodney Faldyn '88, Becky '76 and Monty Davis '77, Lina and Kenny Lawson, Marian '82 and Willie Langston '81, Wanda and Lou Paletta '78,

Kay '02 and Jerry Cox '72, Tracy and Randy Hale '85, and Mark Kelly '79.

Benjamin was chosen as a namesake because of his dedication to students. "Jim's personality, business savvy and leadership skills would have made him very successful in the corporate world," said David Baggett. "Fortunately for me and other graduates, Jim dedicated his career to our success."

Half of the Baggetts' donation will create a matching gift fund to encourage other donors to con-

## Accounting Department Naming Underway



tribute. Funds will enable the department to recruit outstanding faculty, develop international opportunities for students and support high-impact programs.

"I am gratified to be part of the growth and success of the accounting program," said Benjamin. To make an endowed gift of \$25,000 or more to support the naming

initiative, contact Brian Bishop '91 at (979) 862-3615 or [bbishop@txamfoundation.com](mailto:bbishop@txamfoundation.com). Give online at [give.am/](http://give.am/) James Benjamin.



*Nobel laureate David Lee contributed a \$90,000 cash gift to the Institute for Quantum Science and Engineering in the College of Science.*

## Nobel Prize Recipient Makes Gift

Distinguished physics professor and Nobel laureate David Lee contributed a \$90,000 cash gift to the Institute for Quantum Science and Engineering in the College of Science. His gift will support quantum studies, a branch of physics that is fundamental to the theory of nature at small scales and low energy levels of atomic and subatomic particles.

Lee received the 1996 Nobel Prize in Physics, along with Douglas Osheroff and Robert Richardson, for their 1972 breakthrough discovery of the superfluidity of helium-3, showing that it was unaffected by friction at extremely low temperatures.

Lee joined Texas A&M University in 2009 and works in the Department of Physics and Astronomy's condensed matter program.

## Davis' Endow Leadership Conference

To support Texas A&M student leaders, Cathy and Bill Davis '75 committed an endowed gift to the Memorial Student Center (MSC) Fall Leadership Conference (FLC), a program in the Division of Student Affairs. Half of their \$500,000 gift provides the organization a



permanent source of funding, while the other half supports future facility maintenance and operations of the MSC.

The FLC is an annual three-day conference during which more than 100 student leaders from across campus explore leadership styles and philosophies,

*An endowed gift from Cathy and Bill Davis '75 will provide the Memorial Student Center Fall Leadership Conference with a permanent source of funding.*

network, and interact with Texas A&M administrators, faculty and former students.

As a student, Bill Davis—a former MSC president—participated in early versions of the conference and found that it boosted his confidence and interpersonal skills. "The FLC provides valuable lessons in leadership and life," Davis said.

In recognition of their gift, the remaining entrance of the MSC will be named "The Cathy and William W. Davis '75 Selfless Service Entrance." Additionally, a segment of the FLC will become "The Cathy and William W. Davis '75 Fall Leadership Conference Dinner and Fireside Chat," where students will meet in small discussion groups with Texas A&M former students.

## giftwrap-up

A \$1 million planned gift from Debra '79 and Michael Dishberger '79 will establish **scholarships for science majors and graduate fellowships for students in the Department of Geology and Geophysics.**



To improve the impact the College of Education and Human Development has on the human performance field, **Debbie and Mike Hilliard '73 committed a \$2 million planned gift to the Huffines Institute for Sports Medicine and Human Performance.** Their gift will boost the institute's discussion series and provide a director's chair and graduate fellowships. The couple also gave a **\$3 million planned gift** toward scholarships for student entrepreneurship activities and the creation of a minor and certificate program in the College of Liberal Arts.

Kathy '81 and Peter Huddlestone '80 donated \$1 million to **support a professor of practice in the Petroleum Ventures Program,**

a unique collaboration between the colleges of engineering and business. The gift will support a faculty member of exceptional merit who will share first-hand career experience and insight with petroleum engineering students.



“Success in fields such as quantum philosophy, laser physics and nanoscience impacts industry, medicine, agriculture and renewable energy efforts.”

—DAVID LEE, DISTINGUISHED PROFESSOR OF PHYSICS, TEXAS A&M UNIVERSITY



# Transformational Education for all Students

*Strengthen every student's education by providing transformational experiences and timely graduation with low debt.*

Texas A&M University is committed to providing intellectually transformative experiences for all students, regardless of background or financial status. To provide the maximum educational benefit, it is imperative that classroom learning become intertwined with leadership development shaped by Aggie core values. At Texas A&M, students expand their horizons through programs and experiences that are life-changing.

Turn the pages to discover how Aggie generosity promotes a vast range of transformational learning experiences—from a gift that will support the next generation of ranchers through high-impact educational opportunities for animal science majors to a first-generation student supported by scholarships who firmly believes in the power of education. You'll also learn about the College of Engineering's ambitious goal to send 2,000 students abroad annually as well as how cadets learn to lead through the Hollingsworth Leadership Excellence Program.

Learning Communities

Students

Transformation



\$4 Billion Campaign

re-channelling

Engaging

Global

Capstone projects

Study Abroad

Academia First-generation

Advancement

## Family Ties

*A planned gift supports transformational learning experiences for animal science students.*

BY ASHLEY WAGNER '18



Just north of Bonham, Texas, sits LD&W Ranch, named for and owned by Wilda '80 and Dan Wahrenbrock. The retired couple manages cattle, horses and donkeys. It's not unusual to see Dan and Wilda sitting by a fire, looking at the stars and watching wildlife on their property. The

Wahrenbrock ranch is special to them—the open spaces and quiet nights provide a stark contrast to the neighboring Dallas-Fort Worth Metroplex.

Dan and Wilda's love for LD&W Ranch motivated them to think about future generations of ranchers. "It feels like

civilization is closing in, and we're losing our Texas ranching heritage," Wilda said. "Together with my mother, Grace, we discussed giving options that would encourage students to pursue careers in the agribusiness industry."

To honor Texas' agricultural history, the three created a planned gift to support

the Department of Animal Science at Texas A&M University. The gift will provide scholarships for undergraduate animal science students and fellowships for graduate students. It will further support transformational education, one of the three pillars in the *Lead by Example* campaign, by bolstering high-impact learning opportunities to enhance the animal science curriculum. Funds will help cover student study abroad costs and support the department's animal judging teams.

Dan, Wilda and Grace chose a bequest because it suits their needs. By naming the Foundation as beneficiary of their estates, they can retain their assets during their lifetimes.

"Texas A&M provides so many opportunities for students to build on their aca-

demic foundations through hands-on, applicable experiences and extracurricular activities," Dan said. "The three of us want to support young people and education, and that's what inspired us to give back. It was a perfect match—our resources, Texas A&M's resources and the needs of future students."



Jordan Wolf '41

democratic foundations through hands-on, applicable experiences and extracurricular activities," Dan said. "The three of us want to support young people and education, and that's what inspired us to give back. It was a perfect match—our resources, Texas A&M's resources and the needs of future students."

world, occasionally taking temporary residence in a new country. Grace quickly developed a passion for history, architecture and archeology. Her time spent traveling abroad solidified her decision to give back. "I want to provide students with the same joy and excitement I received from learning about different cultures and widening my vistas," Grace said. "I hope our gift can help a student launch a career that is personally satisfying, not just a job to pay the bills."

The gift process also gave her and Wilda the chance to sift through old memories. "I had forgotten a lot about my time in Aggieland, and my mom had forgotten many of my dad's legendary Aggie stories," Wilda said. "Making this gift allowed us to relive those times again."

Although Grace and Dan didn't attend Texas A&M, stories from Wilda and Jordan inspired them to believe in the university's future and in its students.

"The values inherent in this university inspire young adults to be positive in-

Jordan Wolf '41, Grace's late husband, started the family's Aggie legacy. After Jordan met Grace in 1945, the two embarked on a journey across the

fluences for others," Wilda said. "It's not just the professors, academics or facilities—it's the Corps of Cadets, the Fightin' Texas Aggie Band and how Aggies look out for one another. There are generations of traditions that bind all of us together, and there is a commonality that transcends time." ©

TO DISCUSS HOW A PLANNED GIFT CAN BENEFIT YOU, YOUR FAMILY AND TEXAS A&M UNIVERSITY, CONTACT GLENN PITTSFORD '72 AT GPITTSFORD@TXAMFOUNDATION.COM OR (800) 392-3310.

## Make Giving a Family Decision

Family giving is a popular option because individuals can combine funds and different types of gifts to support causes they are passionate about—whether that be students, faculty, colleges or programs at Texas A&M. For example, many siblings choose to give a scholarship in their parents' names, but contribute to the overall gift through different methods and different amounts. By combining planned gifts or gifts of cash, family members can make an even greater impact at Texas A&M. To learn more, call (800) 392-3310 or email [info@txamfoundation.com](mailto:info@txamfoundation.com).

From a very young age, my mom and grandparents instilled in me that college was the answer to attaining a good life. They didn't want me to repeat their lives—lives filled with intense labor and immense stress because no matter how long or hard they toiled, they could never make ends meet. I heard my grandparents' stories of long hours spent picking fruits and vegetables in the Texas heat for just enough pay to survive, and I witnessed my single mother's constant worry of being unable to provide for me and my younger sister. Their experiences brought them to think of education as the "way out"—the way out of poverty and the lifestyle my family and many others in my small hometown of Elsa, Texas, had felt trapped in for generations. Thus, they encouraged my efforts in school. They made sure I understood that college was not an option. College was my way out.

As I progressed through school, I gained opportunities simply by doing well in classes and participating in extracurricular activities. For instance, I received college credit during high school by passing AP exams, and I traveled on all-expenses-



## Education Was My Way Out

*Why teaching is one of today's most important professions, and why I want to tackle the job.*

BY MERARI BOFFILL '18  
INTERDISCIPLINARY STUDIES MAJOR



“I want to be a teacher because I understand the crucial role education plays in the lives of students and in society.”

—MERARI BOFFILL '18

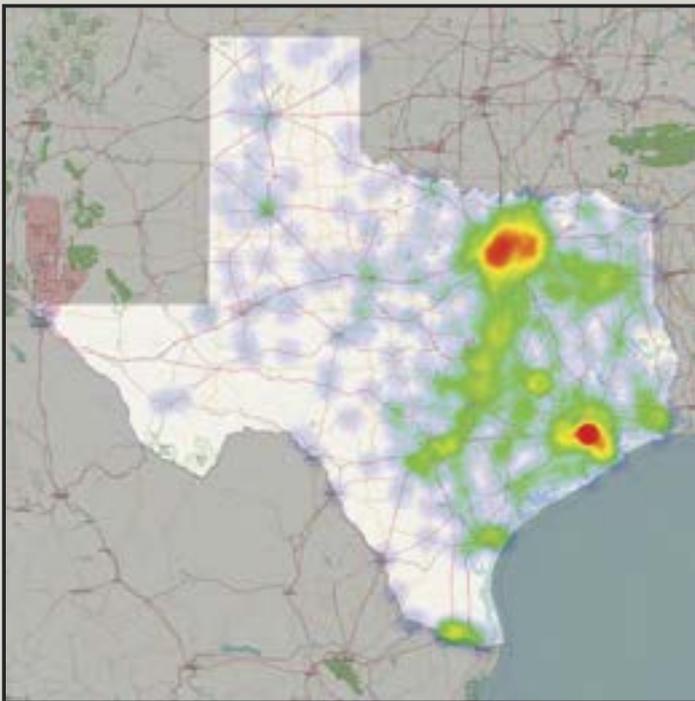
*Merari Boffill '18 aspires to instill in her students the same passion for learning that has enabled her to escape a generational cycle of poverty.*

# Texas Teachers

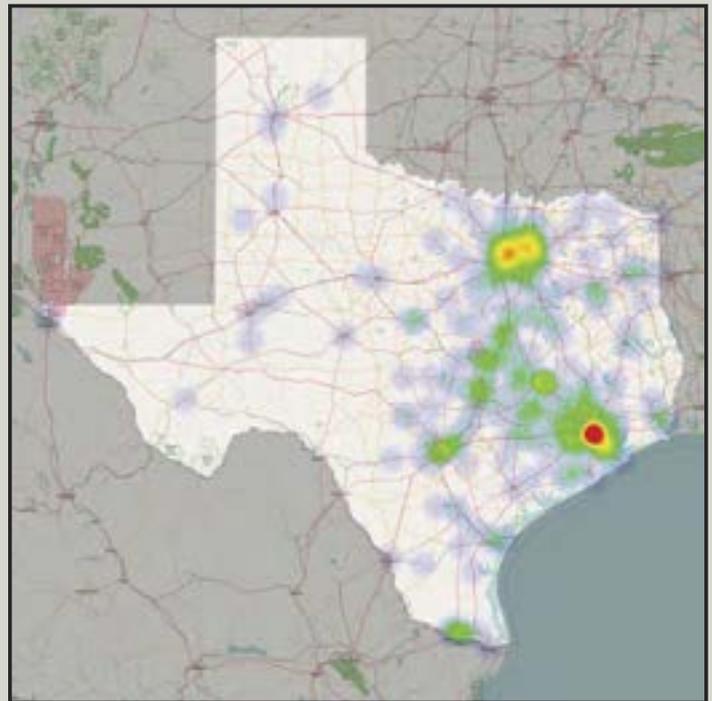


*The teaching, research and service activities of the College of Education and Human Development prepare our state's future educators.*

Aggie Teachers in Texas (TOTAL DENSITY)



Aggie School Administrators in Texas (TOTAL DENSITY)



The College of Education and Human Development is home to more than 7,000 students and is the premier teacher prep program in Texas. Faculty and graduates of the college work in 211 of 254 Texas counties. The school is the state's No. 1 producer of math and science teachers and is within the state's top five producers of special education and bilingual teachers. Most Aggies pursuing a teaching path log approximately 700 classroom hours during college and secure job placements before they graduate. The college's graduates have a 25 percent higher teaching retention rate over a five-year period than the national average.

To earn a teaching certification, students must pass both a pedagogy and professional responsibilities exam—instruction in how to teach—as well as a content exam for their desired grade and subject. Those who want to teach at a high school level must also get a degree in their discipline.

To increase the number of certified teaching graduates in the state of Texas, the college is developing cross-campus partnerships that will enable more students to add a teaching certification to their Texas A&M degrees without extending their degree time. "We're making it easier for Aggies from all disciplines to find their pathway to becoming a

teacher," said Michael de Miranda, department head of teaching, learning and culture. The college has partnerships with the colleges of science and engineering and is working to build others across campus.

"We cannot emphasize enough how crucial and critical the role of preparing teachers is to the state, nation and world," said Dean Joyce Alexander. "Aggie teachers are courageous and fearless. They are taking on a big job for the rest of us. Our graduates are passionate and dedicated, well-prepared in their knowledge of subjects, and have a strong preparation in pedagogy."

To keep up with changing classroom technologies, the college's

faculty are also leading fearlessly by gaining new insights about teaching through research. Notable achievements include the development of programs that help with elementary-level reading comprehension and the development of an eye-tracking software that shows where and what people focus on to understand how reading can be improved. "The educator of the 21st century looks much different than that of 50 years ago," said de Miranda. "We have to constantly evolve to stay at the forefront of our discipline and to ensure that we meet the needs of future generations."

Paige Manzella '21 is one of four inaugural recipients of a Dean's Education Scholarship in the College of Education and Human Development.



## New Scholarship Program Launches

The College of Education and Human Development recently initiated its Dean's Education Scholars Program, which will provide outstanding students \$4,000 in financial aid each year.

Paige Manzella '21, one of four inaugural scholars, was provided the Shirley and Joe Swinbank '74/Sprint Waste Dean's Education Scholars Award. She is a K-6 interdisciplinary studies major and hopes to teach second grade.

"I chose this career track because I can shape the minds of young34

er children and set them up for a successful path in life," she said. "I hope to teach my students more than just core material—things such as sharing, kindness and manners. Being a teacher is important because you are a student's foundation for both academics and life values.

"Students need role models in their lives who they trust. As a teacher, I believe it is okay to 'play mom' or 'friend' on occasion, because you never know: You might be all that student has."

The college hopes to raise 50 Dean's Education Scholarships, which can be established with a \$100,000 endowed gift to the Texas A&M Foundation. You can set preferences for a certain

paid trips by competing in and serving as a state officer for the Texas Association of Future Educators. Most importantly, however, because of my dedication to academics, I graduated in the top 10 percent of my senior class, which ensured my automatic acceptance to any public Texas university. These opportunities ignited my interest in education as a career path.

