QUARTERLY NEWSLETTER
FALL | 2024

UCONN
RESEARCH

CELEBRATING RECORD RESEARCH FUNDING

UConn investigators won $367 million in awards in the 2024 fiscal year, an increase of $45 million over 2023 and a major step in the University's strategic plan goal of surpassing the $500 million mark.

FIRST-EVER SEQUENCING OF GREAT APE X AND Y CHROMOSOMES

For the first time, researchers have assembled a complete "end-to-end" reference genome including the sex chromosomes of five great ape species.

TECH PARK GETTING FUEL CELL UPGRADE

The UConn Tech Park will soon be powered exclusively by clean energy, as a result of a partnership between the University and FuelCell Energy.

BRACING FOR IMPACT: UCONN, PARTNERS TO IMPROVE GRID RESISTANCE

As extreme weather events grow more frequent, UConn and its partners are working to make the northeastern power grid more resilient.

RESEARCH BY THE NUMBERS Q4

TECHNOLOGY ENTREPRENEURSHIP: WASTE NOT, WANT NOT

Two brothers, UConn engineering Ph.D. student Usama Javed Sheikh and Muhammad Zaid, have developed innovative solutions for wastewater treatment.

RESEARCH CENTER SPOTLIGHT – CIRCA

NEW & NOTABLE FACULTY AWARDS

An Undergraduate student receiving instruction on a microscope in the Tasso Lab of the Physiology & Neurobiology department at the Pharmacy/Biology building. Feb. 8, 2023. (Sean Flynn/UConn Photo)

CELEBRATING RECORD RESEARCH FUNDING

A student works with some of the equipment in the Connecticut Center for Applied Separations Technology (CCAST) lab in the Innovation Partnership Building on June 25, 2024. (Sydney Herdle/UConn Photo)

UCONN'S RESEARCH ENTERPRISE CELEBRATED A STELLAR YEAR IN 2024, ECLIPSING PREVIOUS MARKS FOR EXPENDITURES AND RISING TO MEET GLOBAL CHALLENGES.

UConn investigators won $367 million in awards in the 2024 fiscal year, an increase of $45 million over 2023 and a major step in the University's strategic plan goal of surpassing the $500 million mark.

In addition, 2024 expenditures – a critical metric used to assess research productivity at colleges and universities nationwide – reached $342 million, setting a UConn record.

The increases in research awards and expenditures are tangible evidence of UConn's depth and breadth of expertise, its strength in innovation, its excellence in research, and its commitment to our communities. In fact, UConn's faculty members are dedicated to addressing some of the most daunting challenges of our lifetime and research funding makes their work possible.

"We are developing a deeper understanding of issues such as grid resiliency, responsible energy consumption and production, health across the lifespan, cybersecurity, human rights, sustainability, and much more," says Pamir Alpay, Vice President for Research, Innovation, and Entrepreneurship. "And, we have the capacity to make a profound difference for generations to come."

In a highly competitive funding landscape, UConn stands out for the quality of its faculty and the excellence of its research infrastructure, which benefited from significant investments by the State of Connecticut, including the new Science 1 research and educational facility. These assets have allowed UConn to build interdisciplinary collaborations and forge strong partnerships with businesses and industry, both of which are critical to sustaining research over the long term.

"Our research success is not coincidental," Alpay says. "We have purposefully strategized our growth to leverage existing strengths in areas such as the environment, materials and manufacturing, education, human rights, and health and life sciences and to build our capabilities through investments in faculty, infrastructure, and core centers and institutes. The result is a more prominent national profile and the ability to recruit and retain outstanding faculty and students, who, in turn, help build UConn's research enterprise."

"Our research initiatives have elevated all aspects of the University, including undergraduate education, sustainability, community service, innovation and entrepreneurship, and quality of health care

An Undergraduate student receiving instruction on a microscope in the Tasso Lab of the Physiology & Neurobiology department at the Pharmacy/Biology building. Feb. 8, 2023. (Sean Flynn/UConn Photo)

at our hospital and clinics across the state." says UConn President Radenka Maric. "Through our research programs, UConn directly contributes to the environmental, economic, and social vitality of the state and to the well-being and quality of life of Connecticut's citizens."

