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# *July 07, 2021: University of Texas At Austin: New 6G Research Center Unites Industry Leaders and UT Wireless Experts*

News Bites - Private Companies

July 9, 2021 Friday



**Section:** ANNOUNCEMENTS

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## Body

Teaming up with industry titans including Samsung, NVIDIA, and more, researchers at The University of Texas at Austin are launching 6G@UT, a new research center to lay the groundwork for 6G, the next generation of wireless technology.

5G is just emerging as the dominant cellular technology after years of research and innovation that includes important contributions by UT Austin wireless researchers and alumni. With new technologies on the horizon such as self-driving cars and air taxis, holographic video conferencing, ubiquitous robotics and immersive augmented reality, UT Austin is cementing its leadership in wireless innovation with this major research effort on 6G.

"The advances in both wireless communications and machine learning over the past decade have been incredible, but separate," said 6G@UT Director Jeffrey Andrews, a professor in UT Austin 's Department of Electrical and Computer Engineering. "Coupled with vast new sensing and localization abilities, 6G will be defined by an unprecedented native intelligence, which will transform the ability of the network to provide incredible services."

Founding 6G@UT affiliates Samsung, AT &T, NVIDIA, Qualcomm and InterDigital will each fund at least two projects for three years at the center. Researchers from the companies will work alongside UT faculty members and students to develop wireless-specific machine learning algorithms, advanced sensing technologies, and core networking innovations that will be the backbone of 6G.

Click here for comments from the founding affiliates' leaders on the impact the new 6G research will have on the wireless ecosystem.

The next generation of wireless will be infused with technologies that have come of age during the past decade: ubiquitous sensing, machine learning and the ability to use higher frequency spectrum at mmWave and THz bands. These technologies will be at the heart of the research happening at the 6G@UT center, and they will play a critical role not only in the devices and applications running 6G but in managing the network itself.

Radio waves not only facilitate communication, but also sensing and localization, via radar and GPS, for example. The introduction of THz bands and the superior sensing resolution through massively dense antenna arrays will allow carriers to better monitor the quality of their networks in different places - from office towers to busy downtown areas to far-flung rural locales. 6G networks will be loaded with radar, vision, audio, lidar, thermal, seismic and broadband software-defined radio sensors that will provide unprecedented situational awareness to applications and devices running on the network.

"5G 's vision of sensing has been insufficiently bold," said Todd Humphreys, associate professor in UT Austin's Department of Aerospace Engineering and Engineering Mechanics. "6G should begin with the premise that sensing is not just for reacting to conditions, but anticipating them, so that vital links to automated vehicles, AR/VR headsets, and other latency-sensitive applications can be maintained with utter reliability."

Other major pillars of the new center, and crucial parts of 6G, include the need to open new spectrum and low Earth orbit satellite links to improve coverage across rural and urban areas and design new network architectures to enable better resource and infrastructure sharing.

The 6G@UT center is spun out of the Cockrell School 's Wireless Networking & Communications Group, a 19-year-old research center with more than 25 faculty members and 130 students and researchers. WNCG has established UT Austin as a global leader in wireless technology, and its researchers have made important breakthroughs that helped enable 4G and 5G technology. Students graduating from UT Austin have played important roles in creating and standardizing these technologies at WNCG's industrial affiliates.

Faculty members involved with 6G@UT are Jeffrey Andrews, Todd Humphreys, Sanjay Shakkottai, Gustavo de Veciana, Francois Baccelli, Al Bovik, Constantine Caramanis, Sandeep Chinchali, Alex Dimakis, Brian Evans, Hyeji Kim, Aryan Mokhtari, Lili Qiu, Sujay Sanghavi, Atlas Wang, Haris Vikalo, Jon Tamir, Andreas Gerstlauer, Joydeep Ghosh, Jose del R. Millan, Edison Thomaz and Nanshu Lu.