Although I am a first-generation college student, deciding to attend Texas A&M University was not difficult. My ultimate concern in choosing a university was the amount of financial assistance I would receive. Thankfully, Texas A&M offered me scholarships including a Century Scholarship, Regents' Scholarship and the Mildred K. Leitz Scholarship in the College of Education and Human Development. These have made an incredible difference in my life, and I hope that through teaching, I can positively impact the lives of my future students the way the donors of these scholarships have greatly impacted mine.

### Breaking the Mold

Attending Texas A&M has benefited me in numerous ways, but I am most grateful for its effect on my family—particularly on my younger siblings. My sister Carmen is now a freshman interdisciplinary studies major at Texas A&M, while my nine-year-old brother Manny is already determined to become an Aggie too. Because of the opportunities afforded by a good education, my siblings and I can break the cycle of poverty that has plagued my family for generations.

Now in my senior year, I will graduate in May with a bachelor's degree in interdisciplinary studies with a focus on fourth through eighth grade language arts and

social studies. Through its curricula, the College of Education and Human Development has prepared me to teach students of all types, given me insight into the best teaching methods, and further solidified the importance of education that my mom and grandparents instilled in me long ago.

I can't wait for my first day in a classroom, when I'm standing at the front instead of sitting at a desk. I can't wait to see eager faces staring back at me. I want to be a teacher because I understand the crucial role education plays in the lives of students and in society, since educational gaps create some of our nation's most serious societal problems. Education can not only shape students' minds, but also has the potential to shape their lives. There is so much aside from book learning that can be gained in the classroom: hope, freedom and chances.

Education was my way out, and I will let other students know that it can be their way out too. I will be there to let them know that through education, they can be anything they want to be and live any life they want to live. That, I think, is the true responsibility of our nation's educational system and teachers everywhere. ©

*Currently, the average debt of a College of Education and Human Development graduate is \$23,000—a number the college hopes to cut in half through private scholarship support.*

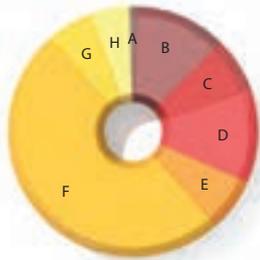
YOU CAN SUPPORT AGGIE TEACHERS BY CONTACTING:

JODY FORD '99  
SENIOR DIRECTOR OF DEVELOPMENT  
TEXAS A&M FOUNDATION  
(800) 392-3310 OR (979) 847-8655  
JFORD@TXAMFOUNDATION.COM

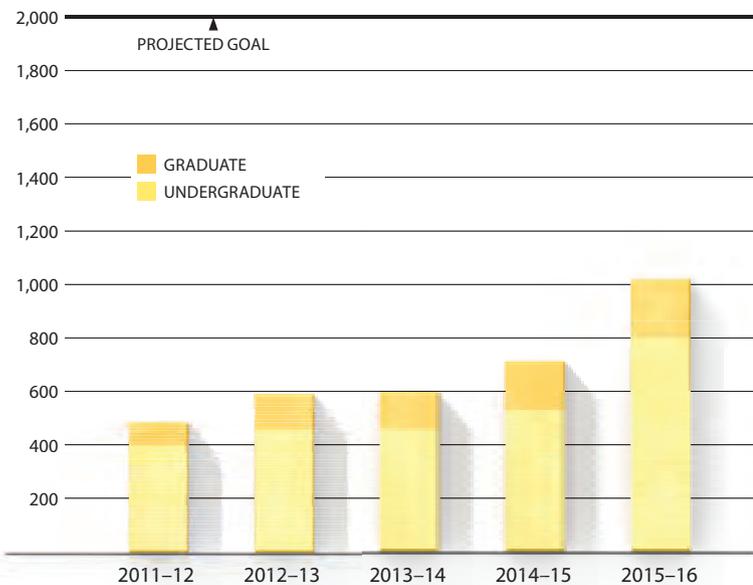
## Where Engineering Students Have Traveled Abroad (2011–2016)

### LENGTH OF TIME ENGINEERING STUDENTS STUDY ABROAD (2011–2016)

- A ACADEMIC YEAR (1%)
- B FALL SEMESTER (12%)
- C MAYMESTER (7%)
- D SPRING SEMESTER (12%)
- E SPRING BREAK (7%)
- F SUMMER 1 AND 2 (50%)
- G SUMMER 10-WEEK (6%)
- H WINTER BREAK (5%)



### NUMBER OF ENGINEERING STUDENTS STUDYING ABROAD (2011–2016)



## No Borders

BY SAVANNA HOOVER '18

*As global experiences become more vital to students' education, the College of Engineering has a plan to send 2,000 engineers abroad annually.*

When the sands of Qatar called, Megan Eckelbarger '18 answered. An industrial and systems engineering major, she studied at Texas A&M University's sister campus in Doha, Qatar, the summer after her freshman year. Two years later, during the winter break of her junior year, she traveled to Alexandria, Egypt, for a second global study experience.

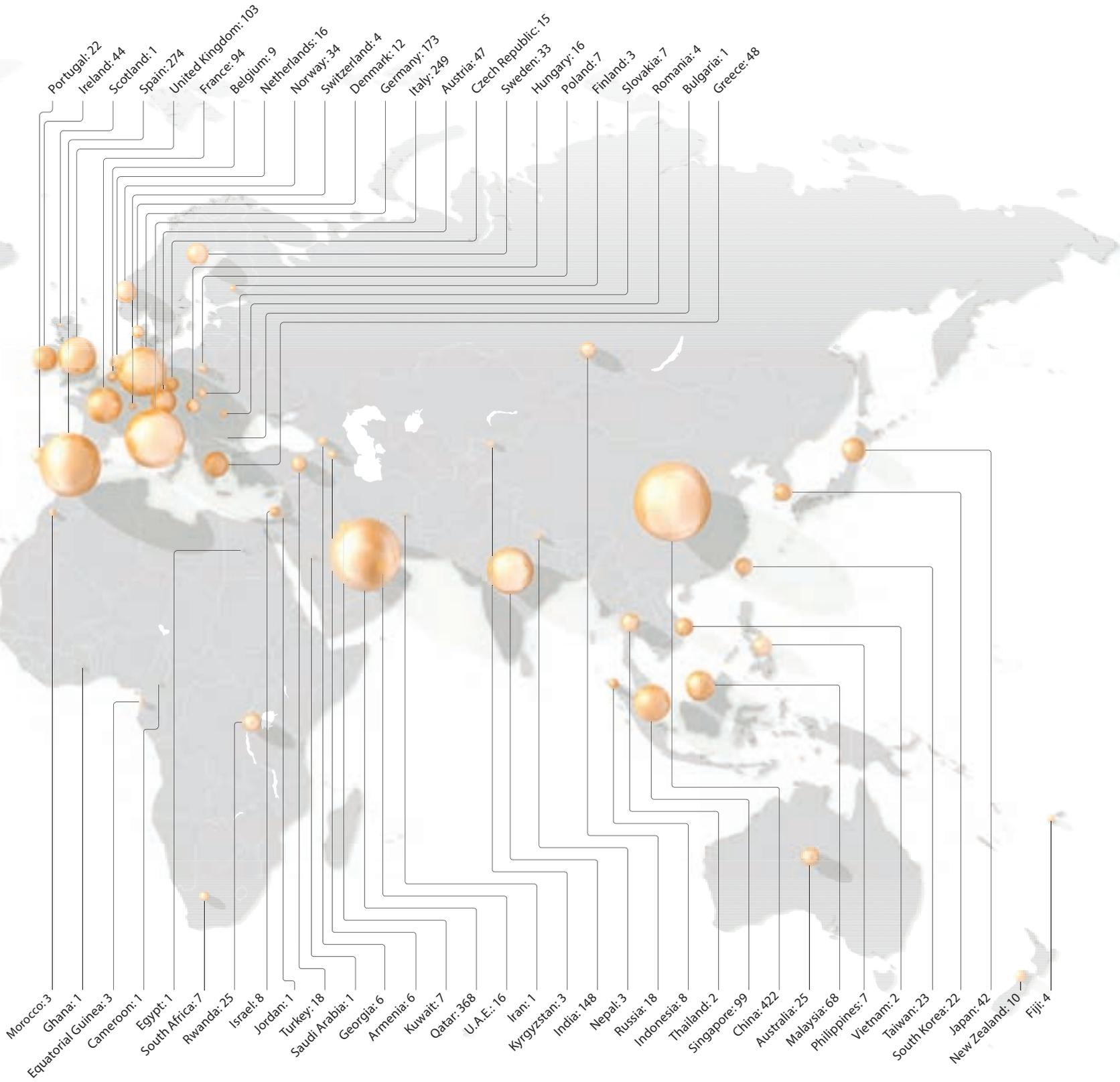
"While in Qatar, I experienced the holy month of Ramadan," said Eckelbarger, an Arlington, Texas, native. "It was complete-

ly new to me. During the day, the campus was silent and lacked the normal hustle and bustle of prior weeks. However, the country came to life at night. I loved going to the souq (market) and experiencing sundown with local Qataris! I gained a more holistic view of the world."

In Egypt, Eckelbarger took a production systems engineering course. The unit on forecasting proved pivotal during her internship the following summer at PepsiCo's Information Technology headquar-

ters as a global tech intern. "Taking something I learned across the globe, applying it to a project during my internship, and using the skills to forecast data for areas of the world including Europe and Asia solidifies how unified the globe is," she said. "Knowledge is universal."

Eckelbarger is the type of student the Texas A&M College of Engineering hopes to curate through its Global Access Program. "Global study experiences are critically important for our students," said



M. Katherine Banks, vice chancellor and dean of engineering. "Through this program, we have set an ambitious goal of providing 2,000 engineering students with global experiences each year, more than doubling our current level of participation."

Global study is also an important component of ENGR[X], an additional, noncredit component of the Texas A&M engineering curriculum launched this fall. Each undergraduate student is required to participate in one "X" factor, which includes high-im-

pact transformational learning experiences like global study as well as entrepreneurship, leadership and selfless service activities. These experiences add to the quality and innovation of each student's engineering education.

Eckelbarger's experiences were made possible in part through the Lynda and A. Dwain Mayfield '59 Study Abroad Scholarship established through the Texas A&M Foundation. By funding an endowed global study scholarship for engineering stu-

dents, you can help the college reach its goals and provide Aggies with transformational learning experiences. A \$25,000 endowed gift helps defray student travel costs and will provide an international experience to a new Aggie engineer every year.

"Every Aggie should have the opportunity to study abroad during college," said Eckelbarger, who hopes to work as an operational engineer. "My trips helped me see the world as more connected. I bet-

ter understand the cohesiveness between people and countries." ©

TO CREATE AN ENGINEERING GLOBAL STUDY SCHOLARSHIP, CONTACT:

ANDREW ACKER  
ASSISTANT VICE PRESIDENT  
FOR DEVELOPMENT  
TEXAS A&M FOUNDATION  
(800) 392-3310 OR (979) 458-4493  
AACKER@TXAMFOUNDATION.COM



THROUGH CAREER READINESS INITIATIVES, THE HOLLINGSWORTH LEADERSHIP EXCELLENCE PROGRAM PREPARES CADETS LIKE SCOTT LOVETT '13 FOR LIFE BEYOND THE QUAD.



Gen. James Francis Hollingsworth '40 (left) is one of the most decorated generals in Texas A&M history. Scott Lovett '13 (right) credits the Hollingsworth Program with teaching him how to add value in everything he does.

# LEADE

BY LAURA SIMMONS '19

Texas A&M University cadets present an image of loyalty, strength and discipline. Individuals in the Corps of Cadets are trained to exemplify the essence of Texas A&M in everything from their classroom interactions to their behavior at football games. Most importantly, cadets are known for being “Keepers of the Spirit.”

The Corps formed with the university’s founding in 1876 with approximately 40 cadets. Today, the organization is the largest in decades with more than 2,500 members. Cadets maintain a rigorous schedule of personal and military-style training, and many students work toward careers in the U.S. Armed Forces.

## EXPECTING THE BEST

However, approximately 60 percent of cadets

choose not to commission into the military and instead follow a leadership track. Usher in the Hollingsworth Leadership Excellence Program, named after Gen. James Francis Hollingsworth '40, one of the most decorated generals in Texas A&M’s history. The program prepares Drill and Ceremony (D&C) cadets—those not seeking a military commission—for professional careers by means of a challenging academic leadership curriculum focused on the formal study of leadership concepts and the intentional application of leadership principles. While all D&C cadets are required to participate in this leadership curriculum, the program does offer its leadership and career counseling services to every cadet.

“We focus primarily on D&C cadets, but we are also a resource for commissioning cadets,” said Dr. David Keller, director of the Hollingsworth Program. “There are several factors that could negatively impact a student’s ability to

commission, such as an injury or other unforeseen circumstances. All students need a plan B, and that’s what we’re here for.”

The program consists of three components: study, experience and application. Through classes and workshops, it offers in-depth teachings on leadership, personal development and management skills. Upon completion, each cadet earns a Certificate in Leadership Study and Development that appears on their academic transcript.

“It’s not our *hope* that cadets have leadership and career readiness skills when they graduate. It’s our *expectation*,” Keller added. “It’s part of the Corps’ mission to develop leaders of character who can impact society.”

## FINDING A CAREER

Former student Scott Lovett '13 completed the Hollingsworth Program and now enjoys a career in real estate. Growing up, he knew he would



#### A CUT ABOVE

Union Pacific Railroad works closely with the Hollingsworth Program. Like the Corps, the company's history is rich in tradition and guided by core values.

For many years, Union Pacific has hired cadets for their highly sought-after leadership and teamwork skills. Unlike other recruits, Aggie cadets already have experience working in a team environment, especially in stressful and challenging situations.

"In our business, we need employees who can lead on the first day of the job," said Cyndee Kanabel, human resources director for Union Pacific's southern region. "Because of their leadership development, cadets are the perfect candidates for our company."

# RS of Character

attend Texas A&M and join the Corps like his father.

As a freshman and sophomore, Lovett participated in the ROTC program before beginning his courses in the Hollingsworth Program. The classes broke down leadership into its core components and focused on the data, tools and mechanics of leadership that cadets can implement in their personal lives.

"Leadership is a fluid concept," explained Lovett. "I learned not only how to lead with my own personality and style, but also how to apply military-like leadership to other aspects of my life, such as personal relationships and my career."

In addition to helping cadets develop their leadership identities, the program aids cadets in finding jobs that match their career aspirations through informational sessions with organizations such as the CIA, the National Security Agency, Chevron, Reynolds & Reynolds, and many others.

"But it's more than simple networking and finding a job," added Lovett. "It's also about realizing what you want in a career and what careers you'd be well-suited for." After graduating, Lovett obtained a job with Clark Isenhour Real Estate Services in the Brazos Valley, where he applies lessons he learned in the Corps.

#### THE VISION

The Hollingsworth Program receives funding from an endowment established by Gen. Hollingsworth's family, but additional funds are needed as the Corps grows. Endowed gifts of \$25,000 or more will allow the program to continue to advise and support every individual in the Corps, regardless of their decision to commission in the armed forces.

Additional support would also fund corporate training opportunities and events, innovative classroom technologies, and more lectures by

experts in industry, nonprofit and entrepreneurial sectors. Funds would also address the short-term need for additional staff to advise cadets and help the program achieve its vision as it evolves.

"Our resources have to increase with our scope," said retired Col. Kenneth Allison '85, the program's associate director. "It is our dream to help cadets find inspiration in their Corps experiences so they may serve as emblems for one of the nation's leading universities." ©

TO SUPPORT THE HOLLINGSWORTH PROGRAM,  
CONTACT:

MATT JENNINGS '95  
SENIOR DIRECTOR OF DEVELOPMENT  
TEXAS A&M FOUNDATION  
(800) 392-3310 OR (979) 845-7604  
MJENNINGS@TXAMFOUNDATION.COM



## Discovery and Innovation

*Through collaborative research and entrepreneurial approaches, address some of the world's toughest challenges.*

The world faces many issues which Aggies are uniquely poised to address. Texas A&M University fosters an academic environment that encourages discovery and embraces bold, entrepreneurial approaches.