In an example of research funding driving programs that address real-world problems, UConn recently secured a $10 million grant from the Environmental Protection Administration to become the New England region's Environmental Justice–Thriving Communities Technical Assistance Center (EJ-TCTAC). One of 17 regional centers selected in partnership with the U.S. Department of Energy, EJ-TCTAC will build capacity in New England in underserved and rural/remote communities to address environmental and energy justice concerns, serving as a resource and technical assistance hub. The program will provide technical assistance services, education, outreach and community engagement on environmental quality and health, energy justice, climate adaptation, and civic justice.

UConn's public mission is a key to its success. "As a public university, our mission is to advance knowledge in service of the public welfare," says Alpay. " Research teams across our campuses engage with individuals and communities to understand and address the challenges they face. Community connections shape our research programs and deliver answers where they're needed. Our work in community resilience in response to climate change, our public policy efforts, and our engagement with industry in support of economic development are good examples."

Among the most prominent of UConn's efforts linking research, innovation, and public service is QuantumCT, a collaboration led by UConn and Yale in collaboration with state government, business, and community leaders that aims to make Connecticut an engine for economic development fueled by innovations in quantum technologies and to bring opportunity to communities. UConn and Yale received a National Science Foundation Regional Innovation Engine Development Award in 2023 to start building the QuantumCT innovation engine.

"Pioneering research is one of the main differentiators between great universities and good universities," says Maric, a noted researcher in clean energy engineering. "The continued upward trajectory of UConn Research's funding shows the respect that our faculty have around the world."

The increase in awards comes at a time when the University's research strength is being recognized in other ways, from early career faculty awards to senior faculty being elected members of prestigious societies. In addition, UConn and UConn Health consistently have multiple faculty members named to the annual Web of Science Highly Cited Researchers List, including five in 2023. The list recognizes researchers whose publications ranked in the top 1% by citations for their field and year of publication, demonstrating significant research influence among their peers.

Research is also key to the quality of education we are able to provide our students. Because UConn's faculty are leaders in their fields, they prepare their students to meet the world's emerging challenges. In part because of research excellence, UConn attracted the highest number of applications for admission to its freshman class in its history, including 148 valedictorians or salutatorians.

"And while I am glad to see the year-over-year success of UConn Research, we are not resting on our laurels," says President Maric. "We have a goal of $500 million in research funding, and we intend to meet – and surpass – that goal."

The Science 1 Building offers state-of-the-art facilities to UConn faculty members and students. (Sydney Herdle/UConn Photo)

Chimpanzees are among the ape species whose genome has now been entirely sequenced. (UnSplash)

FIRST-EVER SEQUENCING OF GREAT APE X AND Y CHROMOSOMES

Combined Reports - UConn Communications

UCONN RESEARCHERS HELPED COMPLETE NATIONWIDE EFFORT TO UNDERSTAND APE GENOME

For the first time, researchers have assembled a complete "end-to-end" reference genome for the sex chromosomes of five great ape species and one lesser ape species. The findings shed light on the evolution of sex chromosomes and inform understanding of diseases related to genes on these chromosomes in both apes and humans.

Members of the Telomere-to-Telomere (T2T) Consortium, a team of over 100 researchers from institutions around the world, collaborated for this landmark effort. Their findings were published June 16 in the journal Nature.

One of the paper's first authors, Gabrielle Hartley, is a research associate in the lab of Rachel O'Neill at the University of Connecticut. Hartley was part of O'Neill's lab when it helped propel the T2T Consortium to its first major breakthrough – the complete sequencing of the human genome – in 2022.

Then in August 2023, the consortium announced it had fully sequenced the human Y chromosome as well.

After that, says Hartley, "The question was, 'What are we going to do next?'"

O'Neill, who is director of UConn's Institute for Systems Genomics, has long specialized in sequencing repetitive genomes. This expertise was what allowed her lab to fill in the gaps left by the Human Genome Project – gaps which turned out to be populated with millions of repetitive, difficult-to-decipher fragments of DNA.

"Something I think a lot of people don't realize when they're thinking about DNA or a genome sequence is that really only 2% or so of our genome is genes," Hartley explains. "A lot of it is just all this extra, repeated DNA."