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SECTION 1 UNIVERSITY OF TEXAS AT AUSTIN PROFILE

1.1 ACTIVITIES

They say everything "s bigger in Texas, and The University of Texas at Austin (UT Austin) takes them at their word. With about 51,000 students, it is the flagship institution of the UT System"s eight universities and six health institutions. UT Austin consistently ranks on the list of the country"s largest student bodies and offers more than 155 undergraduate and more than 170 graduate degree programs. In addition to its 430-acre downtown Austin academic campus, UT Austin maintains extensive research locations including the J.J. Pickle Research campus (also in Austin), the McDonald Observatory in West Texas, and the Marine Science Institute on the Texas coast. The university was founded in 1883.

1.2 SUMMARY

PermID: 5000414547

Website: *https://www.utexas.edu/*

Industry: University

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2012 East 7th Street AUSTIN TEXAS 78702 United States

SECTION 2 PRESS RELEASES: 2021

April 14: University of Texas At Austin: Governor Abbott Appoints Regents, Chairman Eltife to New Terms

AUSTIN, Texas - Texas Gov. Greg Abbott has reappointed Kevin P. Eltife to The University of Texas System Board of Regents. Eltife was first appointed as a regent in 2017 and elected board chairman in December 2018. His first term was slated to run through February 2023, but with two years left on his current term, Abbott reappointed Eltife to a new six-year term.

"I'm incredibly grateful that Gov. Abbott has decided to reappoint Chairman Eltife," said Jay Hartzell, president of The University of Texas at Austin. "The chairman has lived a life of public service and is one of the great advocates for affordable education in Texas. He understands the transformative role that The University of Texas plays in the life of our state, and like the governor, he is a great friend of his alma mater, UT Austin."

The governor also reappointed R. Steven "Steve" Hicks and Nolan Perez to serve an additional term on the board, and he appointed another great Longhorn, Stuart Stedman, for an initial term.

"Steve Hicks is a renowned friend and supporter of UT Austin, as are his fellow Longhorns, Nolan Perez and Stuart Stedman. Together, they have powerfully demonstrated their commitment to higher education in Texas over many years," added Hartzell. "They will bring to the board passion for our research and teaching missions, and I look forward to their guidance and energy."

One of Eltife's early priorities as a regent was to streamline the UT System's administrative operations to redirect funds to UT institutions in support of students and patients. As board chairman, Eltife also led efforts to ensure UT institutions remain affordable, with six of the eight UT academic institutions now offering expanded financial assistance programs. At UT Austin, for example, the regents approved a $160 million endowment to provide no-cost tuition for Texas students whose families earn less than $65,000 per year, and they reduced tuition for students from families making less than $125,000 per year.

SECTION 3 OTHER NEWS: 2021

July 05: University of Texas At Austin: Gulf Coast Ready to Develop Carbon Storage Hub

The stage is set for a new carbon storage economy to emerge along the Gulf Coast, according to a study led by The University of Texas at Austin, with the region offering ample opportunities to capture and store carbon, and recent state and federal incentives giving an added push to get started.

Carbon capture and storage, or CCS, is a technology that keeps CO2 out of the atmosphere by capturing emissions and storing them deep underground. It can help fight climate change by lowering industrial emissions now while renewable energy sources are being developed, said Tip Meckel, a senior research scientist at the Gulf Coast Carbon Center, a research group at the UT ***Bureau of Economic Geology*** that has been studying CCS for the past 20 years.

"This is a viable way to reduce emissions in the near term," Meckel said. "It's feasible and has a reasonable economic structure that can support, retain and create jobs."

The study, which was published in Greenhouse Gases: Science and Technology, provides a high-level overview of policy incentives for CCS and how Texas and Louisiana's high concentration of industry and unique offshore geology make the region a particularly good spot to build up a carbon storage economy.

The topics explored in the paper are especially relevant considering recent moves that Texas has made to bring carbon storage under a similar regulatory framework as oil and gas.