Hear from President Michael K. Young as he shares how Texas A&M is proving itself as a thought leader across disciplines, and learn about \$35 million in recent gifts to Mays Business School that will advance entrepreneurial programming. Read the stories of expert innovators, such as Dr. Vaughn Bryant, who has helped track down terrorists and illegal drugs through pollen analysis, and Bryan Trubey '83, the Aggie architect behind the design of AT&T Stadium. Finally, tune in to how Alex Lacey '17 researched pediatric cancer—just one example of the exciting and important work happening every day on campus.

Texas A&M University

\$4 Billion Campaign

Exploration  
Lead by Example

Interdisciplinary  
Discovery

State-of-the-art  
Unprecedented

TECHNOLOGY

Thought Leaders  
Innovative

TOP-TIER

Cutting-edge

Virtual  
World-class

Research  
Innovation

Faculty/Researchers

Texas A&M University



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## Helping Humanity Through Discovery and Innovation

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*Texas A&M proves itself as a thought leader across disciplines.*

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BY PRESIDENT MICHAEL K. YOUNG



**A**t Texas A&M University, we share a wonderful, 141-year tradition of leadership and service. As Aggies, we are the first to raise our hands in the face of any challenge and the first to seek out service to others. We are eager to solve problems. Our daily successful acts of discovery and innovation improve the state of Texas, the nation and the world. Moreover, as the world around us continues to evolve, so do grand global challenges and our will to solve them.

### **Showcasing Texas A&M Discovery and Innovation**

Last spring, Texas A&M participated for the first time in the South by Southwest (SXSW) conference event in Austin. SXSW Interactive Week primarily brings together corporations from around the globe to showcase the latest developments in technology and innovation. Texas A&M was one of only a handful of universities to participate in SXSW and, in doing so, we po-

*From virtual reality demonstrations to presentations about smart technology, Texas A&M positioned itself as an innovation leader at the South by Southwest conference in Austin last spring.*



sitioned ourselves as a thought leader across many disciplines. Most of all, the event gave many of our students the opportunity to connect their ideas with potential employers and investors.

Over the five-day program, many of our colleges demonstrated their impact on the world in exciting show-and-tell events. For example, a presentation from the College of Agriculture and Life Sciences entitled “The Human Lab” featured biometric equipment that measures an individual’s skin galvanization and eye tracking to help researchers understand why individuals make the choices they do.

The Department of Visualization in the College of Architecture illustrated how technology and humans interface. Researchers showed how haptic technology—in this case, specially-equipped stuffed animals that recreate the sense of touch by applying vibrations and motions to the user—can relax children with autism spectrum disorder. The college also showcased its Oscar-winning animation for Hollywood films like “Zootopia” and “Piper,” proving its best-in-class stature among universities and interactive companies alike.

The College of Liberal Arts featured a digital humanities database that combs through scholarly material such as ancient art and historic documents to generate infographics. A second panel also featured this tool in a discussion of how big data is used to understand the universe.

In addition to these presentations, Texas A&M also revealed other cutting-edge technology, including: a product that can detect infant dehydration; a racecar built from scratch by engineering students; and a program that takes users on a virtual walk

on Mars. I was also honored to moderate a panel on the rise of academic incubators, on which distinguished former student and venture capitalist Ray Rothrock ’77 served as a panelist.

It was an exciting week to be an Aggie in Austin as we showed the world the great work that goes on at our university.

### **Discovery and Innovation in Action**

To illustrate Texas A&M’s important work in a longer-term format, we began a virtual reality series called “24 Hours of Global Impact” that will continue through 2018. No matter the time, Aggies in every single time zone of the world are hard at work and making a difference. This series identifies those stories of impact for the world to see.

The 360-degree videos can be viewed on desktop and mobile devices at [give.am/TAMUImpact](http://give.am/TAMUImpact). Viewers can visit, for example, a coral reef in the remote islands of Palau or hop aboard Texas A&M’s research vessel—the *JOIDES Resolution*—and join scientists as they explore the seafloor for clues about Earth’s history and development. These videos were both featured in the National Science Foundation’s communications channels, and more are planned.

We are also embracing virtual reality in another way by introducing virtual campus tours. Second of course to a real visit to Aggieland, these videos allow prospective students to take a 360-degree look around our beautiful campus, classrooms and facilities. Viewers can even participate in a virtual Midnight Yell.

Be it cutting-edge science and discovery or new virtual reality formats for sharing the work we do with others, Texas A&M is leading the charge.

### **The Future**

Equally important to celebrating where we stand today is recognizing the direction we are moving. Fueled by a shared conviction for collaboration, coupled with a team of world-class faculty experts who are trailblazers spanning every discipline, Texas A&M’s forthcoming initiative is a School of Innovation, or I-School, the next milestone in our storied legacy of discovery and innovation. The I-School—led by Andrew Morriss, former dean of the School of Law—will be a virtual school designed to transcend traditional college boundaries.

While the I-School will not issue degrees, it will coordinate the many existing course offerings, experiential programs, offices and services that enhance students’ skills, further faculty scholarship, and ensure our university’s efforts to advance aptitude in innovation, entrepreneurship and creativity. There is much more to come as Dean Morriss collaborates with other deans, faculty, staff and myself on the development of the I-School, and we look forward to reporting more in the coming months.

As Texas A&M works to shape a bright future for our world, we must continue to support its engineers, artists, dreamers, tinkerers and forward-thinkers and bring their creativity to market by increasing investment in practical, purpose-driven research and interdisciplinary program development.

I wish to thank you all for contributing to the ambitious *Lead by Example* campaign. We at the university are so grateful for the Texas A&M Foundation and other affiliate groups who support our beloved university. The future is bright. ☺





# Start Something

*by Chrystal Houston*

Recent multimillion-dollar gifts will establish Texas A&M University as one of the nation's leading schools for aspiring entrepreneurs.

It's a short step from the Aggie spirit to the entrepreneurial spirit. Known for character, courage and a willingness to work hard, Aggies don't wait around for an opportunity. They go out and make them—and in so doing, create opportunities for others.

That's why Texas A&M University's Mays Business School and the newly renamed McFerrin Center for Entrepreneurship are rapidly becoming the top choice for young entrepreneurs. Thanks to multimillion-dollar commitments from Peggy and Lowry Mays '57 and the late Arthur "Artie" McFerrin Jr. '65 and his wife Dorothy, Mays Business School has never been a more attractive option. Whether it's an engineering graduate student with a design to patent or a high school senior with dreams of disrupting an industry through innovative technology, the McFerrin Center is making their dreams a reality.

"If they have a great idea, we can take them to the next level," said Dr. Richard Lester '03, center director. "There is a national trend toward entrepreneurship right now. Millennials are dissatisfied with the idea of corporate life and aren't interested in just having a job. They want to love what they do, and many of them are interested in starting their own businesses. Texas A&M and Mays Business School are well-positioned to equip these young people for the future economy."

◆◆ *Christopher Bybee '17, a business honors and finance major, is putting his entrepreneurship experience gained from Mays Business School to work in his post-graduation career with Bain & Co. Consulting in Dallas.*

### *Snow Cones and Custom Shirts*

One such millennial is Christopher Bybee '17, who's been an entrepreneur for as long as he can remember. "I've always had the itch to grow something and create something valuable," he said. "It's never been about the money. It's just a thrill for me to create something that adds value to someone's life."

He started his first "real" business at age 16, when he and two buddies developed SnoBoat, a mobile snow cone stand on Lake Austin. From supply chain to cash flow, SnoBoat was the perfect low-stakes environment for learning to run a business.

A business honors and finance major, Bybee got acquainted with the McFerrin Center during his freshman year while working at Startup Aggieland, the center's business incubator. Startup Aggieland offers Aggie entrepreneurs a myriad of resources to get their businesses off the ground, from counsel on intellectual property laws and mentorship from former students to office and cloud computing space. Bybee became involved with a tech venture called Shadowbox Media and traveled to New York City as a sophomore to pitch the company to venture capitalists.

"We were a little overconfident going into it, and we didn't receive funding," he said. "But getting knocked down was good for us, because we learned a lot about what it takes to be successful. I would not have had that experience without the McFerrin Center."

### *Go Do It.*

Not to be discouraged, during finals week of his junior year, Bybee built a plan for a custom apparel business aimed at Texas A&M student organizations, most of which order T-shirts on a regular basis. What if he could provide a simple ordering experience tailored specifically to students?

Bybee and a classmate, Walker Ryan '16, launched R.B. T-Shirt Co. their senior year and quickly became profitable, using outstanding customer service as their guide star. "If someone texted an order at 1 a.m., we responded immediately," he said. "We provided a service that students weren't finding elsewhere." In their first year, they filled orders for about 45 organizations. R.B. T-Shirt Co. has hired three students to keep the venture going, now that Bybee has graduated and taken a job with Bain & Co. Consulting in Dallas.

"Despite these entrepreneurial experiences, I still have a lot to learn," Bybee said. By working with Bain to improve its clients' businesses, Bybee will add to his entrepreneurial toolkit. His dream is to be a serial entrepreneur, building and selling great businesses.

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"This school has everything it needs to be great in terms of people, programs and desire."

—LOWRY MAYS '57

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"My biggest takeaway from my entrepreneurship education at Texas A&M is simply the willingness to *go do it*," he said. "Donors and all the people working behind the scenes at the university give students that chance."

### *The Future of Entrepreneurship Education*

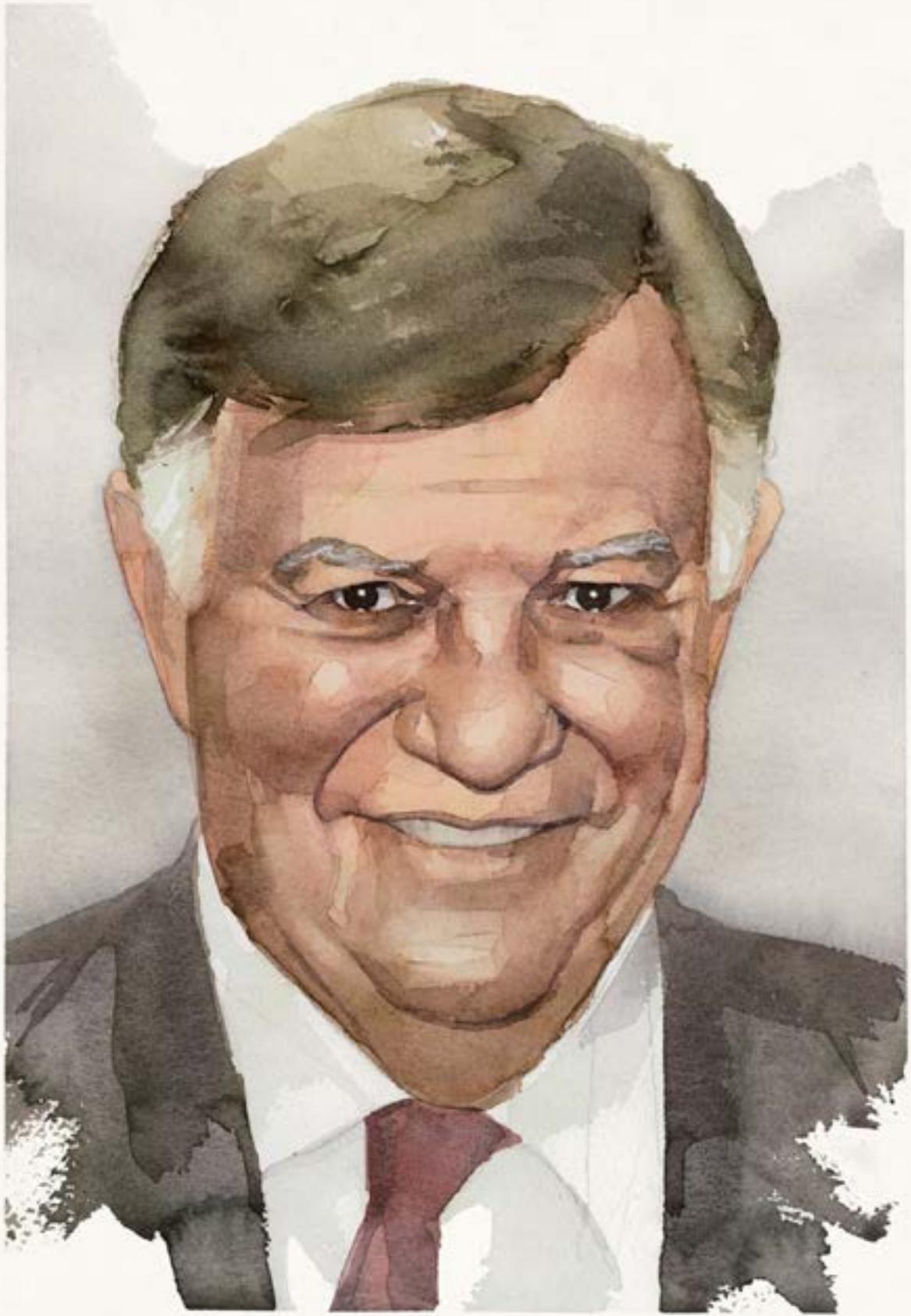
Since 1999, the McFerrin Center at Mays Business School has trained visionaries from all industries to transform ideas into successful businesses. The center started small, with just a handful of programs that touched a few hundred business students per year. Today, it's a powerhouse of innovation encompassing 28 programs. Its staff work with more than 3,000 students per year from various disciplines to hone and launch their business ideas.

"The beauty of the center is its flexible programming," said Lester. "Students of any classification from across campus can opt in for training. More than grooming skills, these programs train students to develop an entrepreneurial mindset."

Thanks to the recent gifts from the Mays Family Foundation and the McFerrins totaling \$35 million, there's never been a better time for a student to pursue entrepreneurship at Texas A&M. "These gifts are transformational," said Lester. "Our goal over the next five years is to create a state-of-the-art entrepreneurship program. This funding will allow us to expand, create new programs and link others for a cohesive experience."



◆ Peggy and Lowry Mays '57 recently contributed \$25 million to Mays Business School, the largest single commitment in the school's history. A portion of the funds support entrepreneurial programming.





The recent gifts will also allow for physical expansion. The McFerrin Center currently has space in the Wehner Building and at Research Park, but with rapid programming growth and increased demand from students, more room is necessary.

"Entrepreneurship is now embedded in the framework of Mays Business School as one of three grand challenges in our strategic plan," said Dr. Eli Jones, dean of Mays Business School. "We look at every class and project through the lens of entrepreneurship."

### *Legacy of Entrepreneurship*

Entrepreneurship education is close to the heart of Lowry Mays and was also paramount for Artie McFerrin, who passed away in August. Both translated entrepreneurial setbacks into springboards to success and want other Aggies to learn from their experiences.

Mays graduated from Texas A&M with a degree in petroleum engineering before entering the Air Force. He later earned an MBA from Harvard University before beginning a career as a securities banker. He fell into entrepreneurship when his friends defaulted

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"We want Texas A&M to have the greatest entrepreneurial program in the world."

—ARTHUR "ARTIE" MCFERRIN JR. '65 (1943–2017)

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on a loan he had co-signed allowing them to buy a radio station. He knew nothing about radio, but rather than sell the asset that was now in his name, he decided to see if he could make it work. Over the years, Mays built his company, adding more stations, then later outdoor advertising, television and live event management. When he sold Clear Channel Communications and its subsidiaries after 36 years of sustained growth, it was worth \$20 billion.

"My business was all about my customer and what he wanted to sell his customer," said Mays. "When people asked, I always told them 'I'm in the car business,' or 'I'm in the restaurant business,' because we were in the business of selling our customer's products."

McFerrin graduated from Texas A&M with bachelor's and master's degrees in chemical engineering before starting a position at Shell Chemicals. "After a few years, I realized that a career in a large corporation was stifling," he said in an interview before his passing. "Luckily, I was laid off due to budget cuts."

Undeterred by the setback, he launched a career in sales and renewed his emphasis on education and personal growth. He began working as a business consultant before being offered a job managing a chemical plant that was losing money. Soon after, he saw an untapped niche market in the chemical industry and pursued it with all his ambition. Despite major challenges, in just 11 weeks he created KMCO LLC, a chemical processing and manufacturing company, from the ground up. His first major client was his former employer, Shell.