Building on this expertise, O'Neill's lab joined the effort to sequence primate sex chromosomes, which are as notoriously repetitive as their human counterparts. The team was led by researchers at Pennsylvania State University, the National Human Genome Research Institute, and the University of Washington.

"We brought our experience in repeat analyses to the consortium to not only annotate large portions of these sex chromosomes, but to study repeat dynamics across these species," O'Neill says.

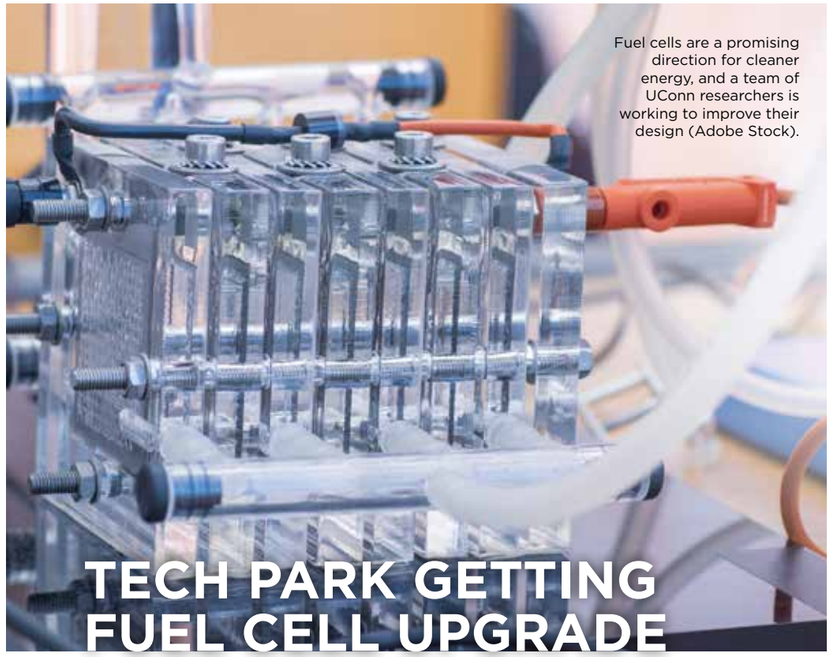
Now, the researchers have complete reference genomes for chimpanzees, bonobos, gorillas, Bornean and Sumatran orangutans, and siamang gibbons. Since these are some of humans' closest relatives, the findings have implications for understanding the health and evolution not just of primates, but of humans too.

Researchers compared the sequences of the ape chromosomes to the human X and Y chromosomes to understand their evolutionary histories. Like the human X and Y, the great ape Y chromosomes have far fewer genes compared to the X chromosomes. Researchers also used a computational method called alignment, which indicates regions of the chromosome that have stayed relatively the same over the course of evolution, revealing the effects of different evolutionary pressures on different parts of the genome.

Researchers found that over 90% of the ape X chromosome sequences aligned to the human X chromosome, showing that the X chromosomes have remained relatively unchanged over millions of years of evolution. However, only 14% to 27% of the ape Y chromosome sequences aligned to the human Y chromosome.

"The extent of the differences between the Y chromosomes of these species was very surprising," says Kateryna Makova, a professor at Pennsylvania State University and leader of the study. "Some of these species diverged from the human lineage only 7 million years ago, which is not a lot of time in terms of evolution. This shows that the Y chromosomes are evolving very fast."

"The methods developed to study these genomes provide a framework to study the genomes of other endangered species and, more importantly, apply genomic information to conservation management strategies," says O'Neill.



Fuel cells are a promising direction for cleaner energy, and a team of UConn researchers is working to improve their design (Adobe Stock).

TECH PARK GETTING FUEL CELL UPGRADE

By Matt Engelhardt, Office of the Vice President for Research

FUELCELL ENERGY PROVIDING UNITS TO POWER ENTIRE INNOVATIVE PARTNERSHIP BUILDING.

UConn Tech Park will soon be powered exclusively by clean energy, the result of a partnership between the University and FuelCell Energy.