July 05: University of Texas At Austin: MasSpec Pen Shows Promise in Pancreatic Cancer Surgery

A diagnostic tool called the MasSpec Pen has been tested for the first time in pancreatic cancer patients during surgery. The device is shown to accurately identify tissues and surgical margins directly in patients and differentiate healthy and cancerous tissue from banked pancreas samples. At about 15 seconds per analysis, the method is more than 100 times as fast as the current gold standard diagnostic, Frozen Section Analysis. The ability to accurately identify margins between healthy and cancerous tissue in pancreatic cancer surgeries can give patients the greatest chance of survival.

The results, by a team from The University of Texas at Austin and Baylor College of Medicine, are published this week in the Proceedings of the National Academy of Sciences.

"These results show the technology works in the clinic for surgical guidance," said Livia Schiavinato Eberlin, an assistant professor of chemistry at UT Austin who leads the team that invented the pen, in collaboration with James Suliburk, head of endocrine surgery at Baylor. "Surgeons can easily integrate the MasSpec Pen into their workflow, and the initial data really supports the diagnostic accuracy we were expecting to achieve."

The most common type of pancreatic cancer, pancreatic ductal adenocarcinoma, spreads rapidly and is highly lethal, with a five-year survival rate of 9% for all stages.

June 30: University of Texas At Austin: Solar Power Innovator Named Director of Energy Institute

AUSTIN, Texas - Brian Korgel, a professor in the McKetta Department of Chemical Engineering, will be the next director of the Energy Institute at The University of Texas at Austin, effective Sept. 1.

Korgel succeeds Varun Rai, associate dean of research at the LBJ School of Public Affairs, who has served as the institute's director since 2019.

A nanomaterials scientist and member of the National Academy of Engineering, Korgel examines problems in energy storage, chemical transformations, energy harvesting and conversion, and medicine.

"Professor Korgel has a strong background in chemical engineering and has worked for many years to build collaborations between UT researchers, industry and government leaders, making him the ideal choice to head UT's Energy Institute," said interim Vice President for Research Alison Preston. "I look forward to working with him to strengthen the institute's role as a catalyst for energy research on campus."

Korgel is also the founding director of UT's Industry/University Cooperative Research Center for Next-Generation Photovoltaics, which - among its numerous societal contributions - pairs researchers with industry leaders to develop the solar-integrated technologies needed to achieve a future with net-zero carbon emissions.

June 29: UT Austin Teams Up With City and Community to Fight Extreme Heat in Austin

AUSTIN, Texas - Austin has hot summers. But that heat isn't felt the same way across the city, as anyone who has sweltered in a parking lot or cooled off beneath a tree knows.

The University of Texas at Austin is partnering with the City of Austin, community groups and East Austin residents to find out where hot temperatures are affecting people the most - and proposing solutions to cool down these places.

UT is one of four institutions selected by the National Oceanic and Atmospheric Administration to lead research projects focused on combating extreme heat in urban environments.

Source: Company Website

June 28: University University Optical Tweezer Technology Tweaked to Overcome Dangers of Heat

McLellan, who holds the Robert A. Welch Chair in Chemistry, was part of the scientific team behind a consequential invention that helps to create a strong antibody response to the coronavirus.

Source: Company Website

June 23: University New Type of Machine Learning Aids Earthquake Risk Prediction

AUSTIN, Texas - Our homes and offices are only as solid as the ground beneath them. When that solid ground turns to liquid - as sometimes happens during earthquakes - it can topple buildings and bridges. This phenomenon is known as liquefaction, and it was a major feature of the 2011 earthquake in Christchurch, New Zealand, a magnitude 6.3 quake that killed 185 people and destroyed thousands of homes.

Source: Company Website

June 21: University of Texas At Austin: Blaming the Pandemic for Stress Leaves Couples Happier

AUSTIN, Texas - When the COVID-19 pandemic hit during the winter of 2020, locking down entire countries and leaving people isolated in their homes without outside contact for weeks at a time, many relationship experts wondered what that kind of stress would do to romantic couples. What they found was that when couples blamed the pandemic for their stress, they were happier in their relationships.