◆ Dorothy and Artie McFerrin '65 gave \$10 million to the newly renamed McFerrin Center for Entrepreneurship at Mays Business School. The center works with more than 3,000 students each year to help hone and launch their business ideas.



In 1990, McFerrin established KMTEX, a high-volume distillation company. He purchased South Coast Terminals in 1995 and pursued partnerships in several other chemical processing plants. Like Bybee, McFerrin said that once you have the experience, education and positive entrepreneurial mindset, you should "just go for it." "Worry about the details later," he added.

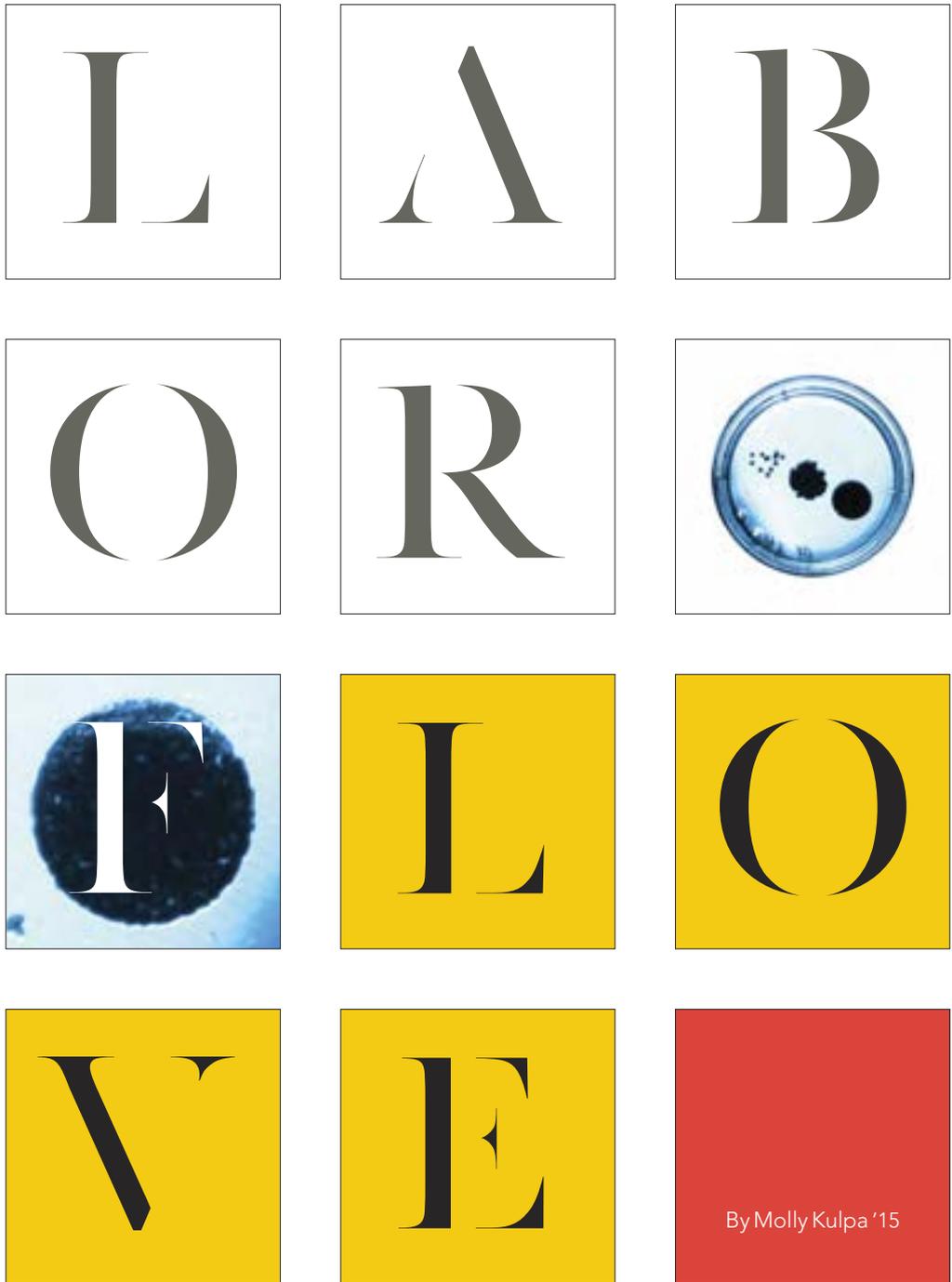
Thanks to these commitments, Texas A&M is well-positioned to grow the next generation of world-shaping entrepreneurs. "The future depends on creating and supporting small businesses," McFerrin said. "We want Texas A&M to have the greatest entrepreneurial program in the world."

Mays agrees. "Texas A&M's business school is climbing the nation's rankings. This school has everything it needs to be great in terms of people, programs and desire. I can't explain how enthusiastic I am about the young people graduating from Texas A&M. They are exceptionally well-prepared." ☺

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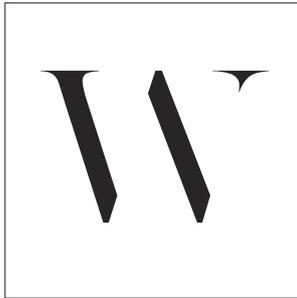
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**INSPIRED BY HER LATE FATHER'S BATTLE WITH CANCER, ALEX LACEY '17 RESEARCHED PEDIATRIC CANCER TO HELP OTHERS BEAT THE DISEASE. ■**





hen Alex Lacey's father was diagnosed with leukemia, her family's world turned upside down. Normalcy came to a screeching halt as the family faced expensive medical bills, frequent doctor's appointments and extensive changes in family daily life.

"It took a toll, but my parents kept us involved in activities and did their best to keep our schedules normal," she said. "We were going to be affected no matter what, but they didn't want the diagnosis to debilitate our family."

Despite numerous treatments, Lacey's father passed away when she was 8 years old. Nineteen years later, she's doing her part to contribute to the world's understanding and treatment of cancer. As a toxicology Ph.D. student in the College of Veterinary Medicine & Biomedical Sciences (CVM) at Texas A&M University, the recent graduate conducted research on rhabdomyosarcoma (RMS), an aggressive type of pediatric cancer.

### Finding Her Fit

Originally from Southfield, Michigan, Lacey obtained her undergraduate degree in biology from Lake Forest College, a small liberal arts school near Chicago. She dreamed of becoming a veterinarian, but after completing an internship with a neurobiology lab that worked with schizophrenic adolescents, her interest in medical research piqued. "It got my wheels turning, and I thought, 'Maybe this is something I want to do,'" she said.

During an introduction to Texas A&M during a CVM recruitment week-end, which allows prospective students to visit campus and interview faculty members about their research, Lacey determined the college was right for her. Once admitted, she soon discovered Dr. Stephen Safe on the CVM website. Dubbed "The Father of Toxicology," Safe conducted founding studies about toxicology and cancer in the 1970s and 1980s. "I badgered him the whole summer about joining his lab team, emailing him again and again so he wouldn't forget about me!" Lacey laughed.

Fortunately, she received research funding that prompted Safe to invite her to the team. In addition to the College of Veterinary Medicine & Biomedical Sciences' Lechner Scholarship, funded through the Texas A&M Foundation, she was the recipient of the CVM's Diversity Fellowship and the Texas A&M Toxicology Regent Scholarship. Combined, these awards equaled a full ride, which allowed her to pursue graduate studies without financial worry and instead focus on discovering technologies that can dramatically impact humanity.

"The CVM provided me with the environment and support needed to reach my educational and research goals," Lacey said. "The opportunities that the college provides for its graduate students are exceptional."

### Drawn to Discovery

In Safe's toxicology lab, Lacey concentrated on how cancerous cells react to different drugs. She specifically studied RMS, a cancer that affects mostly young children and adolescents in the form of muscle cell tumors.

"The cancer can appear in any muscle group, but primarily affects the head and neck area," she said. "RMS can also develop in limbs such as the elbow and knee joints, or appear in the groin area as testicular, vaginal or bladder tumors. The first step is surgery, but since patients affected by RMS are typically quite young, they can suffer disfigurements."

Doctors and scientists do not know what causes RMS, but through research, they can observe how normal cells become cancerous due to changes in DNA. Lacey investigated the molecular mechanisms surrounding the role of one particular nuclear receptor, NR4A1, which causes the formation of tumors in RMS as well as in breast, lung and pancreatic cancer. She hopes to identify therapies to stop the growth of cancer.

"I don't understand what it's like to have cancer as a child, but I have experienced first-hand how one's childhood can be completely altered by cancer, and what a huge impact it has on a family," she said.

Lacey primarily experimented in protein and gene expression, using techniques such as polymerase chain reaction. Researchers take cancer cells, culture them in a dish and treat them with a potential drug. Then, they remove the cells and study the protein and gene expressions to determine if any changes took place. The goal is to eliminate cancerous cells and preserve healthy cells.

"Alex was very productive in her research, and we hope that her results will be useful in developing new treatments for RMS," said Dr. Safe.

Since cancer is the second leading cause of death in the United States, the experiments underway in Safe's lab are critical to further understanding the disease and our potential to combat it. The innovative research taking place at the CVM will eventually lead to making anti-cancer agents available for clinical trials, so that they could potentially be used as an emerging therapy, not only for RMS, but also to treat breast, colon, pancreatic and lung cancers.

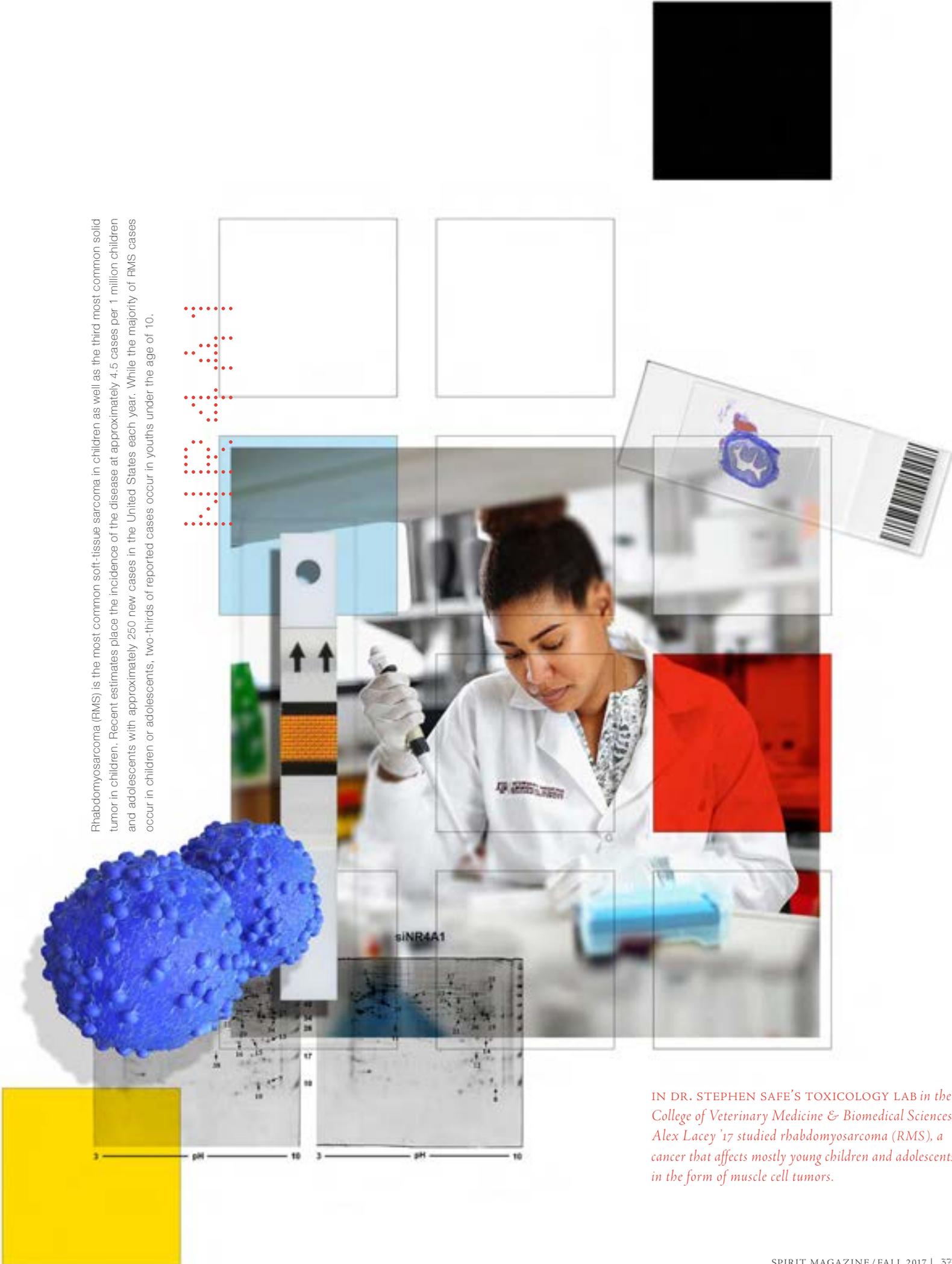
Before her graduate education ended in August, Lacey successfully defended her thesis and accepted a toxicologist position at Shell Global in Houston. "My father's legacy drove me to the field I'm in," she said. "That personal connection is why I feel so tied to this research." ©

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Rhabdomyosarcoma (RMS) is the most common soft-tissue sarcoma in children as well as the third most common solid tumor in children. Recent estimates place the incidence of the disease at approximately 4.5 cases per 1 million children and adolescents with approximately 250 new cases in the United States each year. While the majority of RMS cases occur in children or adolescents, two-thirds of reported cases occur in youths under the age of 10.



IN DR. STEPHEN SAFE'S TOXICOLOGY LAB in the College of Veterinary Medicine & Biomedical Sciences, Alex Lacey '17 studied rhabdomyosarcoma (RMS), a cancer that affects mostly young children and adolescents in the form of muscle cell tumors.



The Architect **Artist**



Meet the Aggie behind the design of AT&T Stadium and some of the world's most impressive sporting arenas: Bryan K. Trubey '83, FAIA.

by Jeannie Ralston



**People as accomplished as Bryan Trubey '83 usually have an origin story. They can point to an experience, a person or a book that lit the spark that led to a passion and became a scintillating career. Trubey—an innovator in the field of sports architecture, having designed the Dallas Cowboys' AT&T Stadium among many other major arenas around the world—was apparently born with an innate sense of his destiny.**

"I don't ever remember not wanting to be an architect," he said from an airy conference room at the Dallas headquarters of HKS Inc., an international architecture firm. "I can't tell you where it originated, but I have one silly story. In first or second grade, I drew an illustration of what I wanted to be: a world-famous architect living on an island. The drawing included all the things I would build on the island." Trubey's mother saved it.

### Great Mentors

From this early memory, the young Trubey progressed on his path with an astonishingly advanced sense of direction. He remembers spending hours at the Dallas Public Library reading architecture books. "I checked out everything on Frank Lloyd Wright. I read about Ludwig Mies van der Rohe. I loved all of it."

When he was in high school, the Dallas public school system started a career development center that provided architectural classes. Trubey took his academic classes in the morning and was taught by a professional architect in the afternoons. During his senior year, he worked at the Arlington architectural firm of Harry Allison,

owned by Texas A&M graduate Harry J. Allison '67.

"The early technical experience I gained with Harry is one reason I can work in this monumental building type," said Trubey, now 56. Under Allison's influence, Trubey learned not to be afraid of anything technical. "He taught me how to build something completely innovative by using technical requirements to our advantage," he recalled. Trubey couldn't have recognized at the time how important this lesson would be. "Now, when I design monumental structures, I see structural challenges as opportunities rather than limitations."

When it came time for college, Trubey confessed that his eagerness to start his own career made him a reluctant student. He chose Texas A&M mainly because it was where Allison had attended. While in Aggieland, Trubey found new mentors in the then-dean of the College of Architecture, John Only Greer, and several professors: Rodney Hill, Tom Colbert and Duane Cote. "Rodney Hill was the perfect first architectural professor for me," he said. "I entered college with a lot of real-world experience, having already worked at Harry Allison. This was different from most students and probably stunted my creativity in some ways."

Hill's class opened Trubey's mind. "He did these exercises about approaching architecture as an art form first," he said. "He taught abstract thinking and how to interpret existing forms. It was poetry, art and architecture in one." Spurred by Hill's class, Trubey further schooled himself on art, sculpture, literature and other fine arts.