The Innovation Partnership Building (IPB) at the Tech Park is partnering with Danbury-based FuelCell Energy on the effort, which aligns with UConn's clean energy and sustainability ambitions. Over several years, four 250-kilowatt solid oxide fuel cells will be installed for a total of 1 megawatt of power.

"This valuable partnership will help UConn to accomplish two critical goals: utilizing clean and sustainable energy sources to power our campuses as we work toward our carbon neutrality goals, while at the same time providing research and learning opportunities for members of our campus community," said UConn President Radenka Maric, a world-renowned expert in clean energy engineering. "Ensuring that UConn is as sustainable as possible and supporting research and innovation in the clean energy field is one of the great challenges of our lifetimes."

The fuel cells will generate enough energy to supply all the Tech Park's advanced technology laboratories, centers, and institutes. Importantly, the cells produce energy without combustion, generating electricity that is much cleaner than carbon-based sources.

"Innovation requires energy, and our leaders have worked hard to establish an environment where our power needs are met without negatively impacting our carbon footprint," said Pamir Alpay, UConn's Vice President for Research, Innovation, and Entrepreneurship. "The addition of these fuel cell units will sufficiently power the entire Tech Park, UConn's nexus for research progress. In the process, we move closer to our goal of carbon neutrality without compromising the needs of our partners and centers that call the Tech Park home."

Honoring the Commitment

Maric has pledged that UConn will become carbon neutral by 2030 and net carbon zero by 2040. Those goals have transformed the University's approach to new infrastructure, developed hundreds of research opportunities for faculty and students, and established new programs and initiatives that support development of clean energy and reduce the impact of climate change.

The addition of the new fuel cells also complements goals in the recently adopted UConn Strategic Plan by supporting expanded research and educational opportunities and adding to the wellbeing of the campus and community through its environmental stewardship.

Maric has convened a Carbon Reduction Working Group, comprised of UConn leadership, faculty clean energy experts, staff members from schools and colleges, and several undergraduate and postgraduate students. The group tracks the University's consumption of resources, such as energy and water, and supports academic research and responsible building practices as UConn continues to expand.

Plans include relocating C2E2 to the Tech Park, where it will take up residence in the IPB. Fuel cells are also planned for installation adjacent to the Putnam Refectory and Werth Residence Tower. Additionally, UConn is increasing the number of charging stations for electronic vehicles and is reviewing bids for construction of solar canopies to be built across 11 parking lots on the Storrs campus.

UConn has a legacy of clean energy and sustainability research and commitment that stretches more than a century. The fuel cell installation is the latest in a series of initiatives and milestones that include contributions to the moon landing and several undergraduate majors.

UConn is partnering with the federal government as well as fellow regional institutes and research universities to establish the Northeast as a leading developer of clean energy technology and to help industries in their decarbonization efforts.

BRACING FOR IMPACT: UCONN, PARTNERS TO IMPROVE GRID RESISTANCE

(Adobe Stock)

By Matt Engelhardt, Office of the Vice President for Research

THE DEPARTMENT OF ENERGY IS AWARDING TWO SIGNIFICANT GRANTS TO UCONN, UALBANY, AND OTHER PARTNERS AS INSTITUTIONS LEND STRENGTHS TO ENHANCING EFFORTS TO SAFEGUARD COMMUNITIES IN THE NORTHEAST

As extreme weather events grow more frequent, UConn and its partners are working to make the northeastern power grid more resilient.

UConn is leading a collaboration with the University at Albany and several other partners lending their respective expertise in outage prediction and meteorology. The federal Department of Energy (DOE) is funding the effort through two significant grants totaling $2.63 million.

"The Northeastern United States is the exemplar regional case for energy transition to electrification and renewables while highly exposed to risk of disasters from natural hazards, such as hurricanes, severe Nor'easters, and winter storms," says Emmanouil Anagnostou, Interim Director of the UConn Tech Park and Director of the Eversource Energy Center. "These risks are projected to increase in severity and frequency across the region, as are heat waves, precipitation, and drought, creating unique challenges to power grid resilience."

