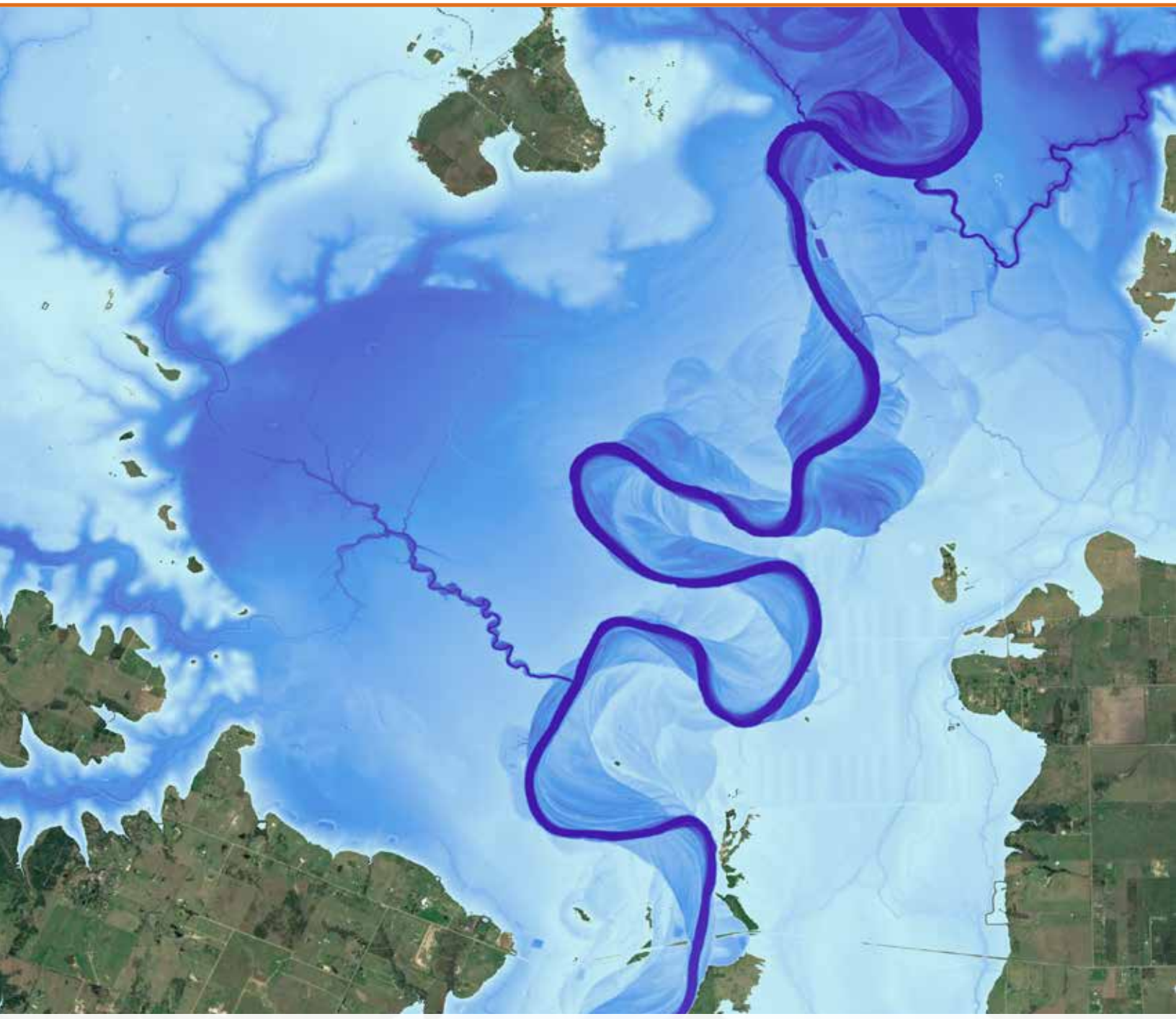
SUMMER 2018

PEOPLE + PLANET

THE MAGAZINE OF THE DEPARTMENT OF CIVIL, ARCHITECTURAL AND ENVIRONMENTAL ENGINEERING AT THE UNIVERSITY OF TEXAS AT AUSTIN



The University of Texas at Austin
Civil, Architectural and Environmental Engineering
Cockrell School of Engineering

IN THIS ISSUE

FROM THE CHAIR

NOW IS THE TIME FOR NEW IDEAS AND AMBITIONS, for communities to work together to solve the many challenges facing society. Our department has a rich history of producing innovations and innovators, world class designers and builders, leading practitioners and public servants. I am honored and excited to lead this outstanding department — what starts here really does change the world!

A few days before Hurricane Harvey hit the Texas coast, I was on Mustang Island running tests with graduate student researchers, faculty colleague Ken Stokoe and alumnus Berry Grubbs (M.S. 1965). We were at the same site where Berry conducted groundbreaking field tests as a grad student working with professor Lymon Reese. I could not help but think of how cool it was to be there with students, alumni and teachers working on similar research related to energy production—this time offshore wind turbines. I am proud of the work we do yesterday and today.

I am also proud of how our community rises to the occasion no matter how difficult or challenging. In this issue of our magazine, you will learn how our faculty helped during the hurricane, flooding and aftermath. I am particularly impressed by how our students worked at call centers and led volunteer relief and clean-up efforts.

After 25 years here as a teacher and researcher, I am still amazed every day by our students, and I will do my best to serve them. Three areas of emphasis for me are ensuring student success, providing academic experiences that put students closer to industry and the public and making sure we are leading the major transformations unfolding in civil, architectural and environmental engineering.