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**NFL owners approved the return of the NFL Rams Football Club to Los Angeles beginning with the 2016 season. The Rams' new home (opposite) will be the cornerstone of a 298-acre entertainment and multiuse district.**



The design of AT&T Stadium (left) honors the legacy of the Cowboys and their global brand. Two steel arches, each spanning the entire 1,290-foot length of the stadium, express power and strength while supporting the stadium's huge interior volume.



He also developed another artistic endeavor while at Texas A&M. Having grown up singing in his church choir, he joined the Singing Cadets his freshman year. By the end of his second week in College Station, he had 60 best friends and was soon singing in 50 off-campus concerts throughout the school year. "So I had two different lives at Texas A&M—architecture and the Singing Cadets," he said. "Both creative. Both wonderful experiences."

### From the Ground Up

After graduation, Trubey worked for Allison until he was 26. "I loved him like a father," he said, "but I realized I couldn't design houses for the rest of my life." He moved to Chicago for a job and fell into sports architecture "completely by accident."

While in Chicago, some friends who worked for HOK—a global architecture firm and one of the first firms to start a sports practice—told him about an open

position. Trubey got the job and became senior designer on a new stadium in San Antonio: the Alamodome. After that, he worked on the national stadium for the Hong Kong Jockey Club. Even this early in his career, Trubey already incorporated the dual concepts of transparency and structural expressionism—the practice of letting a building's structural parts become key design pieces, rather than hiding them—in his creations.

"There was no façade, no skin. It was all structure," he said, describing the Hong Kong project. "The ticket offices were a carved triangle in the ground, with steps going down. Then we created a huge landscape of stairs that moved all the way up to the main concourse. It emulated the farming terraces throughout Asia." The stadium's design earned the highest award in the profession: an American Institute of Architects National Design Award.

In 1992, Trubey was recruited to start the sports program at his present firm, HKS Inc., which was also started by an Aggie,

million square feet  
AT&T STADIUM | ARLINGTON, TEXAS



Dallas Mavericks owner Mark Cuban and Trubey (right) review student designs for a new team practice facility. The Davis Player Development Center (far right) provides training facilities for the Texas A&M football team.



Harwood K. Smith '36. Two other Aggies at the firm became important mentors, Trubey said, in both architecture and life: Ronald Skaggs '66 and Joe Sprague '70. Both also set a good example for Trubey on the importance of giving back to the College of Architecture.

At first, Trubey and his team took part in many projects, such as the Texas Rangers' Globe Life Park, in which they were the architects of record—a firm that plays a behind-the-scenes role in executing someone else's concept. On the American Airlines Center, HKS was the sports architect, meaning Trubey and his team handled the design of just the arena's court surface and seating, rather than the entire building.

Eventually, Trubey and his team took the lead on sports projects, such as Lucas Oil Stadium, home to the Indianapolis Colts. He has also designed key buildings on the Texas A&M campus, including Olsen Field at Blue Bell Park and the Davis Player Development Center. The most famous Trubey building—at least around Texas—is AT&T Stadium, home to the Dallas Cowboys. The \$1.15 billion building is a prime example of the transparency and structural expressionism that run through Trubey's work, with a pair of quarter-mile-long steel arches serving both as vital support and as a striking design feature. The Wall Street Journal called the stadium "simply mesmerizing," and as the world's largest column-free space, it's also an engineering marvel.

Trubey considers it innovative for other reasons as well. Knowing that team owners Jerry and Gene Jones were patrons of the arts, Trubey proposed that they commission

**1.8** million square feet  
U.S. BANK STADIUM | MINNEAPOLIS, MINNESOTA





art pieces for the stadium. “I realized we could make the building a destination in the art world,” Trubey reported. “I asked them to consider having modern artists do monumental pieces in a modern monumental structure.” The result is 16 mostly large-scale artworks, including Annette Lawrence’s breathtaking, hourglass-shaped, steel cable sculpture that hangs over one of the entrances. So impressive are the pieces that the stadium offers art tours three times per day, four days per week.

Trubey’s sports program at HKS is perhaps most successful because it includes more than just architects. He has gathered a team of strategic thinkers who can help team owners generate one-and-a-half to two times the revenue of a competitor’s building. With detailed marketing research about a team’s fan base, HKS can offer roughly 30 different seating options and experiences at different price points.

“Selling seats is how owners make money,” Trubey said. “Being innovative in this way gives us a more effective pitch to the owners, since we’re talking to them in a commercial language. We’re able to do architecture and business at a high-quality level. Because of this, we believe we are the only group truly evolving this building type.”

### Back to the Classroom

Since AT&T Stadium, Trubey has designed the Minnesota Vikings’ stadium, arenas in

Copenhagen and Shanghai, and World Cup venues in Brazil. He’s working on a new ballpark for the Texas Rangers and with Mark Cuban on a headquarters and practice facility for the Dallas Mavericks.

The Mavericks project helped Trubey contribute to his alma mater in an extraordinary way. Trubey, who was named an outstanding alumnus of the College of Architecture in 2008, regularly judges student designs and participates in other events at the college. In spring 2016, he was awarded the Thomas Bullock Endowed Chair in Leadership and Innovation in the college, which gave him the opportunity to teach a semester-long class for 40 first-year students in the Master of Architecture program. During the class, Trubey had students design practice facilities for Cuban on four different proposed sites and then present their designs to Cuban himself.

“Many students had never worked in a real office or had contact with a real client,” Trubey said. “Mark was very involved in the class and offered his vision during the semester.” For the final review, Cuban gave a critique of each design. “It was not quite Shark Tank...but close,” Trubey said with a laugh. “Mark is really interested in acting as a mentor and has a gift for working with young people. He gave the students great feedback and an authentic client experience.”

Trubey, a father of four, thinks it’s only fitting that he gives back to the university.

Elements of his Aggie life influence his professional life in key ways. “HKS has traditionally employed many Aggies,” he said. “Our founder, Harwood, was a military guy and believed in the idea of, ‘Give me a few good men, and I can conquer the world.’ Also, there’s a sense of sharing the pie and spreading the credit around. That’s been a real tradition in our firm.”

The Aggie Code of Honor itself has been a guiding light for him. The words, “...or tolerate those who do,” especially ring true. “That raises the bar,” said Trubey, who’s turned down many projects because he didn’t feel right about the people he’d be working with. “Some of the hardest decisions I’ve had to make were to not be associated with projects that could be quite lucrative, but weren’t the right environments for us to spend our time and gifts.”

As a man of faith, Trubey sees his talents as a gift. Even though he’s now the world-famous architect he drew in his mother’s treasured illustration, he remains grounded. “Gifts come from God,” he said. “They are not ours.” ©

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**U.S. Bank Stadium (opposite), home to the NFL’s Minnesota Vikings, is an iconic venue for sporting and cultural events. The stadium’s transparent canopy provides natural light, while the asymmetrical, angular roof is designed to shed snow during the harsh winters.**

# askprof.



*Research Interests: Palynology, archaeology and anthropology, especially regarding prehistoric diets and forensics.*

## What is palynology?

Palynology is the study of pollen grains and spores found in honey and archaeological or geological deposits. There are more than 350,000 plants worldwide that bees utilize, and each plant species produces a unique pollen grain. Pollen is mostly invisible to the naked eye, but when studied under a microscope, it can reveal a multitude of information.

## Can forensic palynology solve crimes?

Since pollen can survive harsh conditions, it can reveal important clues as evidence. In 2006, I was contacted by a medical examiner in Rochester, New York, to work on an unsolved murder case from 1979. Investigators shipped the victim's clothing to me, which I analyzed for pollen grains. I determined that the young girl was not from New York, but must have come from southern Florida or around San Diego, California, based on pollen grains found in her clothing's pocket lint that had survived, even after all those years. In 2015, she was identified as being from southern Florida.

## How do you analyze pollen grains?

We use a special vacuum to gather pollen from the sample while wearing a full-body forensic suit to avoid contamination. Then we place the vacuumed filter in a test tube and treat it with a series of acids that destroy everything but the pollen. The result is a vial containing the pollen grains, which are microscopically studied, identified and then

matched to the plants from which they originated.

## What is your most memorable case?

After 9/11, the CIA asked me to analyze samples to help track down terrorists using forensic pollen techniques. They sent me random objects but never said where they came from or the item's significance.

One time, they sent a 36-inch shoelace taken from a terrorist's boot, which I traced back to Iran through pollen analysis. Another item was a prayer blanket, which we determined had been used in South Pakistan. I even studied captured weapons, cell phones, IEDs and car air filters to see where they'd been. I examined hundreds of samples and traveled to Langley, Virginia, twice per year. I did this for 10 years, unaware I was searching for Osama bin Laden, until Navy SEALs killed him in 2011.

## Is your work used in the war on drugs?

The U.S. Department of Homeland Security reached out to me in 2011 when it heard that pollen analysis could trace the origins of illegal drugs entering the U.S. One time, I processed several kilos of cocaine with a street value of about \$3 million. From pollen analyses, I can often determine where illegal drugs originated—such as states like Sonora, Sinaloa, Chihuahua or Coahuila, Mexico. ©



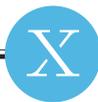
### Truth in Honey Labeling

Bryant started analyzing honey in 1975 when the U.S. Department of Agriculture hired him to track illegal honey being purchased as part of its Farm Loan Subsidy Program. By analyzing samples, he helped identify domestic versus foreign honey.

He has spoken at universities and beekeeping meetings and published several articles about authentic honey. Currently, Bryant studies honey products for private companies to verify their authenticity and helps hundreds of beekeepers find out what types of honey their bees produce.

TO SUPPORT THE TEXAS A&M PALYNOLOGY LABORATORY OR RESEARCHERS, CONTACT:

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SENIOR DIRECTOR OF DEVELOPMENT  
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(800) 392-3310 OR (979) 458-1304  
LWALKER@TXAMFOUNDATION.COM



FACTORS

1

**PALYNOLOGY PLUG**

Bryant has discussed his research on TV programs including the Today Show, CNN and Fox News. He's also written more than 150 scholarly articles and co-authored several books. His research has been featured in magazines such as People, Reader's Digest, Popular Science, Seventeen, Forbes and National Geographic.

2

**FOUNDING FATHER**

In 1971, Bryant joined Texas A&M's newly-created Department of Sociology and Anthropology. He was the first anthropologist in the College of Liberal Arts and served as anthropology department head until 1999. He currently teaches undergraduate and graduate courses in anthropology. Recently, Bryant made headlines for continuing his teaching and research activities even while undergoing treatment for leukemia at MD Anderson Cancer Center in Houston.

3

**PALYNOLOGY & PETROL**

Palynology took off in the 1940s and 1950s when the oil and gas industry realized that by studying pollen and spores present in sediments and rock layers, oil deposits can be identified.

4

**PALEO DIETS**

In the 1960s, Bryant pioneered research in the emerging field of prehistoric diet and nutrition by analyzing ancient human feces, known as coprolites. The study of coprolites can reveal what foods our ancestors ate and even if they were infected with parasites.

5

**SWEET MYTH**

A common misconception is that people can become less sensitive to seasonal allergies by ingesting local honey containing pollen. Sadly, said Bryant, multiple scientific reports have disproved the theory.

**Dr. Vaughn Bryant**

Palynologist and Professor  
Department of Anthropology  
Director, Texas A&M Palynology Laboratory

B.A. GEOGRAPHY (1964), M.A. ANTHROPOLOGY (1966), PH.D. BOTANY (1969)  
THE UNIVERSITY OF TEXAS AT AUSTIN





## Impact on the State, Nation and World

*Integrate Texas A&M's land-grant origins with its top-tier research strengths to serve the state, nation and world.*

Texas A&M is one of the few U.S. universities to hold a triple designation as a land-, sea- and space-grant institution. With the momentum of the *Lead by Example* campaign, Aggies can continue contributing to society and make great advancements across all areas of industry.

In this section, read about Bill Merrell and Sam Brody, two Texas A&M University at Galveston researchers who devised a plan that can protect the Texas coast from billions of dollars in future hurricane damage. Discover Charles Munnerlyn '62, who combined his knowledge of optics and lasers to develop the LASIK procedure. On the Bush School's 20th anniversary, celebrate the countless students and former students who—following in President George H.W. Bush's footsteps—serve the U.S. in the public service arena. And finally, follow the university's road to \$4 billion and its journey to making an even bigger mark on the state, nation and world.

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# COAST GUARD

A PROPOSED PLAN BY TWO TEXAS A&M UNIVERSITY AT GALVESTON RESEARCHERS TO PROTECT THE TEXAS COAST COULD PREVENT BILLIONS OF DOLLARS IN HURRICANE DAMAGE.

—BY JEANNIE RALSTON—



A custom-designed open structure dam with doors—each weighing as much as 400 tons—would allow the free flow of ocean water during normal conditions and lower to the seabed during a storm surge.

WHILE BILL MERRELL WAS ASSESSING THE DAMAGE HURRICANE IKE HAD CAUSED to his two Galveston properties in 2008, he had a thought, which became a sketch, then a catchy name, and now one of the best hopes to protect the Texas coast. ⚡ That thought: “The Dutch would never put up with this.” ⚡ The Dutch would not put up with \$29 billion in property damage, with blocks of homes wiped off the map, majestic trees uprooted, mountains of debris and most importantly, the deaths of at least 59 people. They also wouldn’t stand for the continued threat to one of the country’s largest cities and one of the world’s most critical energy centers: Houston. ⚡ And, Merrell decided, neither should Texans.

**2** A revolutionary design, a pair of massive barriers would swing into place to protect the port when needed. The barrier arms, measuring 100 feet long and 6 feet in diameter, would be made of tubular steel.

**3** The hollow barrier gates would float on the water’s surface. Once the gates swing into place, they would fill with water and sink to the seabed to seal off an approaching storm surge.

**T**EXANS ARE A PRETTY RESILIENT LOT, BUT WE'RE KIND OF COWBOYS, TOO. I WISH WE'D ACCEPT THE FACT THAT WE COULD REDUCE RISK, RATHER THAN LIVE WITH IT."

The sketch that Merrell—holder of the George P. Mitchell '40 Chair in Marine Sciences at Texas A&M University at Galveston and the former president of the branch campus—made after this eureka moment was modeled on high-tech engineering feats he saw in the Netherlands, built to keep the North Sea out of the low-lying country. Merrell called his plan to build 55 miles of dune barriers and gates at the mouth of the Houston shipping channel a "coastal spine." But the name that stuck was "Ike Dike," a nod to the storm that made its need clear.

"This is preventive medicine," said Merrell. "The concept is easy. You stop the storm surge at the coast to protect everyone: Galveston and Bolivar Peninsula, Houston and all the other vulnerable communities in between, plus the refineries and port infrastructure along the ship channel."

#### **PLAYING RUSSIAN ROULETTE**

Merrell's Ike Dike proposal, initially put forth in 2009, has drawn increased attention in the national media in the wake of Hurricane Harvey. Although most of the damage from Harvey was due to rain-induced flooding, storm surges remain a dangerous threat.

The estimated cost to build his Ike Dike is between \$6 and \$10 billion, but the cost of losses is higher: Hurricane Harvey caused between \$150 and \$200 billion in damages. This dollar estimate doesn't take into consideration the incalculable impact of loss of lives and the ripple effect across the country of halted petroleum refining and distribution. "This project," said Patrick Louchouart, chief academic officer at Texas A&M Galveston, "integrates the natural sciences with the physical sciences to better society and to protect the economy."



**BILL MERRELL**

GEORGE P. MITCHELL '40  
CHAIR IN MARINE SCIENCES,  
TEXAS A&M UNIVERSITY  
AT GALVESTON

Knowing that a major hurricane like Harvey hits the Texas Gulf Coast every 15 years on average, Merrell and other leaders across Texas feel an urgent need to get the Ike Dike funded and built. Rising sea levels associated with climate change and a growing Houston population raise the stakes. "This matters to all Texans and to all Americans," said Texas Land Commissioner George P. Bush, who calls the Ike Dike the state's most important infrastructure project. He is pushing for funding from the Trump administration.

In the meantime, Merrell and other researchers at Texas A&M Galveston's Center for Texas Beaches and Shores (CTBS) continue to refine the Ike Dike concept, research its effectiveness and advocate for its implementation to politicians at all levels. "It's like we're playing Russian roulette with our future," said Samuel Brody, director of the CTBS. "I live in the Galveston community. I know the level of vulnerability. I get up every day and think, 'How can I save property and lives? What can I do as a researcher?'"