"We are thrilled to partner once again with UConn, along with other researchers and industry innovators, to help strengthen the power grid for vulnerable Northeast communities," says Chris Thorncroft, director of UAlbany's Atmospheric Sciences Research Center and Center of Excellence in Weather & Climate Analytics. "This work will advance research and cutting-edge technologies to improve energy industry efficiency and reliability in the face of a rapidly changing climate and global transition to clean energy sources."

Early this year, the DOE called for submissions for Grid Resilience Analysis and Climate Change Impacts (GRACI) funding. Public, private, and nonprofit institutions and companies were asked to accelerate analysis of regional climate change threats and resulting challenges to grid resiliency. The grants, announced on Thursday, June 27, total $4.6 million nationwide.

Emmanouil Anagnostou.
(Peter Morenus/UConn Photo)

"Keeping the lights on for communities across the country is a primary goal of the Grid Deployment Office (GDO)," saysMaria Robinson, Director of the Grid Deployment Office, U.S. Department of Energy. "GDO provides multiple financial mechanisms and investment programs to support state efforts, but this is not always enough. Each geographic region is different, with varying extreme weather impact challenges and grid resilience goals. This program will allow states to leverage existing tools, methods, and processes to help identify a solution that works for their individual region, while providing the highest level of community benefits."

Through the two projects funded for the Northeast, UConn and the Eversource Energy Center will lead one and assume technical lead overseeing four of seven tasks in the second project led by Pointerra3D.

In the first GRACI project entitled "Community co-design of Resilient Energy Solution Technology," UConn and UAlbany will work together to provide risk assessments and investment guidance to states throughout the Northeast. UConn will utilize its outage prediction model to create the grid resilience assessment, combining expertise in climate research and socioeconomic risk to guide recommendations.

UAlbany will use numerical prediction models to identify key trends throughout the region for different climate hazards and scenarios.

UConn and UAlbany are no strangers to collaboration. The two universities comprise the Center for Weather Innovation and Smart Energy Resilience, designed to help corporate partners and government agencies to work with to conduct high-impact research, drive innovative technology development, and develop a skilled workforce.

"These projects highlight the continuing partnership between UAlbany and the University of Connecticut, bringing together preeminent expertise in climate and energy," says Jeff Freedman, research faculty at UAlbany's Atmospheric Sciences Research Center. "We look forward to working together to identify and recommend efficient pathways for states and utilities to follow to ensure a just and dependable energy future."

In the second GRACI project entitled "Wind Impact Study for Power Resilience (WISPR)", UConn and UAlbany will work with Cornell and Pointerra3D (a 3D visualization and data analytics company) to simulate investments at Eversource, Avangrid, and National Grid service territories aimed at enhancing grid resilience, including hardening assets and managing problematic vegetation.

Pointerra3D will deploy light detection and ranging (LiDAR) technology, and data imagery to generate digital twins of circuits in the respective territories. UConn will use these data along with asset information, and historical outage data to develop a dynamic risk assessment model to identify patterns between vegetation management and power outages. UConn will also integrate future climate change projections and vegetation growth algorithms into the optimization model to enhance its predictive capabilities.

"This project is a testament to UConn's leading role in electric grid research," says Zongjie Wang, UConn's primary investigator for the WISPR project, an assistant professor of electrical engineering, and associate director of the Eversource Energy Center. "By integrating advanced optimization techniques and intelligent management strategies, we aim to reduce electricity costs and enhance grid resilience for Connecticut and the Northeast region. Our collaboration with partners such as Cornell University, the University at Albany, Pointerra3D, National Grid, Eversource Energy, and Avangrid will ensure the success and scalability of this initiative across North America."

WISPR will be headquartered at UConn, providing enhanced research opportunities for multiple postdoctoral positions and Ph.D. candidates, according to Wang.

Pointerra3D says "these are best practice approaches intended to be scalable across multiple regions throughout North America."