Robert Gilbert
Chair, Department of Civil, Architectural and Environmental Engineering
Cockrell Family Chair of Departmental Leadership #3
Brunswick-Abernathy Regents Professorship in Soil Dynamics & Geotechnical Engineering

FEATURES

IN THE DEPARTMENT

People + Planet is published each spring semester for alumni and friends of the Department of Civil, Architectural and Environmental Engineering in the Cockrell School of Engineering at The University of Texas at Austin.

KEEPING UP THE MOMENTUM

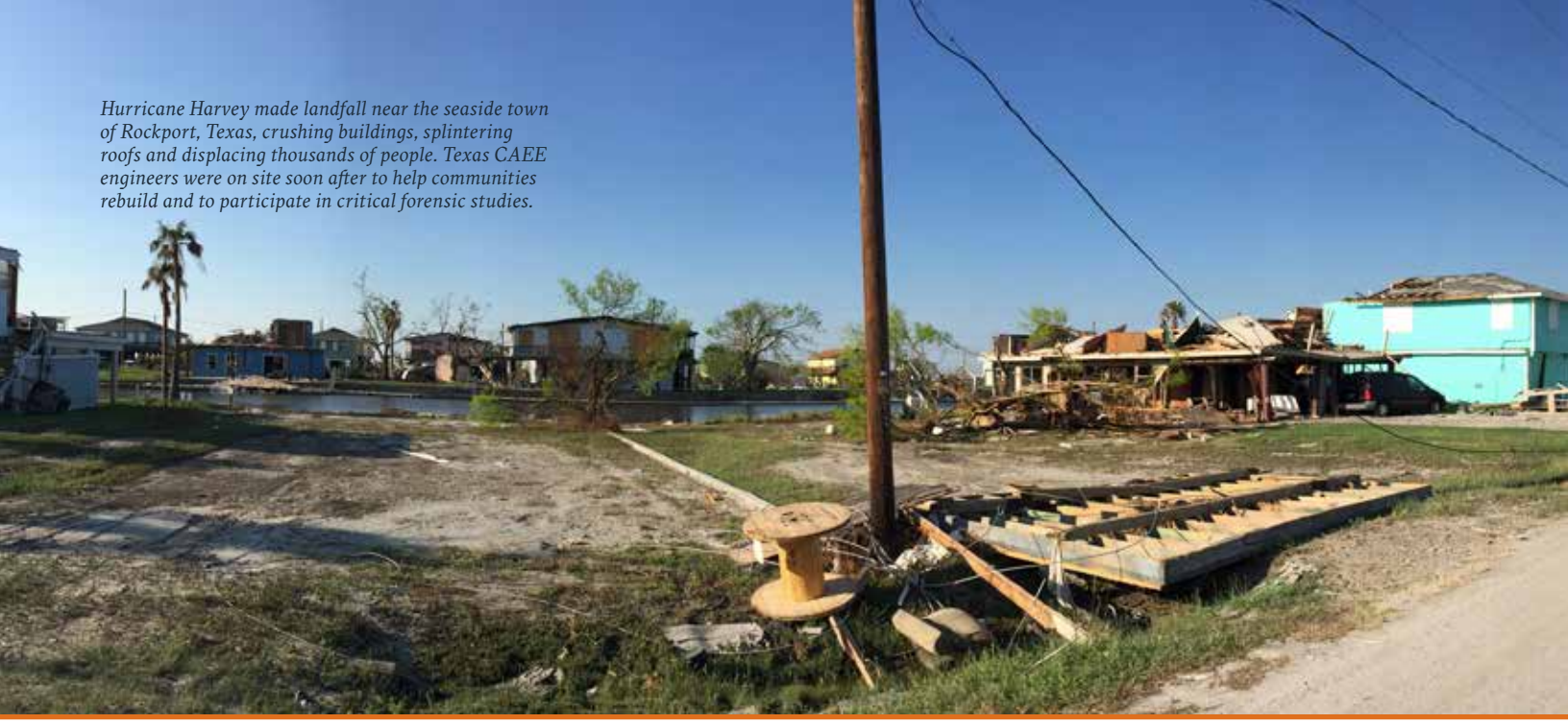
A new home for advising and administrative offices

As part of the department's ongoing goal of enhancing the student experience, our central office was recently renovated. A reimagined space for student advising and administrative resources was completed in early March, keeping the momentum from the excitement of our new undergraduate environmental engineering degree and architectural engineering design studio.

Researchers capture and preserve digital 3D models of damaged steel buildings in Rockport, Texas. This data will help researchers better understand the behavior of steel structures subjected to high winds and to advance new design methods.

RESPONDING TO HURRICANE HARVEY

As Hurricane Harvey evolved from forecast to disaster, our engineers were on the front line, using their expertise to help protect the citizens of Texas during one of the state's worst large-scale emergencies.



Hurricane Harvey made landfall near the seaside town of Rockport, Texas, crushing buildings, splintering roofs and displacing thousands of people. Texas CAEE engineers were on site soon after to help communities rebuild and to participate in critical forensic studies.

Before the Storm

For three years, professor David Maidment and a team in the Cockrell School of Engineering's Center for Water and the Environment (CWE) helped the National Oceanic and Atmospheric Administration (NOAA) prepare the National Water Model. The model, which launched in August 2016, is a real-time forecasting tool that simulates and forecasts how water moves throughout the nation's rivers and streams, including 190,000 miles of rivers and streams in Texas.

Over the past year, Maidment and CWE researchers have also been working with the Texas Division of Emergency Management (TDEM) to develop a Texas Flood Response System to leverage the water forecasting from the National Water Model and transform that into a flood response system for the state of Texas.