#### **THE SEAWALL AND BEYOND**

The 1900 Galveston Hurricane is infamous—still the worst hurricane disaster in the country's history. Galveston was flattened. The death toll was 6,000 to 12,000 people, and the storm altered Galveston's fortunes. Once the state's largest city, known as the Wall Street of the South, it never recovered its status after the disaster. But that wasn't from a lack of trying.

In an impressive engineering feat for the early 20th century, city leaders raised the level of the island a few feet above sea level and built a 17-foot seawall along 10 miles of the island. The seawall did its job through storms such as Hurricane Carla in 1961, but Hurricane Ike was different. Galveston was most impacted not



1) THE 1900 GALVESTON HURRICANE MADE LANDFALL ON SEPT. 8, 1900, KILLING AN ESTIMATED 6,000 TO 12,000 PEOPLE. CONSTRUCTION OF THE GALVESTON SEAWALL BEGAN IN 1902 WITH THE INITIAL SEGMENT'S COMPLETION IN 1904. 2) ON THE MORNING OF SEPT. 13, 2008, THE EYE OF HURRICANE IKE APPROACHED THE UPPER TEXAS COAST, MAKING LANDFALL OVER THE EAST END OF GALVESTON ISLAND WITH A HIGH STORM SURGE.

by the storm surge on its beach side, but by water that barreled into its shallow bay and flooded the area. City planners hadn't protected the island on its back side.

Merrell's Ike Dike plan would prevent water from ever entering the bay. When Merrell traveled to the Netherlands in the 1980s—as head of the International Ocean Discovery Program at Texas A&M—he was given a tour of the country's coastal barriers. Merrell remembered the design and eventually worked with the Dutch as partners on the Ike Dike concept.

The plan proposes building a 17-foot-high sea wall along the unprotected parts of Galveston Island and the entirety of Bolivar Peninsula, but disguising the wall as sand dunes. Some of the dunes will be natural, but others will have a concrete wall beneath them. Vegetation will help keep the sand in place, and the dune system will be designed to include walking and biking paths. "When you stand out on the beautiful dune system in the Netherlands, you can't tell which ones are real and which ones are artificial," said Brody.

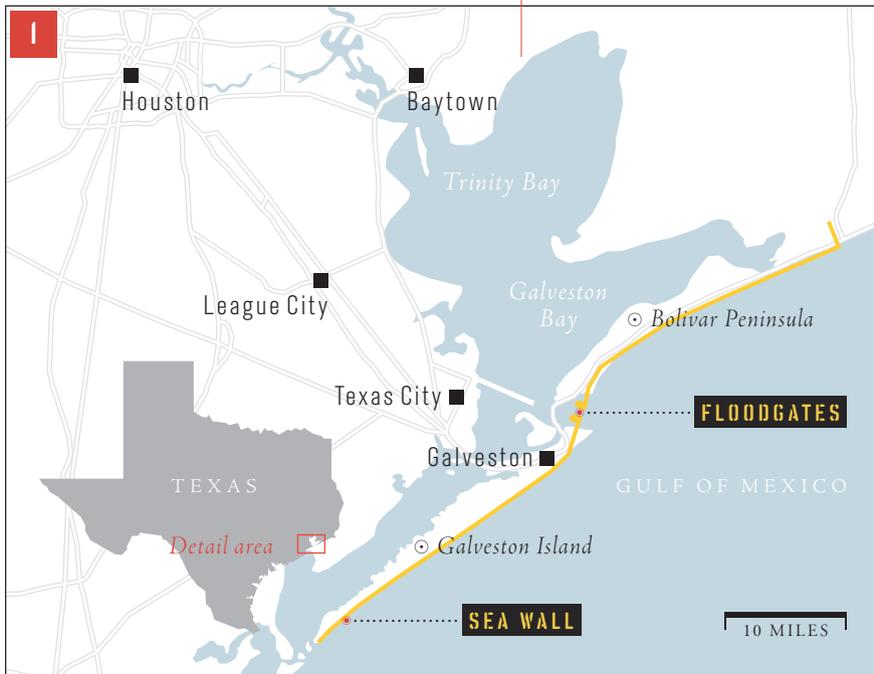
Such a plan is expected to boost tourism along the Texas Coast. But in a bigger sense, Galveston and Bolivar Peninsula will attract more investment with coastal protection in place. Businesses such as hotels, restaurants and visitor services will feel more confident that their ventures won't get washed away in the next storm, while insurance rates should decrease significantly.

Another key piece of the plan includes building a structure across the pass between Galveston Island and Bolivar Peninsula, known as Bolivar Roads, which is the entry to the Houston ship channel. Most of the structure would have submergible barriers (also known as environmental gates) that would drop down and affix to the ocean floor when a hurricane targets the coast. The structure would have an 800-foot opening for





**I) THE PROPOSED COASTAL BARRIER WOULD PROVIDE A SUBSTANTIAL ENHANCEMENT TO THE EXISTING GALVESTON SEAWALL WITH FLOODGATES THAT WOULD PROTECT GALVESTON, THE BOLIVAR PENINSULA, THE GALVESTON BAY AREA AND HOUSTON. THE BARRIER WOULD EXTEND ACROSS GALVESTON ISLAND AND THE BOLIVAR PENINSULA TO PROVIDE PROTECTION AGAINST ALL GULF SURGES. THE IKE DIKE'S DESIGN AND CONSTRUCTION WOULD BE CAPABLE OF WITHSTANDING 10,000-YEAR STORMS.**



### CATEGORY 5 PREVENTION

Hurricane Harvey evolved from a tropical depression to a major hurricane in less than 36 hours. It was the worst rain storm ever recorded in the continental U.S. More than 75 lives were lost, while storm damage affected more than 100,000 homes.

The devastation brought renewed attention to the Ike Dike coastal spine project, with coverage from 60 Minutes, CBS and CNN after the storm.

Although most of the damage from Hurricane Harvey was due to rain-induced flooding, storm surges remain a threat to Texans along the northern Gulf Coast. The Center for Texas Beaches and Shores at Texas A&M University at Galveston is developing solutions to mitigate future flooding in Houston.

Reducing risk takes on increasing importance as 1.1 million people have moved to the Gulf Coast

region since the devastation of Hurricane Ike, along with almost 137,000 new businesses. Meanwhile, rising sea levels and increasingly hot water have led to more water vapor being swept up and dumped on the coast. A hotter ocean means more energy, more power and greater intensity.

Gov. Abbott appointed Texas A&M University Chancellor John Sharp '72 to lead the Rebuild Texas initiative, a three-year relief effort to rebuild the 350-mile stretch of coast affected by Hurricane Harvey and "future proof" the Texas coast from similar weather damage. The coastal spine would protect the Houston area, the ship channel and residents in Galveston Island from storm surges in a Category 3 or higher hurricane.

Brody says Houston's flooding is symptomatic of a resiliency breakdown, adding that there must be a look at the broader region and a systemic review of the entire system.

ship traffic that could be closed during a storm. On each side of the opening, a gate on a ball and socket apparatus will swing together to close. The design is similar to the gates the Dutch installed to close off Rotterdam Harbor. "When you see them close, you know that something may be coming, but it's not getting through," said Merrell.

Environmentalists concerned about maintaining the proper mix of salinity in Galveston Bay—which is important for the overall health of the ecosystem—have expressed concerns about the structure across the pass. But the environmental gates would remain open most of the time to allow for water flow, and Merrell reported that some could be closed to adjust salinity input into the bay and maintain ecological integrity. The ecosystem behind the Dutch barriers has remained healthy, proving that a coastal spine is the smallest possible footprint.

While Texas A&M Galveston was developing the Ike Dike, other institutions were exploring different ideas for protecting the coast. One plan suggested building barriers around key infrastructure or important regions near the ship channel. Another recommended raising the level of a highway that ran along the ship channel. Aggie researchers find issues with both approaches because they emphasize protecting only certain areas around the coast. "We don't want to build little dikes and sea walls around different parts of the bay," said Brody. "With this kind of ad hoc approach, it's wealthy communities that are protected first. We want all sections protected equally."

An important tool for research on the Ike Dike has been the Coastal Atlas, which was developed at the CTBS in collaboration with the Hazard Reduction and Recovery Center at Texas A&M. The atlas

# **N**OW IS THE TIME TO BREAK THE CYCLE OF REBUILDING AND WAITING AND INSTEAD FORGE A NEW PATH OF PREVENTION—ONE THAT WILL PROTECT TEXANS, THEIR HOMES, BUSINESSES AND LIVES.”

(viewable at [give.am/CoastalAtlas](http://give.am/CoastalAtlas)) is a central access point for the public to examine geographic data related to 29 Texas coastal counties. Brody and his associates at the CTBS have created forecasting for flooding in these counties, both without any coastal protection and with proposed barriers. The software allows users to look at the data through 150 different filters, such as flood damage, elevation and estimated losses. Plus, a slider bar that moves across the screen allows users to see the drastic reduction in damage if the Ike Dike was in place.

## **THEY LIKE THE DIKE**

After many years spent developing the Ike Dike plan and discussing its benefits with the public, Merrell and Brody are beginning to hope that the project will get built. Houston Mayor Sylvester Turner gave the Ike Dike his strongest endorsement to date following Harvey, while at least 28 other leaders in coastal cities and counties also support the project.

Michel Bechtel, the mayor of Morgan’s Point, a community of 393 people on the ship channel, sees the plan as the smartest option for managing what can be humanly controlled. “We can’t do anything about the wind and the rainfall,” he said, “but we can certainly mitigate the storm surge. The Ike Dike is designed to do that.”

While the Ike Dike is on the White House’s list of national infrastructure projects to consider, there’s been little activity at the federal level. “My hope is that we have something in place in five years,” said Brody. “The worst that could happen is that there would be no action because of politics, meaning we’re sitting ducks in the next storm.” Brody and Merrell both believe that what eventually gets built could be adapted



**SAMUEL BRODY**

DIRECTOR, CENTER FOR  
TEXAS BEACHES AND SHORES,  
TEXAS A&M UNIVERSITY  
AT GALVESTON

as the global climate changes. “With sea levels rising, we may need to add on to the height over time,” said Merrell.

Continuing to research new technologies and changing climate conditions is an essential part of keeping the area safe, and this is what the CTBS will continue to do, even after the Ike Dike is built. To that end, the CTBS seeks a \$5 million endowment, with a naming opportunity available, to ensure that it stays ahead of coastal threats. “Funding would allow us to research and disseminate information on coastal resiliency and flood risk reduction, thereby protecting key assets, property and the lives of Texas residents,” said Brody. “Without funding, all the work we’ve done and the momentum we’ve gained will probably stop.”

Merrell considers protecting the coast and helping the region prosper part of his life’s work as an Aggie. “We’re a tribe. We do things for the state of Texas, for the nation and for the world,” he said. “Being an Aggie means caring about the state and doing things for it. And I do.” ©

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*Watch a video about the Ike Dike at [give.am/IkeDike](http://give.am/IkeDike).*

# Farsighted

BY DUNAE CRENWELGE '15

*In the 1980s, Charles Munnerlyn '62 revolutionized the optics industry with a new procedure that still helps millions achieve 20/20 vision: LASIK.*

## His family nickname is “Dr. Do It.”

“When you need something done, when there’s a repair problem, or the sink’s leaking, you call him,” said Rhonda Munnerlyn '93 in a 2009 video about her father-in-law. “He’s ‘Dr. Do It’ to us.”

Charles Munnerlyn '62 is indeed best characterized as a problem solver—of both small and large proportions.

In the 1980s, Munnerlyn revolutionized the optics industry by designing and building the first excimer laser system for vision correction. He also developed the core mathematical formula—the Munnerlyn Formula—still used today by ophthalmologists to dictate the amount of corneal tissue to be removed during laser vision correction.

Before his technology, corrective options for vision disorders such as myopia, hyperopia and astigmatism were unreliable and costly. But now, the procedure he fathered—more commonly known as LASIK—affords millions of people the freedom from wearing eyeglasses while achieving 20/20 vision.

## Eye on the Prize

A native Texan, Munnerlyn grew up in a series of rural towns. He fiddled with telescopes as a child and by his high school days, he was constructing optical instruments and taking photos with telescope-mounted cameras. At Texas A&M, he enrolled in physics, where only one optics course was offered at the time.

“I still remember my astronomy and math professor, Jack Kent. We called him

‘cube root Kent,’ because only the cube root of students in his class would pass,” Munnerlyn laughed. “But I learned a lot from him.”

After graduating with a degree in physics in 1962, marrying his wife Judy in 1963, and serving three years in the Air Force, Munnerlyn attended the Institute of Optics at the University of Rochester—the only university in the nation at the time to offer optics studies.

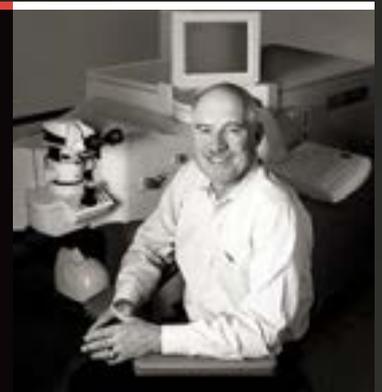
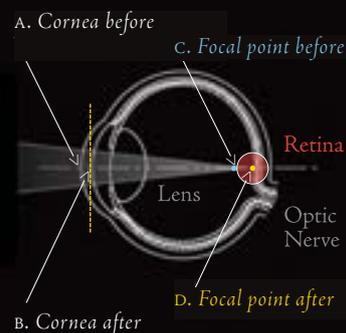
With a doctorate in optical engineering in hand in 1969, he embarked on a series of pioneering developments. As head of research and development for Tropel Inc., a company that designed lenses for applications such as Xerox copiers, Polaroid cameras and satellites, Munnerlyn designed the first device to digitally cal-

## How LASIK Surgery Works

The focal point for people with vision disorders is centered in front (example shown: myopia) or back (hyperopia) of the retina. In laser vision correction, an ophthalmologist removes minute bits of corneal tissue to achieve proper retina refraction.

culate refractive errors in the eye. This autorefractor substantially reduced the time it took optometrists to determine the amount of correction needed for a given patient. In 1979, he also developed an instrument to test pressure in the eye to detect glaucoma.