The findings are outlined in a paper out today in the journal Social Psychological and Personality Science.

Previous research has shown that romantic partners tend to be more critical toward each other when experiencing common stress - what researchers call stress spillover - but major events such as natural disasters are not always associated with poor relationship functioning. Because these significant stressors are more noticeable than routine situations, people may be more aware that stress is affecting them and spilling over into the relationship.

"Because of this awareness, when major stressors occur, romantic partners may be less likely to blame each other for their problems and more likely to blame the stressor, which may reduce the harmful effects of stress on the relationship," said Lisa Neff, an associate professor of human development and family sciences at The University of Texas at Austin and one of the study's co-authors.

The COVID-19 pandemic brought a unique opportunity to study this phenomenon, with many couples suddenly working from home, spending more time together, trying to homeschool children, dealing with job losses and dealing with the fear and anxiety of a quickly spreading deadly virus.

June 21: University of Texas At Austin: New Study on Climate Change Impacts on Plants Could Lead to Better Conservation Strategies

The loss of plant species that are especially vulnerable to climate change might lead to bigger problems than previous studies have suggested, according to a new study published in the journal Proceedings of the National Academy of Sciences. If confirmed, the findings can help inform conservation strategies and lead to more accurate predictions about what ecosystems will look like in the future.

The three-year study focused on a grassland near the central coast of California called Coyote Ridge. The researchers are now working on a follow-up study to determine whether the results apply more broadly to other ecosystems around the world.

Species extinctions are known to cause problems for the environment and for humans, such as reducing the water-filtering benefits of a forest or the amount of forage available for cattle in a grassland. To understand the overall effects of lower biodiversity in an ecosystem, ecologists typically conduct field experiments that randomly select species to exclude. But Amelia Wolf, an assistant professor of integrative biology at The University of Texas at Austin, and Erika Zavaleta, a professor of ecology and evolutionary biology at the University of California at Santa Cruz, took a more intentional approach by showing what would happen if the species most likely to be under threat from climate change actually disappeared.

June 21: University of Texas At Austin: Sharon Wood Named Provost at The University of Texas at Austin

AUSTIN, Texas - Sharon Wood has been appointed executive vice president and provost of The University of Texas at Austin and will start July 19. She is currently the dean of the Cockrell School of Engineering at UT Austin.

The provost is the chief academic officer and leads efforts to deliver world-class educational experiences and produce high-impact research and scholarship. This includes academic programs and initiatives that span the university's 18 colleges and schools, which serve more than 51,000 students and support more than 3,000 teaching and research faculty members.

"As we enter an exciting new chapter at UT, I am pleased to have a strong, natural leader like Sharon for this important role. She has a deep understanding of the Longhorn community and the right experience to help us advance our ambitious academic priorities," said President Jay Hartzell. "I have always admired her intelligence and judgment, her commitment to excellence, her values, and her ability to listen and understand the important perspectives of our stakeholders. She is a special leader in that regard, and I am thrilled about her appointment."

Wood is internationally recognized for her research on the earthquake response of reinforced concrete structures.

June 20: University of Texas At Austin: Sheltering People With COVID-19 Experiencing Homelessness Curbs Spread

A new study provides public health planning authorities with a method of calculating the number of COVID-19 isolation beds they would need for people experiencing homelessness based on level of infection in the city. The research holds promise for controlling spread of the virus - or future infectious diseases - in a population that is highly vulnerable and less likely than many others to access health care services.

The report, developed to support public health decision-making in Austin, Texas, was recently published by PLOS ONE. The paper's first author is an undergraduate student at The University of Texas at Austin, Tanvi Ingle, who harnessed her days in the pandemic lockdown to work with researchers in The University of Texas at Austin COVID-19 Modeling Consortium.

"Our model can help Austin and other cities ensure they have sufficient resources to protect populations experiencing homelessness during future disease outbreaks," said Lauren Ancel Meyers, director of the UT Austin COVID-19 Modeling Consortium and a professor of integrative biology. "Our calculations indicated how many hotel rooms would be needed to isolate individuals when they developed symptoms or were exposed to the virus.