His team also compiled 9.2 million Address Points from Emergency Communications Districts throughout Texas, which are used for dispatching emergency response vehicles by 911 systems. This Address Point map helps to assess how many people are impacted when a particular community is flooded.

'We are Facing a Catastrophe'

As Category 4 Hurricane Harvey made landfall causing major destruction along the Texas coast, meteorologists soon began to issue separate storm surge warnings of disastrous flooding. After looking at data based on the current and expected precipitation and flows across Texas, Maidment saw the writing on the wall. A historic flood was inevitable.

Maidment recognized that despite the state's best efforts to assess and respond to the weather, public safety agencies and their first responders would be overwhelmed and their ability to protect people and their property would be drastically diminished. He told his CWE research colleagues to prepare for the worst as he realized, "we are facing a catastrophe."

As predicted, Harvey regained strength after circling back to the Gulf, bringing a second wave of severe weather to the Houston area after it had already been pounded by heavy thunderstorms and tornadoes in some areas. Many families were rescued from their homes or were under mandatory evacuation due to rapidly rising waters before the heaviest rainfall even began.

Houston received the brunt of Harvey's rain, with parts of the city receiving more than 50 inches. The storm made its final landfall in East Texas and Louisiana, dropping dozens of inches of rain on Port Arthur and Beaumont for days.

Data and Supercomputers Put to the Test

As flooding conditions dramatically worsened, public safety officials needed information to quickly organize large scale disaster relief. A real time flood inundation map of the impacted area was desperately needed to help figure out the best plan for helping people in the vast flooded zone and how to quickly and accurately get information out from emergency management channels to first response personnel.

TDEM requested the mobilization of the National Weather Center to assist with flood inundation mapping in response to Hurricane Harvey. Maidment and his team offered their technical support by engaging with UT Austin's Texas Advanced Computing Center (TACC). They provided the center with terrain data and analyses and computer code for the map.

In the high-performance computing environment at TACC, a map of the impacted zone, which included nearly 90 counties and 40,000 miles of flooded rivers and streams, was generated. TDEM subsequently combined that with flood mapping from other sources and swiftly delivered Gov. Greg Abbott a map of the overall impact of Hurricane Harvey in Texas.

State of Recovery

Researchers made significant contributions to public safety through their technical analysis and use of advanced computing during and after the worst-recorded storm in U.S. history. The collaboration between the academic community, the National Weather Service and local and state emergency response communities was put to the test during a time of chaos, when information was needed quickly so that decisions could be made and lives saved.

As massive cleanup and recovery is underway in Southeast Texas and the Gulf Coast, Maidment is thinking about the way ahead for Texas. Continued investment in national and state water data infrastructure and learning from Harvey's archived data are both integral. This data will help the research community and future engineers understand how such large and sustained flooding and rainfall events could have occurred and how critical infrastructures should be designed.

"Hurricane Harvey was the first severe flooding event where flood inundation mapping was created for thousands of miles of streams and rivers in real-time. With the experience gained in this event, Texas flood responders will be able to better plan for future large-scale floods in the state," Maidment said.

The Aftermath

Significant structural and ecological damage occurred along the coast, and historic floods left behind epic damage in 50 counties throughout the state, making streets and parts of populated cities unrecognizable. Floodwaters knocked out water and water treatment infrastructure in areas such as Beaumont, and many other water utilities struggled to stay online. Texas CAEE researchers have been helping to protect Texas citizens since the hurricane made landfall and are addressing lingering questions about health risks and rebuilding that will take months, if not years, to answer.

Water

Faculty and students in the environmental and water resources engineering program played an integral role in protecting public health by monitoring the impact of extreme flooding on the water treatment infrastructure. Students and faculty dedicated long hours to assist with the immediate needs after the flooding but also engaged with several communities to evaluate system recovery.

Desmond Lawler, Lynn Katz, Kerry Kinney, Navid Saleh and Mary Jo Kirisits helped with the Texas Commission on Environmental Quality's disaster efforts to assess damage of wastewater treatment plants. They worked with students to make over 300 phone calls to treatment plants to determine which collection systems were in operation and the extent of damage at each plant. They also provided advice to businesses on temporary water options, made recommendations to water utilities regarding plant operation recovery and traveled to Victoria and Rockport to take field measurements and monitor the quality of drinking water distribution systems as treatment plants came back online.

Structural Safety

As part of a large multidisciplinary team sponsored by the National Science Foundation's GEER Association, Texas CAEE researchers Chadi El Mohtar and Fernanda Leite were deployed to Houston and the Texas coast for differing reconnaissance efforts. Accompanied by CAEE graduate students, El Mohtar's team focused on assessing the performance of Houston's Addicks and Barker dams from a geotechnical standpoint. The dams were also inspected for damage and their performance was documented in terms of how they impacted downtown flooding.

Leite and her students surveyed structural wind damage in Rockport as part of the "rapid scan team" along with Rutgers University. Equipped with vehicle-mounted LiDAR and land-based laser scanners, they collected data to generate a 3D scan of the area. Leite's team also partnered with Princeton University to perform storm surge modeling of the area. They hope to better understand the impact of this storm to ultimately help engineers design more resilient structures.

Clean Up and Rebuilding

Texas CAEE students were eager to provide aid to communities impacted by the hurricane and quickly coordinated two student organization volunteer trips soon after the historical storm. With the guidance of disaster relief agencies, students from the UT chapters of American Society of Civil Engineers and Architectural Engineering Institute traveled to Beaumont and Rockport for clean-up and construction rebuilding.