In 1983, Munnerlyn and Terry Clapham, an electrical engineer and longtime friend, began work on an exciting new technology—the excimer laser. It was an alternative to the common but controversial radial keratotomy procedure of the time, in which the surgeon corrected vision by making an incision on the periphery of

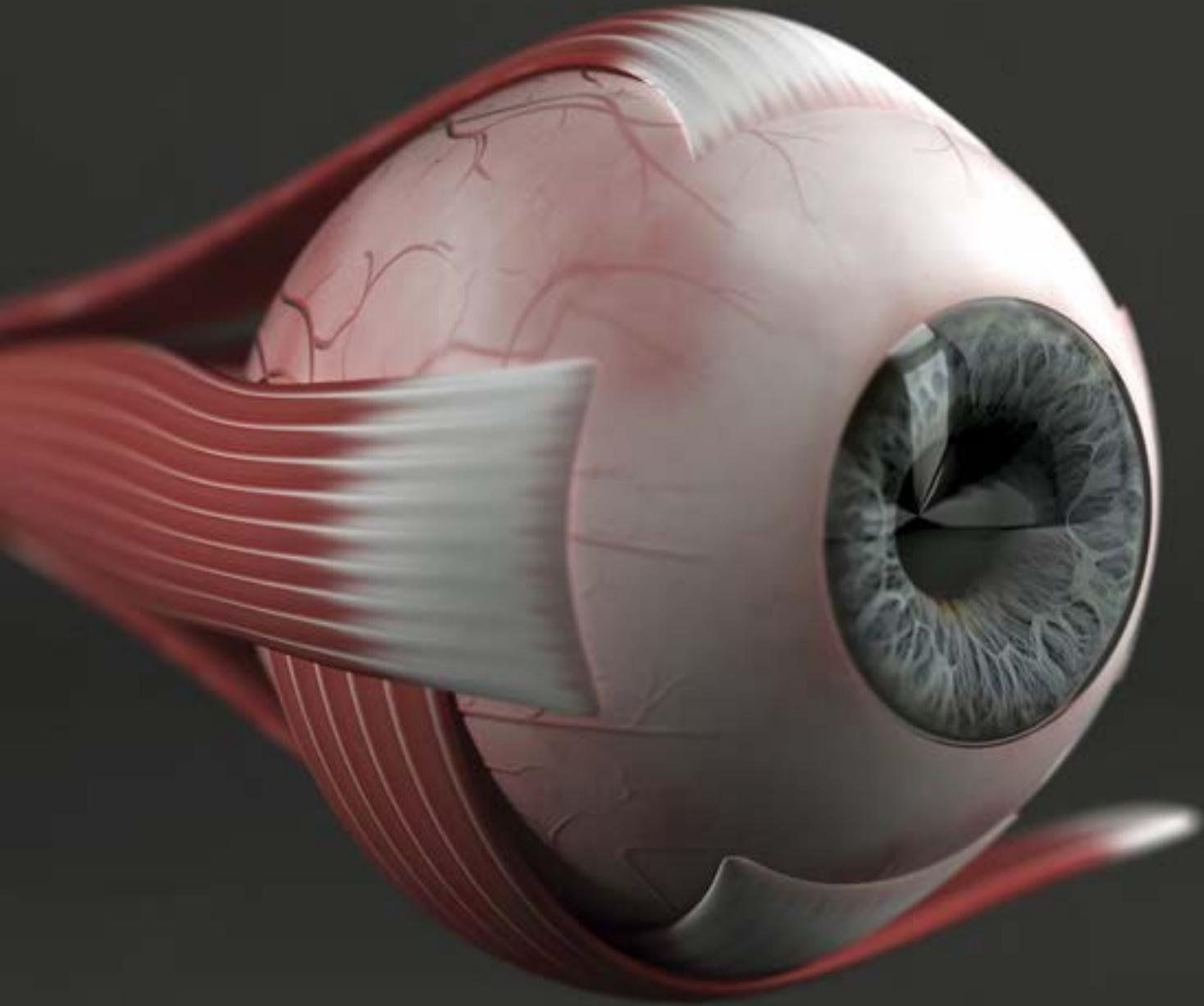


the cornea—the clear, outermost part of the eye. The pair’s proposed vision correction system instead used ultraviolet rays from an excimer laser to precisely remove tissue from the cornea. Since the laser didn’t generate significant heat, there was no danger of its beams penetrating the eye and damaging the retina.

“We knew that there had to be a better, safer way to improve vision,” Munnerlyn said. “We just had to prove it. I used advanced math from another of Dr. Kent’s

courses at Texas A&M to develop the core formula to calculate how much corneal tissue to remove.”

Munnerlyn and Clapham had been working on the excimer technology while employed by CooperVision. In 1987, they purchased the technology and formed VISX Incorporated with the intention of bringing their product to market. After 10 years of scientific refinement, experimentation overseas and in the United States, millions of dollars in investment and piles



*Charles Munnerlyn '62 (left) holds more than 30 U.S. patents in the optics field.*

of FDA paperwork, FDA approval for the excimer laser system was granted. Today, VISX—now part of Johnson & Johnson—remains the world's leading manufacturer of laser vision correction systems.

"I couldn't be happier with the worldwide success of the excimer laser method for vision correction," Munnerlyn said. "It's extremely rewarding to hear from people who credit LASIK corrective surgery with improving their lives."

### **True Visionary**

In recognition of his achievements, Munnerlyn is both a distinguished alumnus of Texas A&M and the University of Rochester. He and Judy have given back generously to Texas A&M's astronomy and physics programs, and have also established two scholarships for the Corps of Cadets and a mechanical engineering scholarship in memory of Charles' brother, James H. Munnerlyn '58. The Charles R. '62 and Judith G. Munnerlyn Astronomical Laboratory

and Space Engineering Building bears their names in acknowledgement.

"Texas A&M is one of the greatest universities in the world, and we've always been excited by its accomplishments in physics and astronomy," Munnerlyn said. "I'm proud to play a small part in that legacy."

For a man of great vision, Munnerlyn himself was not born with 20/20 eyesight and unfortunately, was not a candidate for LASIK treatment. Only lately has cataract

surgery improved his farsightedness—a condition that seems somehow appropriate for an innovator with such foresight. ©

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## A Noble Calling

*The Bush School of Government and Public Service celebrates 20 years of grooming public servants who impact the state, nation and world.*

BY DR. CHUCK HERMANN  
FOUNDING DIRECTOR  
THE BUSH SCHOOL OF GOVERNMENT AND PUBLIC SERVICE

**O**n September 10, 1997, Lyle Lovett '79 gave a concert in Rudder Auditorium to cap the dedication celebrations of Texas A&M University's new Bush School of Government and Public Service. That concert followed a two-day academic conference and formal dedication ceremony that involved President George H.W. Bush, Texas Gov. George W. Bush, university regents, officials, faculty and hundreds of enthusiastic citizens. The inaugural class of graduate students also attended—all 18 of them.

As the founding director, I was honored to lead the school during its initial years. At the time, I only dared dream that its visibility and reputation would rise so fast. Two decades later, the Bush School ranks among the nation's top graduate professional schools of public and international affairs, while most of our top peer schools are much older. The school is one of my passions, so much so that I recently co-authored and published a book with Sally Dee Wade titled "Called to Serve: The Bush School

## GEORGE BUSH

June 8, 2017

To the Readers of Spirit Magazine,

I have been asked to reflect on the significance of the 20th anniversary of the Bush School of Government and Public Service at Texas A&M. Those of us with a political background are supposed to be good with words — but the fact is the meaning of the Bush School, and especially its staff and students, escapes my powers of explanation.

It is already everything I hoped it would be, and more. And yet, I know the best is yet to be. I know our Bush School students will help to shape a better future not only here in Texas or the United States, but in dozens of countries around the world.

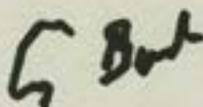
To a person, our students are passionate about service with integrity. They are hopeful, and resolved, and properly motivated in their determination to make a difference in this world.

And they are guided by a faculty and staff that blends the finest combination of practical experience and academic scholarship to inculcate these students with the values, and the vision, to realize their fullest potential.

At the Bush School, we are not just instructing or teaching these finest students from across America and around the world — we are hopefully inspiring them to engage a cause larger than themselves, not for fame or riches, but to help lift lives.

Now at 93 years, I know nothing is more important. Nothing is more Aggie-like. Nothing is more lasting.

All the best,



WALKER'S POINT, POST OFFICE BOX 492, KENNEBUNKPORT, MAINE 04046

PHONE (207) 967-5800 / FAX (207) 967-0255

*Former President George H.W. Bush wrote a letter commemorating the 20th anniversary of the Bush School of Government and Public Service.*

## Support the Bush School

You can help continue the legacy the Bush School has established in its first 20 years. With 409 graduate students and 49 full-time faculty members, the school needs student scholarships and fellowships as well as faculty fellowships, professorships and chairs. These gifts help recruit and retain outstanding students and faculty and support important research in the policy arenas.

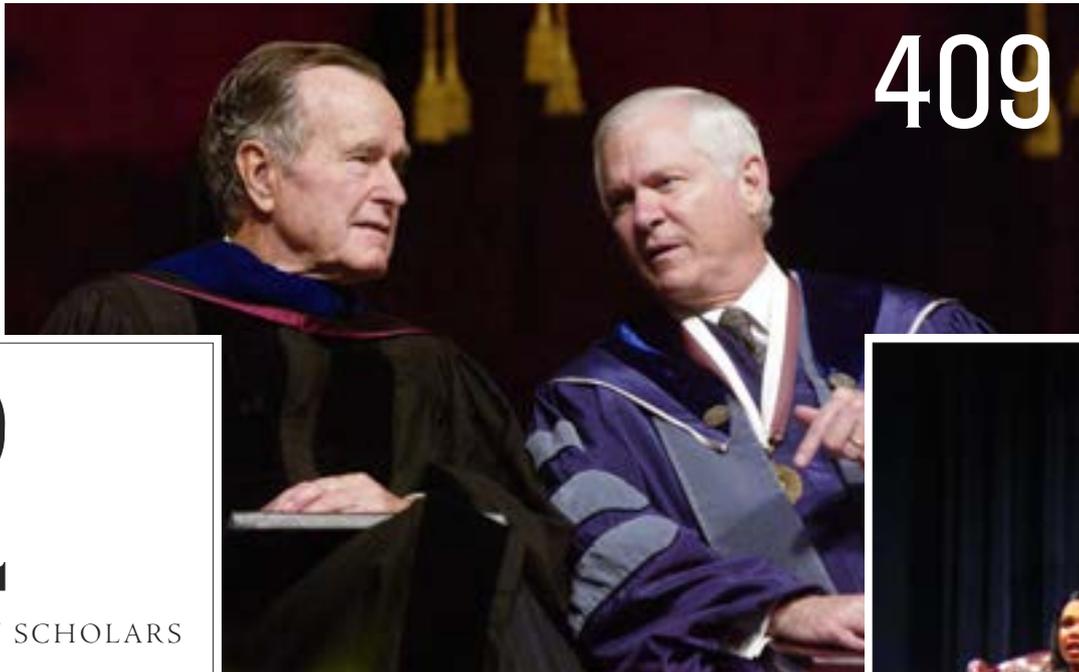
Additionally, the school seeks support for its three institutes, which are dedicated to innovative policy-oriented research on international affairs; trade and economics; and areas of science, technology and policy analysis. An initiative is also in place to advance the startup of several centers, including a new Center for Grand Strategy of the United States, an intellectual hub for the critical re-examination of current U.S. grand strategy. With your support, graduates and faculty of the school can make public service and leading by example their life calling.

Learn about scholarships at [give.am/MorganGray](http://give.am/MorganGray).

*Clockwise from top: Former President George H.W. Bush watches the Class of 2002 pitch their mortarboards; the George Bush Presidential Library and Museum; President Bush with former Texas A&M President Robert Gates; Former Secretary of State Condoleezza Rice speaks at a Scowcroft Institute event; President Bush visits with the late Senator Edward Kennedy and students; and Dr. Chuck Hermann with the former president.*



students pursuing graduate degrees



409

12

FULBRIGHT SCHOLARS



19

Ranking among public U.S. universities for public affairs programs, U.S. News and World Report (2016)



of Government and Public Service,” which chronicles its first two decades.

The project gave me time to reflect on what makes the Bush School experience so unique, and here’s the simple answer: It has never strayed from President Bush’s philosophy that public service is a noble calling. In sum, our country and the world need principled men and women who are educated to become leaders in nonprofit organizations and all levels of government. An extraordinary number of individuals have embraced this vision and made contributions to its realization, including Aggie former students, friends of the president, foundations, and faculty, staff and administrators.

Those who have invested so much in the rapid emergence of the school have been inspired by the determined, active engagement of President Bush. He and Barbara have engaged and vigorously promoted the school and its mission, from visiting classes and thanking donors to writing letters to prospective faculty and hosting meetings of the school’s board. And nowhere has President Bush’s engagement been more evident than in the visits of world leaders he has brought to College Station and into school classrooms. For example, the president and Mikhail Gorbachev once engaged in a class Q&A. Students have also participated in a panel discussion with former German Chancellor Helmut Kohl; attended a reception with the late Senator Edward Kennedy; and listened to Condoleezza Rice teach a class. Experiences like these make it abundantly clear how much President Bush cares about the school and its students.

### Culture Speaks Volumes

Over the years, President and Mrs. Bush have also admired the school’s faculty and showed an immense interest in the stu-

dents and their career plans. And rightly so! Bush School faculty are at the forefront of addressing critical public policy issues ranging from cost-effective public education and the successful practice of nuclear security to estimating water resources. In addition to researching policy questions, faculty also advise governments and nonprofit organizations.

Equally compelling are the public service positions that graduates fill in local and state government, nonprofit organizations and all branches of the federal government. For example, the Bush School has been highly successful in placing graduates in the U.S. Department of State’s Foreign Service and even more so in critical areas of the U.S. intelligence community. (In our book, Sally Dee Wade and I profile a sample of Bush School graduates working in the U.S. intelligence community. For security reasons, these individuals must remain anonymous, but we received permission to create a profile that combined the intelligence work of multiple graduates under the pseudonym, “Ms. Zoe Zebra.”)

Of course, while academics provide the most essential experience for students at the Bush School, it’s not all work and no play. The school has an important culture—an Aggie one, yes, but also some traditions entirely its own. One of my favorites is the student custom of rubbing President Bush’s bronze bust for good luck on exams, much like the main campus tradition of leaving pennies on Sully’s boots.

For years, Bush students have also participated in an annual softball game against members of their in-state rival school, the University of Texas’ Lyndon B. Johnson School of Public Affairs. For years, the winning team claimed a stuffed likeness of Texas’ small state mammal—an armadillo. While not particularly good-looking, the

“Dillo Award” (now replaced by a golden victory cup) is representative of the spirit of camaraderie that our students look to cultivate not only while on the field, but also as graduates working toward a bipartisan society. By the way, Texas A&M’s Bush School has won 11 of the 18 annual games.

### A Storied School

Twenty years have passed and memory fades, but I like to remind people how we got here. As President Bush sought a location for his presidential library, multiple universities bid for the opportunity. Only Texas A&M administrators and faculty cleverly recognized a core interest of the president. “Place your library on our campus,” they proposed, “and we will build adjacent to it the George Bush School of Government and Public Service.”

In their proposal to President Bush, Texas A&M officials devoted as many pages to describing a school of public service as to advancing their concept for a presidential library. In his letter choosing Texas A&M, President Bush mentioned the school as the first reason for accepting their offer. Since then, he has been a vigorous and active advocate engaging faculty and students in what he characterizes as the “noble calling” of public service. Undoubtedly, that notion of serving others—as much a part of the man as the school—will remain a distinguishing component of the Bush School’s DNA as its legacy continues. @

TO SUPPORT THE BUSH SCHOOL OF GOVERNMENT AND PUBLIC SERVICE, CONTACT:

MICHAEL BOTTIGLIERI '89  
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# The Road to \$4 Billion

Take a journey down the path of the *Lead by Example* campaign, from 2012 to the present.

While Texas A&M's third comprehensive campaign, *Lead by Example*, publicly launched in November 2015, the university began counting gifts toward the campaign on Jan. 1, 2012.

Donations of any size to the Texas A&M Foundation, The Association of Former Students, the 12th Man Foundation and the George H.W. Bush Presidential Library Foundation count toward the campaign total, which stands at \$2.79 billion as of Oct. 31. This



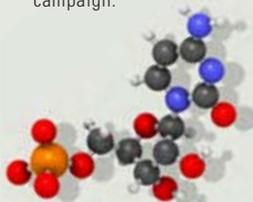
## 2012 →

### May

Zoe and Tony Buzbee '90 commit a lead \$3 million gift toward the Corps of Cadets' Quad renovation project. Their gift names the Quad's first Leadership Learning Center, while multimillion-dollar contributions from Susan and Michael J. Plank '83, Stephen C. Ash '87 and H. Grady Ash Jr. '58 later support the construction and naming of three more learning centers. The renovations—the largest since the Quad's construction in 1939—have transformed the space into a modern living-learning environment.

### June

Professors and husband-and-wife pair John Gladysz and Janet Bluemel make substantial provisions in their estate to create two endowed faculty chairs and an unrestricted fund in chemistry. Texas A&M faculty have given more than \$28 million toward the campaign.



### August

Reta Haynes establishes the Haynes Scholars Program, which provides four-year scholarships equal to 50 percent or more of the cost of attending Texas A&M to outstanding students. Later gifts from Mrs. Haynes during the campaign support additional scholarships; enhance the Harold J. Haynes Dean's Chair in the College of Engineering; and establish the Reta Haynes Dean's Chair in the College of Education and Human Development. With these commitments, Mrs. Haynes becomes one of Texas A&M's most generous supporters.

### August

Thanks to a \$2 million gift from the Galveston-based Abe and Annie Seibel Foundation, Texas A&M University at Galveston receives funding for construction of a proposed Seibel Student Learning Center on campus. The center supports student achievement and excellence.



## 2013 →

### November

The Cynthia and George Mitchell Foundation continues to grow Texas A&M's physics and astronomy department with a \$19.5 million gift supporting the George P. and Cynthia Woods Mitchell Institute for Fundamental Physics and Astronomy. The Mitchells' total commitments to Texas A&M exceed \$95 million, including more than \$88 million that helped build two new physics buildings and establish a world-class astronomy program.