June 18: University of Texas At Austin: System Linked to Operational Hospitals, Shorter Lockdowns, Lives Saved

A staged alert system, designed by scientists and public health officials to guide local policies, helped one city prevent hospital surges and long lockdowns, according to new research published in the journal Nature Communications.

In a new study led by The University of Texas at Austin COVID-19 Modeling Consortium in collaboration with Northwestern University, researchers describe the system that has guided COVID-19 policies in Austin, Texas, for more than a year, helping to safeguard the health care system and avoid costly measures. It tracks the number of new daily COVID-19 hospital admissions and triggers changes in guidance when admissions cross specific threshold values. While using this staged alert system, the Austin metropolitan area has sustained the lowest per capita COVID-19 death rate among all large Texas cities.

Source: Company Website

June 18: University of Texas At Austin: Jason McLellan Named 2021 Texas Inventor of the Year

Jason McLellan, a faculty member in the Department of Molecular Biosciences, has been selected as the 2021 Texas Inventor of the Year for his role in biomedical research linked to the development of vaccines and treatments for COVID-19. The award is given annually by the State Bar of Texas's Intellectual Property Law Section in recognition of an individual whose invention "has significantly impacted the Texas economy."

Jason McLellan holds the Welch Chair in Chemistry and is a professor in the Department of Molecular BIosciences. McLellan, who holds the Robert A. Welch Chair in Chemistry, was part of the scientific team behind a consequential invention that helps to create a strong antibody response to the coronavirus.

McLellan and his former postdoctoral researcher Nianshuang Wang collaborated with scientists at the National Institute of Health's Vaccine Research Center and at Scripps Research Institute in discovering a way to stabilize the spike protein, the part of the coronavirus capable of infecting cells. Wang and McLellan experimented to determine ways of altering the otherwise shape-shifting protein so that it stayed in the form it takes before fusing with human cells. Stabilizing it this way has been shown to elicit a stronger antibody response.

The vaccines from Pfizer, Moderna, Johnson and Johnson and Novavax all use the patented technology McLellan and the team developed in 2017, when he was a faculty member in Dartmouth's Geisel School of Medicine.

June 15: University of Texas At Austin: UT Austins Inaugural Juneteenth Freedom Summit to Explore Education, Housing and Wealth

The LBJ School of Public Affairs and the Center for the Study of Race and Democracy at The University of Texas at Austin will commemorate Juneteenth during the inaugural Juneteenth Freedom Summit: Birth of a New American Freedom. Speakers will discuss education, housing, wealth, and why Juneteenth matters now more than ever, amid a national political awakening on racial justice and equity.

WHEN: Saturday, June 19, 11 a.m. CT

WHO: Peniel Joseph, scholar of race and democracy, LBJ School of Public Affairs

Richard Reddick, Associate Dean, College of Education

Sylvester Turner, Houston Mayor

Annette Gordon-Reed, historian and Pulitzer Prize-winning author of "On Juneteenth"

WHERE: The event is free and open to the public. It will be held via Zoom Webinar. Registration is required.

BACKGROUND: Juneteenth commemorates the end of slavery in the United States, when federal troops informed enslaved Black Americans in Galveston, Texas, of their freedom on June 19, 1865 - more than 20.5 years after the Emancipation Proclamation was issued. Texas was the last state to free enslaved African Americans.

Source: Company Website

June 08: University of Texas At Austin: First Glimpse of Brains Retrieving Mistaken Memories Observed

AUSTIN, Texas - Scientists have observed for the first time what it looks like in the key memory region of the brain when a mistake is made during a memory trial. The findings have implications for Alzheimer's disease research and advancements in memory storage and enhancement, with a discovery that also provides a view into differences between the physiological events in the brain during a correct memory versus a faulty one.

The study was published Monday in the journal Nature Communications.