Assistant professor Patricia Clayton served as faculty advisor for the volunteer trips. "Both teams did a lot of work to help people rebuild their communities and lives," she said. "They removed debris from gutted homes, deconstructed porches, removed fencing and tree limbs and sorted boxes of donated materials."

TEXAS CAEE — THE BIG PICTURE

Q&A WITH NEW DEPARTMENT CHAIR ROBERT GILBERT

Robert Gilbert began serving as department chair in September 2017. He is an expert in geotechnical engineering and risk management and an award-winning professor who has been part of the Cockrell School of Engineering faculty for 25 years. We sat down with him to examine some big picture questions about the future of the department and the civil engineering discipline.

What are our strengths?

Our department has a quiet, distinguished strength. We are well known across the country and the world for the work we do and our style of collaboration. I expect we will be ranked No. 1 in the United States in the near future.

We have outstanding students. They want to be here, to be a part of what we can provide them through education and research. They are the reason why we are here, and because we have great students we attract world-class faculty.

Historically, we've always had a great group of faculty, many of them starting in the 1960s when there was a big boom in spending on engineering and science. They built the department into what it is today. While many of these giants are now retiring, we are fortunate to have a fantastic group of young and mid-career faculty bringing new expertise and ideas to the department.

Long before it was a buzzword we have been providing experiential learning. Laboratory experiences have always been built into our courses and every single student takes them. As first-year students, they have hands-on labs to learn about civil engineering materials, fluid mechanics and measurements in the field. As upper-level students they work in teams on real-world projects under the guidance of professional engineer mentors through our capstone design courses. We will continue to provide these experiences and even expand on them.

We also have fantastic alumni who are successful, well-connected and appreciative of the education they received at UT. They support us without hesitation. Since I have been at this university, our alumni have been asking what they can do for us and our students.

Our alumni are important to our department's success because they lead by example and often mentor our recent graduates. Alumni show our students what they can accomplish and contribute to the world once they enter the workforce.

What can we improve?

I'd like to build onto the areas where we already excel and make them even better. We are always looking at ways to help students and to maximize the student experience so that it is not only memorable but also impacts their future careers and who they are as people.

One of the ways this can be done is making our internship program stronger. I am a proponent of learning by doing. Experiential learning in the classroom is one way of doing that and another way is for students to work for engineering firms.

In the future, I would like for it to be an expectation that our students have internships for at least two summers at engineering firms before they graduate. It is a great benefit to their education, can connect them to our alumni and gives companies a recruiting advantage.

I would also like to find a new way to financially support our graduate students. Our graduate program attracts the top talent from around the world and most of them require financial assistance. Industry-supported graduate fellowships would be another win-win for our students and the organizations that hire them.

We also need to focus on our students after they graduate. I would like to better connect our comprehensive community and improve upon our resources for alumni. I'd like them to know they are still a part of our engineering family even after they leave and that we're there for them, ready to help however we can, just like they are ready to help us.

I'd also like to strengthen ties to K-12 institutions so that we can recruit even more great students. I think if you are a bright kid, you should want to be a civil, architectural or environmental engineer because what we do is so important to society. Right now, a lot of really sharp kids are not considering our degrees and I want to help change that. We do the coolest things! We impact the world with the work we do and make it a better place. We are the ones responsible for making it civilized and are developing the systems to make all kinds of new technologies useful, safer and less harmful to the planet. That should be exciting to kids.

Our field rarely puts our chief engineers up on a pedestal for everyone to celebrate, even though they are agents of change and can even be considered heroes. I'd like for more kids to see this and recognize that civil engineering is exciting and rewarding. If we build stronger relationships with high school students and educators, we can share what we are doing and start an ongoing conversation.

What is the future of civil engineering going to look like?

Civil engineering is about to transform and there is an exciting future ahead. Big changes are coming in cities, energy and water for the better. There are all sorts of exciting things we can do for our world. We want to continue to be at the forefront as leaders and influencers.

Vehicles that operate themselves will change the whole transportation system. We're the ones who are going to have to figure out how we do that, how to make driverless car technology a reality. What is it going to look like? How do we facilitate and implement that?

There are exciting opportunities to develop new materials. In addition to figuring out how to best use materials like concrete and steel, we can be leaders in designing new materials that behave the way we want in collaboration with scientists and computational modelers.

If we're going to get our electricity from alternative sources other than fossil fuels, it will change the whole energy infrastructure. It will change the layout of the entire distribution system that brings power to buildings and houses and businesses. Our methods will need to change if individuals are going to have their own solar power, if small communities are going to have bio or wind energy or give back to the grid. We have to lead to make it happen.

We're also going to have to start reusing water. Our wastewater is a resource and we need to treat it that way. If we want to reuse it, that whole system will need to be drastically modified. That is a huge challenge that calls for new technologies, new means, methods of construction and lots of creativity.

As civil engineers, we will have to work even more closely with people. It will require us working with sociologists, psychologists and public relations experts and gaining more of these skills ourselves. The problems we are trying to solve can't be solved in cubicles.

We have to find solutions in a public space. I think more of our young engineers and faculty are aware of the need to get more connected to the people we are serving and to be willing to be leaders in developing solutions.

It's important to remember that the best answer isn't necessarily the most inexpensive or the best designed, rather it's what *people* really embrace. Those are the huge challenges for the next generation of engineers, but it's exhilarating. It's bigger than just math and science, and the benefits and rewards will be huge.

About Robert Gilbert

Robert Gilbert joined UT Austin as a faculty member in 1993 and has made significant impacts in teaching, research and consulting. Last year, he was inducted into UT Austin's Academy of Distinguished Teachers. He is also a past recipient of The University of Texas System Regents' Outstanding Teaching Award and the Cockrell School's Lockheed Martin Teaching Award.