### January

Chevron Corp. gives \$750,000 to create the Chevron Center of Research Excellence Basin Modeling Program in the College of Geosciences' Berg-Hughes Center for Petroleum and Sedimentary Systems. The program provides state-of-the-art educational training for earth science students and facilitates research in basin modeling to help geoscientists find possible oil and gas reserves. Chevron renewed its support of the center in 2016.

### May

The Texas A&M University System Board of Regents approves a \$485 million expansion of Kyle Field. Former students and friends of Texas A&M rallied to contribute more than \$229 million in private funds toward the cause through the 12th Man Foundation. Kyle Field is now the largest college football stadium in the Southeastern Conference and the fourth largest in the nation.

represents 70 percent of the \$4 billion goal by 2020. More than 177,000 former students and other friends of the university have contributed for a total of more than 580,000 gifts.

The path that follows illustrates some major campaign highlights thus far. Over the course of the last five years, positive changes have grown out of donors' generosity and vision: existing programs have been endowed, new buildings are under construction and in-

novative initiatives are underway. Together, former students and friends of the university have increased Texas A&M's ability to support its students, faculty, athletic programs, college-based activities and student organizations. Your continued support will propel Texas A&M further down the road to \$4 billion.



2014 →



2015 →

**May**

SuSu and Mark Fischer '72 give \$12 million toward construction of a new Engineering Education Complex, set to open in fall 2018. The 525,000-square-foot facility, dedicated to undergraduate engineering education, will be the largest academic building on campus. Construction is later supplemented by other multimillion-dollar gifts, including \$10 million from Amy '84 and Tim Leach '82 and \$15 million from the Zachry Group to name the facility the Zachry Engineering Education Complex. More than \$65 million has been raised toward the project thus far.

**August**

Thanks to an \$850,000 gift from the Corpus Christi-based Ed Rachal Foundation, Texas A&M University at Galveston cadets gain more opportunities to learn through experience. The organization's gift funds two new ship simulators, which train cadets by reproducing real-life scenarios such as weather hazards, ship accidents and traffic control situations.

**May**

Construction of the Thomas G. Hildebrand DVM '56 Equine Complex is completed. The state-of-the-art facility provides a new, on-campus home for equine teaching, research and outreach as well as a dedicated space for Texas A&M's Equestrian Team. More than \$32 million from donors, including a lead \$30 million gift-in-kind, supported construction. Additionally, a \$2.5 million grant from the Burnett Foundation was matched by other funds to establish the \$5 million Glenn Blodgett Equine Chair supporting the director of the equine initiative in perpetuity. Together, these gifts help establish a premier equine program at Texas A&M.

**June**

Robert Aragona '71 makes a planned gift of life insurance to benefit the College of Medicine. His gift will provide funding for research opportunities in pediatric cardiology and oncology.



**August**

After a project is initiated in 2011 to transform a 40-acre area of West Campus into The Gardens at Texas A&M University, Amy '84 and Tim Leach '82 contribute a lead \$3 million gift. Currently under development, The Gardens will be both a beautiful campus attraction and an outdoor teaching laboratory where faculty and staff can educate students and the public on valuable concepts about food production, water conservation, landscape beauty and environmental sustainability. More than \$10.9 million has been raised toward Phase I of the project.

**September**

Anne and Hank Paup '70 contribute the first \$125,000 endowed Dean's Scholarship for the School of Law. The couple's commitment to the law school has encouraged other former students and friends of Texas A&M to fund 19 more of these scholarships to attract bright minds and distinctive students to the school.

**January**

The Halliburton Foundation endows the Halliburton Engineering Global Program Fund with a \$5 million gift. The contribution boosts the College of Engineering's global study programs and ensures that more engineers have the chance to work, study and research abroad.



# Campaign Numbers (JAN. 2012 TO OCT. 2017)

(\$ MILLIONS)

## New Endowments

**1,606**

Scholarships and Graduate Fellowships

**34**

Faculty Chairs

**27**

Professorships

**29**

Faculty Fellowships

**312**

Other Endowments\*

\*Includes those supporting student organizations, college-based programs and excellence funds, study abroad initiatives and the university libraries, among others.

## Planned Gifts During the Campaign

**700**

Number of planned gifts booked

**\$632.4**

Total value of planned gifts booked



2016

## April

A gift from the Zachry Group establishes a new leadership program in the College of Engineering. Through exposure to business, leadership and citizenship perspectives, the five-semester program annually gives 32 competitively-selected engineering students deeper insight into their individual potential and career possibilities.



## October

Two Aggie engineers and their wives, April and Jay Graham '92 and Gina and Anthony Bahr '91, fund a \$12 million unprecedented collaboration between the colleges of business and engineering to ensure that Texas A&M graduates remain leaders in the energy sector. The new Petroleum Ventures Program not only serves petroleum engineers who want to delve into private equity and new venture opportunities, but also business majors who aspire to jobs as oil industry analysts or energy investment bankers.

## November

Elizabeth and Drayton McLane complete payments on a \$1 million endowed gift for fellowships and internships for graduate students at The Bush School of Government and Public Service, maximizing the school's ability to prepare future leaders in all levels of government. The couple later funds another fellowship for international affairs students in honor of Ryan Crocker, former U.S. ambassador to Afghanistan and former Bush School dean.

## February

Lead \$100,000 gifts from Joe Sprague '70 and Ronald Skaggs '65 initiate a campaign to name a \$1 million faculty chair in the College of Architecture after George Mann (below), founder of Texas A&M's architecture program in health facility design. Since then, many more of Professor Mann's former students have contributed to the cause. Once completely funded, the chair will support the director of the Center for Health Systems and Design and advance Texas A&M's prowess in this critical specialty.



## February

The Ed Rachal Foundation brings the proposed Music Activities Center one step closer to breaking ground with a \$10 million gift to name the facility in honor of John D. White '70 and Robert L. Walker '58. The new center celebrated an official groundbreaking ceremony on Sept. 8 and will open in fall 2019 as the new home for Texas A&M's choirs, bands and orchestras. To date, more than \$19.4 million in private funds have brought the project to fruition.

## April

Don and Ellie Knauss create one of the first Aggie Veteran Freedom Scholarships, the largest of three levels of scholarship support for Texas A&M veterans and their spouses. Since the Division of Student Affairs' campaign to raise more veteran scholarships began in November 2015, 52 endowed scholarships amounting to more than \$2.9 million have been raised. The couple increased their commitment in 2017, contributing more than \$2 million for both endowed and non-endowed veteran scholarships.

## July

Letty '88 and John Spicer '83 express their belief in education through a planned gift to create multiple Foundation Excellence Awards (FEA) and Endowed Opportunity Awards (EOA) for future Aggies in Mays Business School and the College of Engineering. While FEAs typically support students from underrepresented groups, EOAs are awarded based on students' academic record, leadership abilities and evidence of financial need. During the campaign, donors have funded 70 FEAs and 67 EOAs totaling more than \$11.8 million.

# \$89.1

Total value of realized planned gifts

## Top Planned Gift Amounts Raised by College

<b>\$91.1</b>	Veterinary Medicine & Biomedical Sciences
<b>\$60.1</b>	College of Engineering
<b>\$34.3</b>	Agriculture and Life Sciences
<b>\$33.6</b>	Mays Business School

## Endowed-Level Gifts Below \$1 Million



2017 →

### August

A \$20 million gift from Jon Hagler '58 names the Hagler Institute for Advanced Study and fuels Texas A&M's brightest thinkers. The institute, a major catalyst for bringing world-renowned scholars to Texas A&M to collaborate on groundbreaking research, now enjoys a permanent source of funding due to Hagler's generosity.

### August

The Humanities Visualization Space in the College of Liberal Arts receives touchscreen upgrades thanks to a gift from Chris '86 and Sally Gavras '86. The space is a high-tech facility aimed at improving humanities research through technology. Students can now analyze and compare digitized works of art and literature with ease.



### March

The Mays Family Foundation and the Charles Koch Foundation partner on a multimillion-dollar gift to establish an Innovation Research Center in Mays Business School. Drawing from academic disciplines across the Texas A&M campus, the research-oriented center will engage in the study of innovation to advance knowledge in the field.

### April

Mays Business School receives its largest single commitment in school history from the Mays Family Foundation. The \$25 million contribution will support the proposed expansion of the school's headquarters, the Wehner Building, as well as boost entrepreneurial and innovation initiatives and Mays branding opportunities.

### May

Before his passing in August 2017, the late Arthur "Artie" McFerrin Jr. '65 and his wife Dorothy give \$10 million to name the McFerrin Center for Entrepreneurship in Mays Business School. The funding provides a boost for the center's 28 programs and positions Texas A&M as one of the nation's leading schools for aspiring entrepreneurs.



### August

More than 20,000 donors to the George H.W. Bush Presidential Library Foundation contributed nearly \$18 million toward the campaign thus far.

### August

Since 1879, The Association of Former Students has supported and strengthened the Aggie Network, made up of current and former students, faculty, staff, Aggie parents and friends of Texas A&M. The Association uses gifts of all types and sizes to foster academic excellence at Texas A&M, further the cultivation of Aggie experiences and help connect generations of Aggies, ensuring the core values and traditions that make Texas A&M unique are passed on from generation to generation. As of August, more than 102,000 former students and friends contributed more than \$78 million to the campaign through The Association.



The Texas A&M Foundation unites generosity and vision to raise and manage major endowed gifts that support the future of Texas A&M University.

[TXAMFOUNDATION.COM](http://TXAMFOUNDATION.COM)

T E X A S  
**A&M**  
FOUNDATION

The George H.W. Bush Presidential Library Foundation is dedicated to preserving the historic legacy of President George H.W. Bush by supporting education and scholarship programs.

[BUSH41.ORG](http://BUSH41.ORG)

FOUR WAYS TO  
**LEAD**  
*by* EXAMPLE

[LEADBYEXAMPLE.TAMU.EDU](http://LEADBYEXAMPLE.TAMU.EDU)



The 12th Man Foundation funds scholarships, programs and facilities in support of championship athletics.

[12THMANFOUNDATION.COM](http://12THMANFOUNDATION.COM)



The Association raises the university's Annual Fund, which supports both current and former student activities, academics and traditions.

[AGGIENETWORK.COM](http://AGGIENETWORK.COM)

**Health care is my passion.** At the end of my life, I want to say that I have helped a country, city, community or village shift from poor to quality health care. I am studying to be a global pediatric surgeon, and I dream of advocating for improved federal and international health care policies.

**It's a miracle that I'm at Texas A&M.** Growing up, my parents applied annually for the Diversity Visa Lottery, which makes available 50,000 permanent resident visas annually to persons from countries with low rates of immigration to the U.S. A computer randomly selects the application numbers, and my family was chosen in 2007. Now, I'm an American citizen.

**This is what the Corps of Cadets is about:** having no clue who you are, then slowly but surely figuring it out. The Corps shapes you. I always wanted to join the military, but I knew I couldn't because I was born with sickle cell anemia. When I came to Texas A&M, I thought, 'This is my chance for a military experience.' I saw an organization that would make me a better person—one that would discipline me and give me the opportunity to lead.

**The American dream is alive.** I've come from Nigeria to this wonderful school where people encourage me. Now it is up to me to work hard, believe and pray that one day I can inspire others. I didn't have a dime

coming to Texas A&M, and I didn't even use a computer growing up. Luckily, scholarships and loan options were available. I can go to school and become the person that I want to be. So, is the American dream alive? Yes, without a doubt.

**I am so thankful.** Several Sul Ross Corps Scholarships and Endowed Opportunity Awards funded by donors through the Texas A&M Foundation have supported my Aggie education. These reduce my loans and enable me to attend Texas A&M and participate in extracurricular organizations. ©

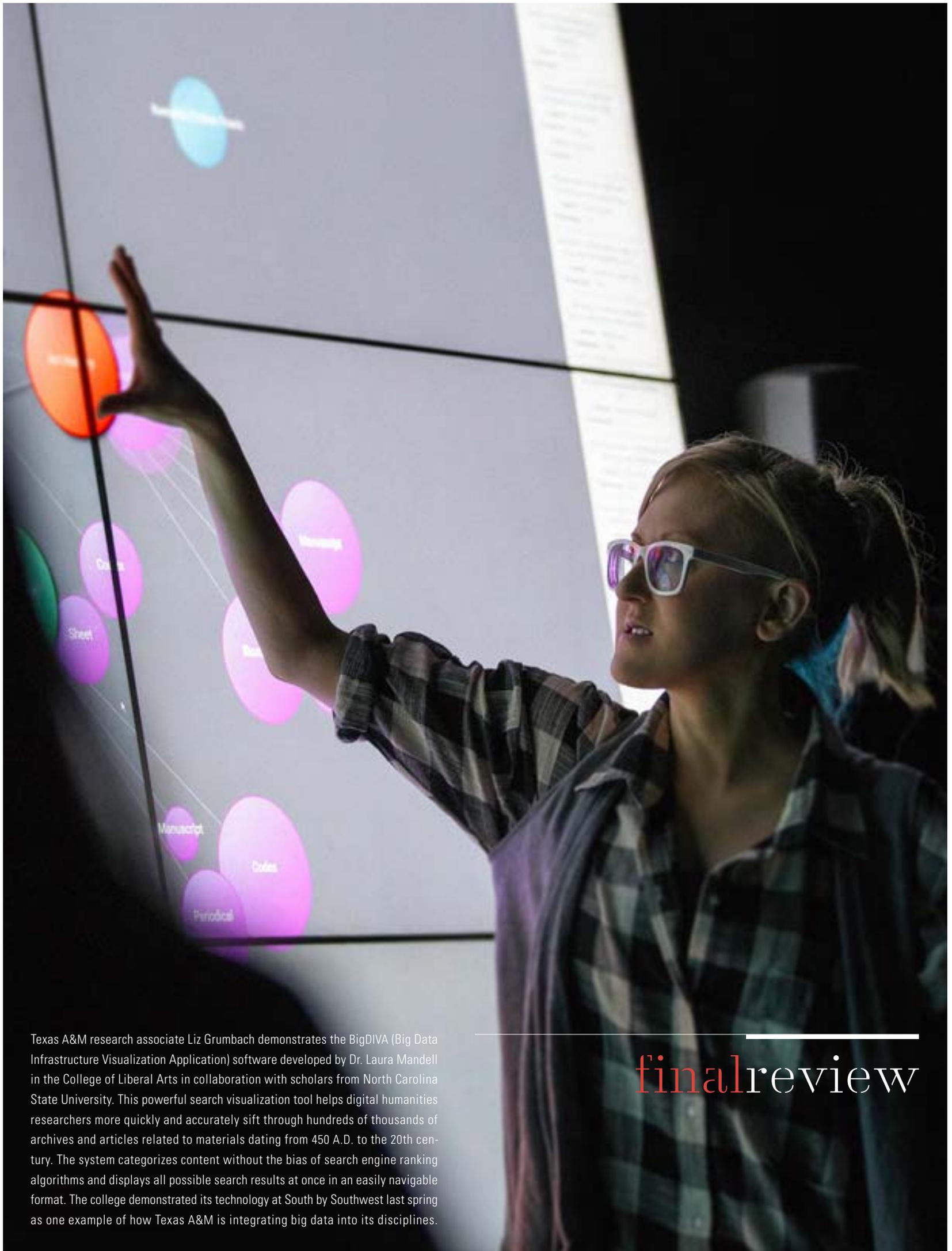


## Future Leaders

A SERIES ABOUT AGGIES WHO WILL  
IMPACT THE WORLD

*Meet Eunice Fafiyebi '17, a Texas A&M Foundation Maroon Coat and public health major whose odyssey has taken her from Ibadan, Nigeria, to Texas A&M University.*

BY SAVANNA HOOVER '18



Texas A&M research associate Liz Grumbach demonstrates the BigDIVA (Big Data Infrastructure Visualization Application) software developed by Dr. Laura Mandell in the College of Liberal Arts in collaboration with scholars from North Carolina State University. This powerful search visualization tool helps digital humanities researchers more quickly and accurately sift through hundreds of thousands of archives and articles related to materials dating from 450 A.D. to the 20th century. The system categorizes content without the bias of search engine ranking algorithms and displays all possible search results at once in an easily navigable format. The college demonstrated its technology at South by Southwest last spring as one example of how Texas A&M is integrating big data into its disciplines.

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