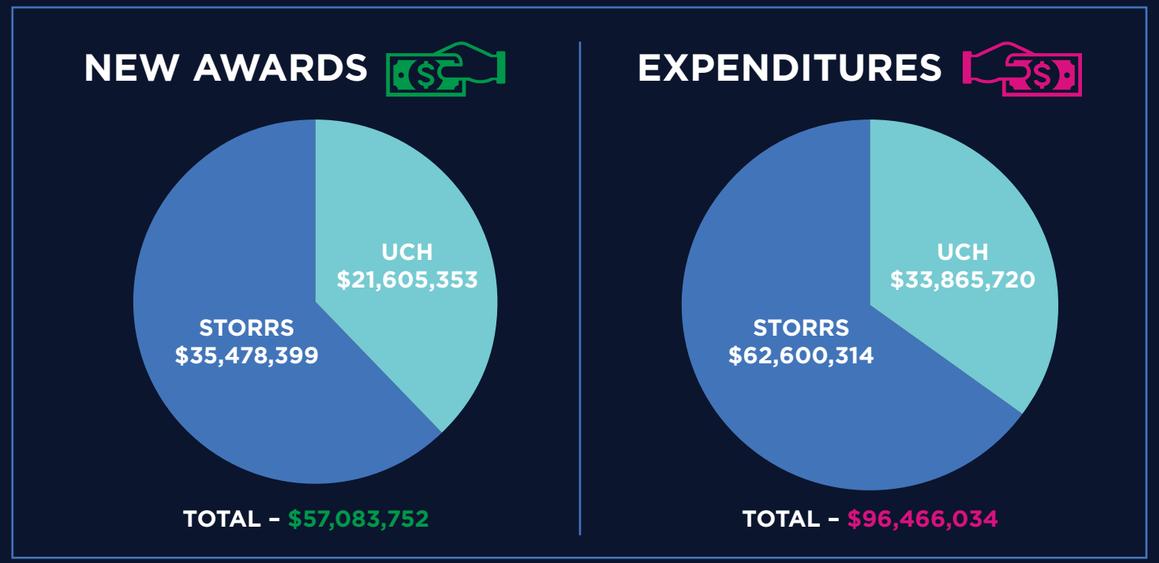
Additionally, UConn will perform a comprehensive cost-benefit analysis for both projects using advanced econometric models to optimize resilience improvement strategies.

"These projects aim to reduce electricity costs and enhance grid reliability, demonstrating UConn's leading role in advancing electric grid resilience," says Pamir Alpay, UConn's Vice President for Research, Innovation, and Entrepreneurship.

The success of these projects will provide the DOE with valuable insights to reinforce the national electric grid infrastructure. They will help pave the way for a more secure and efficient power infrastructure, benefiting not only Connecticut but potentially setting a precedent for the entire country.

"During the last heavy storm, a conversation with Eversource Energy highlighted the critical role of our work in improving residents' quality of life, including our own families," Wang says. "Driving to Storrs in 2021, I saw firsthand how essential vegetation management is for optimal grid resilience. This project addresses these crucial aspects to ensure a reliable power supply."

RESEARCH BY THE NUMBERS
FY2024 Q4 ONLY TOTALS



Usama Sheikh works on a commercial reverse osmosis membrane system in a UConn engineering lab. The system can be used to test membranes created using electrospray techniques. (Photo by Christopher LaRosa)

TECHNOLOGY ENTREPRENEURSHIP: WASTE NOT, WANT NOT

By Ira Morrison, College of Engineering

INNOVATIVE BROTHERS CREATE WASTEWATER REPROCESSING SYSTEM TO HELP ADDRESS THEIR NATIVE COUNTRY'S ENVIRONMENTAL CRISIS, CONSERVING WATER AND REPURPOSING IT FOR VARIOUS APPLICATIONS

Usama Javed Sheikh likes to say that acquiring knowledge is one thing, but utilizing it is quite another. So, after spending years learning about environmental challenges facing the world, especially related to the waste-water crisis devastating his home country, Pakistan, he pursued undergraduate and graduate degrees in chemical engineering, then put his education and skills to work.

Sheikh, now a Ph.D. student studying chemical and biomolecular engineering at UConn's College of Engineering, was acutely aware that people were dying from ingesting untreated or poorly treated wastewater, and from the results of polluted water being dumped into canals, streams and rivers and leaching into aquifers.

Determined to make a difference, he immersed himself in researching wastewater treatment methodologies, and co-founded a company focused on finding and implementing creative and affordable solutions to Pakistan's wastewater crisis.