In 2011, Gilbert received the Norman Medal, the highest award given by the American Society of Civil Engineers (ASCE) for a journal paper, and in 2016, he received the E.B. Burwell Award for his work with the National Science Foundation on the 2014 Oso mudslide. He is currently serving as a governor for the Geo-Institute of ASCE and a member of the committee responsible for design guidelines for offshore facilities published by the American Petroleum Institute and the International Organization for Standardization.

His expertise on assessing and managing risk is widely recognized. He consulted on a variety of high-profile projects, including flood protection in New Orleans, the Bay Bridge in San Francisco, nuclear waste disposal in Nevada and offshore oil and gas facilities around the world. He was awarded the Outstanding Civilian Service Award from the United States Army Corps of Engineers for his service on the ASCE External Review Panel in the forensic analysis of the levee failures in Hurricane Katrina.

Gilbert earned his B.S., M.S. and Ph.D. from the University of Illinois at Urbana-Champaign. He and his wife, Lizan, live in Austin with their four children. He enjoys an active lifestyle, having completed two Ironman competitions and several marathons.

IN THE LAB

CREATING OPPORTUNITIES FOR UNDERGRADUATE RESEARCH

The Legacy Fund in the Department of Civil, Architectural and Environmental Engineering provides scholarships and fellowships for students to perform research alongside faculty. With the Legacy Campaign, the department seeks to raise funding from alumni and friends to support these scholarships and fellowships.

TEJAS CHOUDHARY, LEGACY SCHOLAR

Inspired by the infrastructure challenges consistently faced by his hometown of Mumbai, senior Tejas Choudhary wants to help find solutions for developing countries with evolving demands. As a double major in civil engineering and finance, Choudhary works on research projects at the intersection of self-driving car technologies and economics. "Urban transportation in the world is about to witness a major change, and I want to be a part of it," he says. Currently, Choudhary is working alongside associate professor Stephen Boyles to analyze the point at which autonomous vehicles become economically viable for cities and individual drivers. He is looking at factors influencing costs of AVs and conducting analyses to determine the specific price points at which they will become a better economic alternative to manual human vehicles.

JONATHAN GINGRICH, LEGACY FELLOW

Ozone is a ubiquitous contaminant that affects humans in a variety of ways—it can cause lung inflammation as well as an increase in asthma symptoms. Indoor exposure to ozone is significant since Americans spend 90 percent of their time indoors. Under the supervision of professor Richard Corsi, Ph.D. candidate Jonathan Gingrich is tackling the problem of ozone pathways through unoccupied spaces (garages, attics, etc.) and developing modeling to predict ozone concentrations. Understanding the mechanistic behavior of outdoor-to-indoor ozone transport will help shape how we design and build healthy and energy-efficient homes in the future.

JOE GONZALEZ, LEGACY SCHOLAR

Senior Joe Gonzalez Jr. is shaping the future of modern construction. He works with associate professor Fernanda Leite on a project called LivingBIM which aims to incorporate machine-vision algorithms to automate building information modeling upkeep in the facility operations and maintenance phase. Gonzalez gathers project folders from UT's Construction and Facilities Management office to analyze what information building managers and facility management personnel are looking for during renovation projects and other service requests. By looking at what photos they are taking, the team will ultimately be tasked with mimicking those images and taking 3D laser scans and using machine-vision to break down the data into useful information. Currently, Gonzalez and other researchers are creating a dataset of 50+ scene reconstructions using a mobile data collection application on an iPad with a mounted depth camera. This deep learning method requires large datasets for training examples for the system to "learn" from. Ultimately, the system will automatically identify building components and provide a reconstructed annotated model.

KHALID OSMAN, LEGACY FELLOW

Graduate student Khalid Osman is studying the impacts of displaced persons on water and sanitation infrastructure in developed nations. In the U.S. alone, Hurricanes Katrina, Rita and Wilma temporarily or permanently displaced more than 1 million people—the largest migration of people within a developed country since World War II. The technical implications of the rapid influx of population without proper front-end planning on critical infrastructure systems in developed nations has yet to be examined. In this transformative study, Osman is working with assistant professor Kasey Faust to investigate the migration of persons displaced by hurricanes in developed nations as a means to increase the resiliency of hosting communities to better respond to extreme population dynamics. Their work will ultimately help communities provide better short- and long-term services.

HUY PHAM, LEGACY SCHOLAR

Senior Huy Pham hopes to advance infrastructure and energy generation in ways that safeguard our natural environment. He believes that our coastal resources could possibly provide a clean resource for engineered systems to improve energy solutions. Pham's previous work on energy demand evaluation in the UT Thermal Façade Lab prepared him for his new focus on hydrokinetic energy, a source of renewable energy. He is working with professor Spyros Kinnas and his research team to improve the efficiency of ocean current turbine design through better modeling of ducted propellers and tidal turbines. Pham is building upon the team's previous work in turbine optimization by studying blade geometry design of ducted turbines.

SAVANNA SMITH, LEGACY SCHOLAR

Clothing, solar panels, concrete and electronics are just a few examples of items within the built environment that are embedded with nanoparticles. While they are versatile and can reduce energy consumption, much is unknown about how nanoparticles interact with the biosphere or what happens to them at the end of their life cycle. There is evidence that nanoparticles may be causing antibiotic resistance. Junior Savanna Smith is exploring ways to advance responsible nanomaterial use with a focus on biotechnology-based sustainable wastewater treatment processes. She is working with associate professor Mary Jo Kirisits on a project that examines antibiotic resistance in bacteria as a result of prolonged silver exposure.