In both correct and incorrect recall of a spatial memory, researchers could observe patterns of cell activation in the brain that were similar, though the pace of activation differed.

"We could see the memories activating," said Laura Colgin, an associate professor of neuroscience at The University of Texas at Austin and lead author of the paper. "It's like dominoes falling. One cell activates and then the next fires."

Colgin and her team used electrophysiological recordings of rats in and out of mazes to study signals in the brain as the rats attempted to remember where a food reward was located and find it.

When rats remembered where the food reward was and located it, a specific pattern of brain cells activated with similar timing.

June 07: University of Texas At Austin: Puerto Rico is Prone to More Flooding Than the Island is Prepared to Handle

Puerto Rico is not ready for another hurricane season, let alone the effects of climate change, according to a new study that shows the island's outstanding capacity to produce record-breaking floods and trigger a large number of landslides.

The latest research, appearing in the journal Hydrology, builds on three prior studies led by hydrologist Carlos Ramos-Scharron at The University of Texas at Austin, whose team began investigating the devastating impact of tropical cyclones on the island after Hurricane Maria in 2017.

The first compared the 2017 hurricane as a rainstorm event to more than a century of cyclones that came before it, finding that Maria produced the highest island-wide daily rainfall amount ever recorded (similar to Hurricane Harvey's impact on Houston). The second found that Maria's rainfall triggered one of the highest number of rainfall-induced landslides ever reported worldwide in similarly sized areas. And the third identified landslides as the main source of the sediment infilling the already limited water storage capacity of the island's main reservoirs.

"We need to stop talking about climate change in future tense. It's already here," said Ramos-Scharron, associate professor in the Department of Geography and the Environment and the Teresa Lozano Long Institute of Latin American Studies.

June 07: University of Texas At Austin: Lets Pay for Infrastructure in Ways That Are Fair to Future Generations

Since President Joe Biden announced his trillion dollar American Jobs Plan and American Families Plan, news headlines have debated the meaning of infrastructure. Many conservatives maintain that infrastructure means the basic physical systems of a government, such as roads, bridges, dams and airports. Others, mainly progressives, contend we need a definition that also captures governmental programs, such as those for job training, paid family leave, and child and elder care.

The presumption is that infrastructure projects are more politically popular, and thus more likely to get funded, than social programs. But debates about the meaning of infrastructure miss the real challenge: who pays for these enhancements - taxpayers today, or future generations.

If Biden's plans are adopted, projects that are mainly ongoing should be funded with current revenues - not by adding to the federal deficit. If we are to impose continuing costs upon the government, then, at the very least, we

should ensure an enduring way to cover them. Otherwise, the fiscal shortfalls will be persistent and, owing to the related interest costs, will continually increase.

Definitions of infrastructure don't really matter.

June 04: University of Texas At Austin: What Makes an Excellent Professor?

As a leading university, The University of Texas at Austin attracts outstanding students who come here to study with our exceptional faculty. Known for breakthrough research and educational innovation, UT Austin is a place for discovery and exploration.

The 2020-2021 recipients of the President's Associates Teaching Excellence Award strive not only to instruct and provide information for the semester but also to inspire their students for a lifetime. As William Butler Yeats said, "Education is not the filling of a pail, but the lighting of a fire."

A year of adjusting to the pandemic and to online learning has been accompanied by many challenges, including social isolation, additional family responsibilities and the deaths of relatives and friends. But these seven professors have adapted. By actively engaging with their classrooms and sometimes greatly changing their approaches, they have expanded the possibilities of teaching. Here are their reflections on the future of education. Paul Bonin-Rodriguez Associate Professor, Department of Theatre and Dance UGS 303: The Power of Story; UGS 303: Art, (Your) Money, and the Nation; TD 375H: Honors Seminar; TD 391: Proseminar in Performance as Public Practice

June 04: University of Texas At Austin: Our Immune Systems Blanket the SARS-CoV-2 Spike Protein with Antibodies

AUSTIN, Texas - The most complete picture yet is coming into focus of how antibodies produced in people who effectively fight off SARS-CoV-2 work to neutralize the part of the virus responsible for causing infection. In the journal Science, researchers at The University of Texas at Austin describe the finding, which represents good news for designing the next generation of vaccines to protect against variants of the virus or future emerging coronaviruses.