According to his research, close to 100,000 Pakistanis annually – and likely far more, since health and environmental recordkeeping is poor – die as a result of direct or indirect contact with wastewater. What's more, half of those deaths are children under 5 years old. More than 95% of industrial wastewater is dumped into the environment in Pakistan without treatment, due to prohibitive costs, corruption, and land requirements. Yet, according to the World Bank, the country only spends $380 million annually trying to address these challenges, approximately 3.9% of the country's GDP.

In comparison, the United States spent $106.18 billion in 2022 on wastewater management, $113.08 billion in 2023, and is expected to spend $179.2 billion by 2030. The World Bank estimates that the impact on the Pakistani people from wastewater pollution, measured in economic loss, is at least $16.4 billion annually, which reflects the impact of disease and the loss of land value, tourism, recreation and investments.

After completing his undergraduate and master's degrees, Sheikh dove into rigorous experimentation and research to develop effective methodologies for meeting stringent environmental standards. Working with his brother, Muhammad Zaid, an expert in electrical, wireless communication and coding, they collaborated with the chemical and textile industries, focusing on wastewater treatment. Their efforts were centered around developing pre-treatment and post-treatment systems, aiming for zero-liquid discharge. Additionally, they revolutionized point-of-use reverse osmosis (RO) systems and were able to significantly prolong the lifespan of RO membranes used in water-filtration devices that connect to a single fixture to remove contaminants.

After graduating and spending a few years working in the field, Sheikh returned to UConn while Zaid remained in Pakistan. His goal, he explains, was to continue developing his skills and the knowledge needed to advance their work to a new level. He credits his UConn advisor, Jeffrey McCutcheon, associate professor, chemical and biomolecular engineering, for the support he has provided so Sheikh can continue working and completing his Ph.D.

"I rejoined UConn to better equip myself with advanced knowledge in technologies which will help us implement more robust solutions in Pakistan," Sheikh says. "At the same time, we were developing a color and protein removal system, and applied for a prestigious grant to support that research, along with systems we had already developed."

Every drop is precious

In 2018, prior to returning to UConn, Sheikh and his brother co-founded SE DROP (Save Every Drop). He had been working as a field engineer for a multinational corporation, but wanted to devote all his time to research and product development. Their research led them to create a process they call the Molecular Distortion Technique (MDT), which revolutionizes the way wastewater is approached by utilizing electricity to disintegrate pollutants at a molecular level. Sheikh explains that their system, with patents now pending, is compact, portable, economical, and easy to install and operate.

Once in place, their systems operate for three to five years without significant maintenance requirements, and with minimum energy utilization. Using their technology requires little training, and is tailored to Pakistan's textile industry, which uses millions of gallons of water every day.

"Far from being just another technological advance, MDT offers a practical solution that seamlessly integrates into existing infrastructure, addressing wastewater challenges directly and reducing the reliance on fresh-water sources," Sheikh says. "This system not only conserves water but also repurposes it for various applications, fostering a more sustainable ecosystem."

To put this into perspective, Sheikh says that creating 1 kg of fabric consumes over 200 liters of water, which typically is dumped. This wastewater contains up to 20,000 chemicals, which are discharged into the environment without treatment. As a consequence, World Bank research and other organizational studies show that 20 percent of all freshwater pollution is made by textile treatment and dyeing.

In addition to water pollution, the textile industry is the world's second-highest greenhouse gas producer after the oil industry. Total greenhouse gas emissions from textile production stands at 1.2 billion tons annually and accounts for 10 percent of global carbon emissions. Additionally, consuming fossil-fuel-based electricity, the primary source of energy in the apparel production process, greatly exacerbates greenhouse gas emissions.

Together, Sheikh and his brother pioneered the installation of Pakistan's inaugural greywater recycling system in Islamabad, conserving 36,000 gallons of water per month. Additionally, they created an innovative storm drain recycling system that garnered international attention. Their journey of innovation, Sheik says, took them to Dubai GITEX 2020, the TRT World Forum in Turkey, and the Young Founder Program in Singapore, and included winning Pakistan's national startup competition, in 2022, where they were recognized by Pakistan's president, Arif Alvi.