JANICE ZHUANG, LEGACY FELLOW

As cities are facing aging infrastructure, increased urban growth and concerns over water scarcity, graduate student Janice Zhuang has been studying water distribution networks. She is researching how evolving consumer behavior and demand patterns affect the networks. Zhuang's lab work consists of hydraulic modeling and simulation, spatial data analysis and fieldwork. She also meets with water utilities managers at UT Austin and the City of Austin, ongoing collaborators of her faculty supervisor, assistant professor Lina Sela. This semester she will be answering research questions that include: Are there consistent spatio-temporal patterns for the distribution of pipe failures in municipal water networks? If so, how are they related to characteristics of the pipe infrastructure and environmental factors?

Class of 2017-18 in front row: J.J. Roger Cheng, Rashed Islam, David Covarrubias, David Nicastro, Andrew Taylor, John Wooley (L. Patrick Flynn, Jr. not pictured)

ACADEMY OF DISTINGUISHED ALUMNI

The Academy of Distinguished Alumni in the Department of Civil, Architectural and Environmental Engineering was established in 2003 to recognize the professional achievements and contributions of our graduates. Academy members are leaders within their professional communities and serve as role models and mentors to our students.

J.J. ROGER CHENG

M.S. 1981, Ph.D. 1984

Roger Cheng served as chair of the Department of Civil and Environmental Engineering at the University of Alberta for 15 years, transforming the department into a progressive, world-class, research-intensive program with a reputation for excellence in teaching that made an impact in structural engineering. While department chair, undergraduate and graduate enrollment more than doubled and the department's research funding and industry collaboration quadrupled.

An international leader and technical contributor, Cheng is an expert in steel structures, rehabilitation of structures using fiber-reinforced composite materials, structural health monitoring of energy pipelines and design and behavior of steel structures. Over 100 graduate students have completed their degrees under his supervision. He has supervised 14 undergraduate summer scholarship students and 12 post-doctoral fellows since 1984.

DAVID T. COVARRUBIAS

M.S. 1988

In his 28-year career, David Covarrubias has been an instrumental leader in bridge and building design, excelling in the field of structural engineering. He is currently the CEO of Structural Engineering Associates Inc., a San Antonio-based design firm which specializes in design services for sports and educational facilities, international bridges, water and wastewater facilities, pedestrian enhancements and more.

Covarrubias is an authority in the design of span and structural steel bridges and developed innovative pre-stressed concrete beams and software for the bridges he designed. As project manager and structural designer, Covarrubias was directly involved in several national, award-winning projects including the Santa Ursula Connector, Loop 340 Overpass, World Trade International Bridge and Border Facilities and the Pharr-Reynosa International Bridge. Other notable projects include the Alamodome, San Antonio International Airport parking garage and the Loop 410 and Highway 281 Interchange. He is active in the American Institute of Steel Construction, the San Antonio Mobility Coalition and Transportation Advocates of Texas.

L. PATRICK FLYNN JR.

B.S. 1981

Patrick Flynn was at the forefront of Austin's development for more than three decades of rapid growth and expansion. In 1986, he founded Flynn Construction Inc., a diversified general contracting firm. The company specializes in designing and building highly complex, technical spaces such as clean room labs and facilities for advanced microelectronics, nanotechnology and life science DNA genetic research. Flynn Construction has been a consistently top-ranked Austin area contractor for many years.

Flynn is dedicated to furthering the fields of architectural engineering and construction management by implementing best engineering practices and developing professional expertise in energy conservation, LEED green building, environmental preservation and sustainability. He is not only helping to build the physical fabric of Austin, but he is also deeply committed to giving back to the community through service. Over the past 30 years, he has been an active member or served on the boards of Foster Angels, the Boys & Girls Clubs of Austin, SafePlace, the Austin Chamber of Commerce and Austin Sunshine Camps.

RASHED ISLAM

M.S. 1996

With 20 years of experience in the Texas transportation industry, Rashed Islam's innovative thinking and balanced

approach to solving traffic congestion problems has made him a trusted advisor and engineering leader. As vice president at HDR Engineering Inc., he manages Central Texas transportation business operations.

Islam implements new ideas and methods to alleviate traffic issues in Central Texas, some of which are the first of their kind in the state, such as continuous flow and median U-turn intersections. As a transportation consultant, he contributed to Austin's Mueller Redevelopment Project, an award-winning community designed to provide multimodal transportation infrastructure. In addition, he led transportation master planning efforts for Round Rock, Cedar Park, San Marcos and Dripping Springs. Islam is actively involved in many community organizations including the Greater Austin Asian Chamber of Commerce, Greater Austin Chamber of Commerce and Bangladesh Association of Greater Austin.

DAVID H. NICASTRO

M.S. 1985

An expert in durability and failure causation theory, David Nicastro analyzes existing buildings and develops remedies. He is one of the most respected forensics engineers in the area of cladding and exterior envelope analysis in the U.S. He is the founder and chief executive officer of Building Diagnostics Inc., a Texas-based engineering and consulting firm specializing in evaluating building system failures, designing solutions and assisting in dispute resolution.

Nicastro founded a research testing program housed at The University of Texas at Austin where faculty, students and industry colleagues study the durability of building components, identifying factors causing premature failure. He educates clients and peers through speaking engagements and guest lectures on forensics engineering and failure mechanism theory. Nicastro is actively involved with ASTM International and served as past chairman of ASTM Committee C24 on Building Seals and Sealants. He has published over 50 articles and books on durability and failure of building materials.