Previous research focused on one group of antibodies that target the most obvious part of the coronavirus's spike protein, called the receptor-binding domain (RBD). Because the RBD is the part of the spike that attaches directly to human cells and enables the virus to infect them, it was rightly assumed to be a primary target of the immune system. But, testing blood plasma samples from four people who recovered from SARS-CoV-2 infections, the researchers found that most of the antibodies circulating in the blood - on average, about 84% - target areas of the viral spike protein outside the RBD - and, apparently, for good reason.

"We found these antibodies are painting the entire spike, both the arc and the stalk of the spike protein, which looks a bit like an umbrella," said co-corresponding author Greg Ippolito, who is a research associate professor in UT Austin's Department of Molecular Biosciences and an assistant professor of oncology at UT Austin's Dell Medical School.

June 02: University of Texas At Austin: Equity is Playing a Part in Vaccine Hesitancy in Texas

Although the term "vaccine hesitancy" has gained momentum in recent months, it fails to capture the systemic nature of the greater problem of vaccine access and lack of trust in public health institutions, especially among groups and communities that historically have been underserved and mistreated or even abused by the public health and medical care systems. We should rephrase it to "vaccine equity."

The COVID-19 pandemic undeniably hit communities of color the hardest. Disparities in testing, infection rates, rates of hospitalization and death in communities of color have been well-documented since the onset of the pandemic. And yet, according to the latest data available, the rate of vaccination within these groups lags well behind that of white individuals nationally, and Texas is no exception.

The initial rush for the vaccine is over. The Americans who now remain to be vaccinated are not the ones who were so eager they waited in hours-long lines to get the first shot, or so available that they could show up for any appointment time. The populations we must now try to reach are those who may be on the wrong side of the digital divide, those who are vulnerable to misinformation, those with limited transportation access, and those whose trust in public health institutions has eroded after centuries of structural racism.

By opting instead for the phrase "vaccine equity," we reframe the issue in a critical way.

As tempting as it is to focus on stubborn or ignorant individuals, the real problem is twofold.

May 27: University of Texas At Austin: Fight Against Antibiotic-Resistant Bacteria Has a Glowing New Weapon

In the perpetual arms races between bacteria and human-made antibiotics, there is a new tool to give human medicine the edge, in part by revealing bacterial weaknesses and potentially by leading to more targeted or new treatments for bacterial infections.

A research team led by scientists at The University of Texas at Austin has developed chemical probes to help identify an enzyme, produced by some types of E.coli and pneumococcal bacteria, known to break down several common types of antibiotics, making these bacteria dangerously resistant to treatment.

"In response to antibiotic treatment, bacteria have evolved various mechanisms to resist that treatment, and one of those is to make enzymes that basically chew up the antibiotics before they can do their job," said Emily Que, assistant professor of chemistry and one of the leading researchers on the team. "The type of tool we developed gives us critical information that could keep us one step ahead of deadly bacteria."

In a paper published online yesterday in the Journal of the American Chemical Society, the researchers zeroed in on the threat posed by the bacterial enzyme called New Delhi metallo-beta-lactamase (NDM). They set out to create a molecule that glows when it comes into contact with the NDM enzyme.

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## Classification

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**Company:** NVIDIA CORP (58%); QUALCOMM INC (55%); University of Texas At Austin

**Organization:** UNIVERSITY OF TEXAS (94%)

**Ticker:** NVDA (NASDAQ) (58%); QCOM (NASDAQ) (55%); UNIVERSITYOFTEA

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**Geographic:** AUSTIN, TX, USA (96%); TEXAS, USA (93%); United States; United States

**Load-Date:** July 9, 2021

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