Moving to larger-volume solutions, teaching and collaboration

Their efforts resulted in another significant milestone in 2023 when they were awarded a $505,000 grant from the UK's Foreign, Commonwealth & Development Office (FCDO). This was in partnership with Dr. Wakil Shehzad from the University of Northumbria, UK, and designated to enhance their ability to pursue sustainable water solutions.

Utechnologies, this grant, Sheikh says, will be used to help foster collaborations with like-minded organizations and experts, with the goal of sharing knowledge and driving positive change in Pakistan. They also will focus on educating and raising awareness about the importance of sustainable textile practices. That's especially important, Sheikh says, explaining that developing and implementing the science often is easier than getting people to understand its value and to buy in. Fermenting an open attitude toward innovation, he adds, and navigating culture, costs, and politics is extremely complicated and challenging, especially in Pakistan.

"We want to play a valuable role in reducing Pakistan's environmental footprint and help drive positive change," Sheikh says. "We believe in the power of collaboration and innovation to create a circular economy in the fashion industry. This grant will propel us forward in our mission to transform wastewater into a valuable resource and promote eco-friendly practices in Pakistan and, eventually, in other countries facing similar water-related and environmental challenges."

RESEARCH CENTER SPOTLIGHT

NEW & NOTABLE FACULTY AWARDS

RESEARCH AWARDS > $1 MILLION, APRIL - JULY 2024

PI: Douglas J. Casa, CAHNR
National Football League (NFL) Foundation | NFL Innovate 2.0
$3,074,368

PI: Margaret K. Callahan, SOM
DHHS/NIH/National Institutes of Health | Understanding Immunotype, a Novel Biomarker for Checkpoint Blockade Resistance
$2,737,917

PI: Lixia Yue, SOM
DHHS/NIH/National Heart, Lung, and Blood Institute | Calcium Signaling Mechanisms in Cardiac Fibrogenesis
$2,673,449

PI: Kshitiz Gupta, SODM
DHHS/NIH/National Institutes of Health | Dysregulation of Endometrial Invasability Proximal to Uterine Scar as a Mechanism of Placenta Accreta
$2,390,761

PI: Wing Ki Mok, SOM
DHHS/NIH/National Institute of Allergy and Infectious Diseases | Bacterial Reprograming that Contributes to Antibiotic Persistence toward Topoisomerase Inhibitors
$2,326,292

PI: Emily B. Myers, CLAS
DHHS/NIH/National Institute on Deafness and Other Communication Disorders | Training in the Cognitive Neuroscience of Communication
$2,026,062

PI: Stacey L. Hanlon, CLAS
DHHS/NIH/National Institute of General Medical Sciences | Investigating supernumerary chromosome biology using the B chromosome model system
$2,012,500

PI: Damion J. Grasso, SOM
DHHS/NIH/National Institutes of Health/Yale University | Examining Therapeutic Change Mechanisms in an Affect Regulation, Father-Focused Intervention for Reducing Family Violence and Associated Symptoms in Children
$1,891,266

PI: Joel Pachter, SOM
DHHS/NIH/National Institute of Neurological Disorders and Stroke | Meningeal ectopic lymphoid tissues (mELTs): Composition, organization and expression
$1,468,715

PI: Joseph Ercolano, BUS
CT Department of Economic and Community Development | FY24 DECD Match for CTSBDC
$1,418,606

PI: Karen L. Steinberg, SOM
DHHS/ACF/Administration for Children and Families/CT Office of Early Childhood | Mind Over Mood Programs
$1,172,037

PI: Sylvain Deguise, CAHNR
DOC/NOAA/National Oceanic and Atmospheric Administration | Connecticut Sea Grant 2024-2027 Omnibus
$1,114,497

PI: Donna Shea, ENG
DOT/Federal Highway Administration (FHA)/CT Department of Transportation | CT Technology Transfer Center Program (CT LTAP)
$1,028,557

PI: Abhijit Banerjee, OVPR
CTNext | CT Next: Quantum CT
$1,000,000

PI: Mary E. Bruder, SOM
ED/Department of Education/American Institutes for Research (AIR) | Personnel Development to Improve Services and Results for Children with Disabilities
$1,000,000

UCONN RESEARCH

Stay In Touch With Us!