ANDREW W. TAYLOR

Ph.D. 1990

Andy Taylor is recognized for his exceptional technical and collaborative leadership in structural engineering, professional societies and building code development. He is an associate at KPFF Consulting Engineers in Seattle and has 30 years of experience, including seven years with the Building and Fire Research Laboratory at the National Institute of Standards and Technology (NIST). He specializes in seismic design and retrofit of reinforced concrete structures; seismic isolation and energy dissipation systems; forensics engineering; and structural vibrations measurement, analysis, design and mitigation.

Throughout his career, he forged links between research and practice through long-term involvement in technical committees such as the American Concrete Institute (ACI), earthquake engineering communities and advisory panels for the American Society of Civil Engineers, National Science Foundation and the National Research Council. Taylor teaches courses at the University of Washington as an adjunct professor. He is an ACI fellow and has received an ACI Arthur J. Boase Award and NIST Bronze Medal for his national leadership.

JOHN A. WOOLEY

B.S. 1972, M.S. 1974

John Wooley was instrumental in helping to develop a top international geotechnical engineering firm into a quality, client-oriented and ethical service provider. He has extensive knowledge of the behavior of foundations in rock, expansive clay soils, U.S. Gulf Coast soils, engineering surveillance and construction materials testing. His project experience includes roadways, highway bridges, tunnels, water and wastewater facilities, lignite handling facilities, earthfill dams, pipelines, major high rise buildings, health care facilities and more.

After a distinguished 37-year career as a senior consultant and executive with Fugro Consultants Inc., Wooley founded Balcones Geotechnical, an Austin-based consulting firm specializing in complex geotechnical projects, TxDOT Design/Build and P3 projects and failure analysis and technical support. Throughout his career, Wooley has been active in professional organizations that advance the practice of engineering. He was honored with leadership roles in the Texas Society of Professional Engineers, American Council of Engineering Companies and Texas Council of Engineering Laboratories. His management skills led to service on school boards, sports associations and the City of Austin.

2017 OUTSTANDING YOUNG ALUMNUS

Established in 2003, the Outstanding Young Alumnus Award recognizes a graduate of the Department of Civil, Architectural and Environmental Engineering under the age of 40 who has distinguished himself or herself with outstanding service and contributions to the engineering profession and society. The recipient holds at least one degree from UT Austin.

J. BRANDON KLENZENDORF

B.S. 2005, M.S. 2007, Ph.D. 2010

Brandon Klenzendorf is a project engineer at Geosyntec Consultants in Austin where he focuses on stormwater management, water resources engineering design and regulatory compliance projects. His work primarily includes the modeling and design of green infrastructure and stormwater management facilities to treat runoff for water quality and flood mitigation. He is also a lecturer in the Department of Civil, Architectural and Environmental Engineering at The University of Texas at Austin, teaching the senior-level hydraulic engineering design course. He has been an integral professional mentor to senior-level engineering professionalism classes for many years and helped lead construction of multiple student projects in the community. Klenzendorf is actively involved in the American Society of Civil Engineers at the local and state levels, as well as the Austin Chapter of the Environmental and Water Resources Institute. In 2016, he recieved the Young Engineer of the Year Award by the Texas Society of Professional Engineers.

FACULTY ANNOUCEMENTS AND AWARDS

NEW DIRECTOR OF CENTER FOR TRANSPORTATION RESEARCH

Amit Bhasin was named the new director of the Center for Transportation Research (CTR) in the Cockrell School of Engineering at UT Austin. He assumed the role on Feb. 15 and is the fifth director in the center's 55-year history.

Bhasin succeeds Chandra Bhat, who served as director of CTR since September 2012 and guided the center through a period of significant growth, success and interdisciplinary research. Bhat will continue to serve as a faculty researcher in CTR.

CTR was founded in 1963 and specializes in advancing technologies and developing safety innovations that influence future policy. The transportation program at UT Austin was ranked No. 2 in the nation last year in the field of Transportation Science and Technology by the Shanghai-based Academic Ranking of World Universities. The center partners with local, state and national agencies and organizations and brings in over $15 million in research funding annually. In addition to research, CTR focuses on education, workforce development and technology commercialization.

As director, Bhasin oversees an extensive research portfolio that addresses many aspects of transportation such as traffic congestion relief, driver behavior, technological development, transportation policy and environmental and energy impacts. CTR's portfolio includes over 100 faculty members, full-time researchers and administrative personnel. Over 150 graduate and undergraduate students are actively involved in research projects.

Bhasin's research focuses on infrastructure materials with emphasis on asphalt materials and pavement infrastructure. His research is at the intersection of materials science and mechanics with a focus on sustainable materials and design tools for construction and preservation of pavements.

WELCOME BLAIR JOHNSON

The Department of Civil, Architectural and Environmental Engineering is pleased to welcome assistant professor Blair Johnson.

Johnson recently completed a postdoc at Arizona State University in the Department of Mechanical Engineering. She earned a Ph.D. and M.S. in civil and environmental engineering from Cornell University and a B.S. in civil engineering from Johns Hopkins University.

Her technical interests include environmental fluid mechanics, turbulence and mixing processes, sediment transport and experimental methods. Johnson's research will break down complex environmental flows into fundamental components to understand the driving fluid mechanics processes responsible for mixing and transport in the environment. Her work applies to coastal erosion, volcanic eruptions, oil spills and other sources of air and water pollution.

Johnson's team studies phenomena such as breaking waves, stratified flows, fluid-structure interaction and sediment transport in the Cockrell School's Center for Water and the Environment on UT Austin's J.J. Pickle Research Campus.

Johnson began teaching 319F Elementary Mechanics of Fluids this semester. She plans to create an interactive classroom and lab environment that allows students to approach a multitude of challenges and find solutions.

FACULTY HISTORY

Joseph Yura began teaching at The University of Texas at Austin in 1965. To this day, his research on the design of steel tubular members and connections for offshore oil platforms is the basis of design specifications used in the U.S. and abroad.

Throughout his career of more than 40 years, he has had an enormous impact on the structural engineering profession through dedicated teaching, research and professional service.

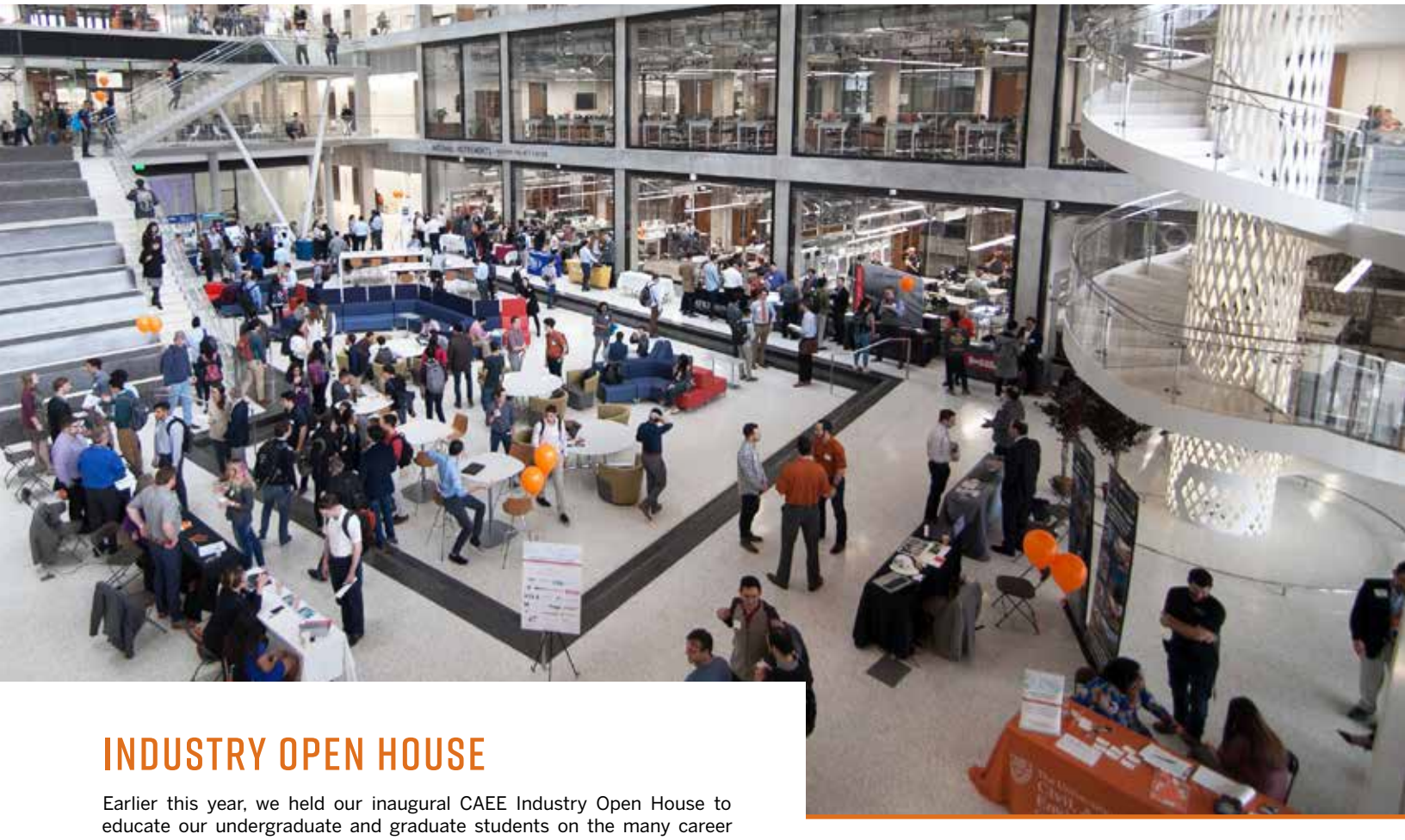
At UT, he taught structural engineering to over 3,000 undergraduate and graduate students. Outside of the university, he shared his technical knowledge with practicing engineers around the world through continuing education courses and lectures on structural steel. He was inducted into the National Academy of Engineering in 2000.

Yura's research contributions are wide-reaching and have impacted design specifications for buildings, bridges and offshore structures. He is most proud of the six teaching excellence awards he has received while at UT Austin.

THE UNIVERSITY OF TEXAS AT AUSTIN
210 E. 24TH STREET, STOP C0600
AUSTIN, TX 78712-1221

NONPROFIT ORG.
U.S. POSTAGE PAID
AUSTIN, TX
PERMIT #391

RETURN SERVICE REQUESTED



INDUSTRY OPEN HOUSE

Earlier this year, we held our inaugural CAEE Industry Open House to educate our undergraduate and graduate students on the many career paths within the fields of civil, architectural and environmental engineering. Practicing engineers from a variety of technical backgrounds came to campus to share information about careers in consulting, construction, research, government, education and more. The best part? We spent this great afternoon in the new Engineering Education and Research Center!

If you or your organization is interested in participating in the next open house, contact Sarah Shields at ***sarah.shields@utexas.edu*** *for details.*

STAY CONNECTED @UT_CAEE