OUTLOOK

College of Science and Technology

FALL 2026



Discovery starts here

HANDS-ON RESEARCH AT CST

Dean's Scholarship Fund

Make a gift to support talented CST students

The College of Science and Technology prepares students to be tomorrow's scientific leaders. But without increased scholarship support, the college risks falling behind schools that offer more attractive financial aid packages.

To avoid student loan debt, young people increasingly choose a university that can offer the most financial support. To attract the most promising students, CST must increase its scholarship resources.

Your gift to the Dean's Scholarship Fund helps CST attract talented students who will go on to successful careers in medicine, technology, research and business. And to improving the world for all of us.

Make a gift to the Dean's Scholarship Fund at giving.temple.edu/givetocst. Or contact Erin McGinn, CST Director of Development, at erin.mcginn@temple.edu or 215.204.8192.

College of Science and Technology



OUTLOOK
Fall 2026

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Follow the College of Science and Technology:

On the cover: Mariana Bonfim, managing director of the Ambler Field Station and assistant professor of biology, and Jack Brownfield, an ecology, evolution and biodiversity major

Cover photo by Dan Z. Johnson



CONTENTS

PHOTO: DAN Z. JOHNSON

Message and Interim Dean Appointment — 2-3
Building on success

CST's 2026 Graduation Ceremony — 4-5
Exceptional students and accomplished speakers

biology news — 6-7
A Goldwater Scholar, preparing for future pandemics and cold-water coral reefs

chemistry news — 8-9
New cutting-edge microscopy, next-gen therapeutics and a graduate gives back

computer and information sciences news — 10-11
Tech that facilitates new voices, a Goldwater Scholar and Alzheimer's and AI

earth and environmental science news — 12-13
Climate model launch, new GSA Fellow and graduation speaker success

mathematics news — 14-15
Recipient of new Temple mentoring award, ICM exhibit and Teacher of the Year

physics news — 16-17
Impact on the EIC, patient safety during surgery and uncovering water's mystery

Discovery Starts Here — 18-21
Research and Leadership Symposium showcases student and faculty collaboration

Message from Development and Alumni Affairs — 22-23
Gifts to the college and Gallery of Success awardee

Alumni Board Message and Profiles — 24-27
CST's 30 Under 30 awardees and more graduates

Graduate Student Graduation Ceremony — 28
Celebrating MS, PSM and PhD recipients

Message from Shohreh Amini

The College of Science and Technology is a community defined by curiosity and a shared commitment to scientific discovery. Our strength comes from working together—faculty, staff, students, alumni and friends.

Interdisciplinary research and collaboration with colleagues throughout Temple's schools and colleges is central to our continued growth. CST partnerships also extend around the world, such as a new Alzheimer's research project with the University of Heidelberg funded by the National Institute on Aging.

CST is home to research that addresses some of the most pressing challenges facing our world—from artificial intelligence and cybersecurity to environmental sustainability, quantum information science and the life and health sciences. In this issue of *Outlook*, you can learn more about our work in:

COLD-WATER CORAL REEFS
Department of Biology researchers are part of a $1.5 million international project to locate, characterize and restore cold-water coral reefs off Argentina.

ADVANCED MICROSCOPY
A $3.3 million NSF award has brought Temple and CST a state-of-the-art SEM-based microscopy platform that will be one of only a few of its kind in the country.

REHABILITATION TECHNOLOGY
Department of Computer and Information Sciences faculty are developing more intuitive, personalized and accessible alternative communication technologies for people with autism and cerebral palsy.

CLIMATE MODELING
Assistant Professor Rebecca Beadling helped develop an open-access tool that allows scientists to rapidly evaluate climate models against real-world observations.

GRADUATE EDUCATION
Mathematics Professor David Futer received Temple's inaugural Excellence in Graduate Stewardship Award for his contributions to graduate education and student success.

NUCLEAR PHYSICS
The Department of Physics has played a central role in developing the $3 billion Electron-Ion Collider, the world's only planned collider of its kind.

I am also thrilled to share that Owl's Nest, our high-performance computing cluster, has earned a much-needed operational and financial lifeline for the academic year. I am so grateful for the university's support, which makes it possible to continue hosting a welcoming space for advanced research, learning, collaboration and community.

Just as important is the experience we provide our students. We want every CST student to have opportunities to engage in meaningful research, experiential learning and interdisciplinary collaboration. These experiences prepare students not only to succeed in their careers, but to become the scientists, innovators and problem-solvers our world needs.

CST graduates play an important role as we continue to build on CST's strengths while pursuing new possibilities. They serve as mentors to our students through our Owl to Owl Mentor Program. Our alumni set an example of excellence and dedication to science, as the 30 Under 30 honorees profiled in *Outlook* demonstrate. The financial contributions of alumni and friends support our six departments and fund scholarships for talented students.

Thank you for your dedication to our students, our research and our shared mission. Together, we can build on CST's momentum and strengthen its role as a leader in science, technology, education and discovery.

Shohreh Amini, PhD
Professor of Biology
Interim Dean, College of Science and Technology



Shohreh Amini appointed interim dean of the College of Science and Technology

by Greg Fornia

Beginning her term on June 1, 2026, Shohreh Amini is interim dean of the College of Science and Technology. Amini has been at Temple University for more than 25 years, serving in leadership roles that span teaching, research and service. She is a professor in the Department of Biology and also holds an appointment at the Lewis Katz School of Medicine.

"STEM fields are central to Temple's growth, driving innovation, workforce development and societal impact," said Amini. "As we look to the future, I am committed to fostering interdisciplinary research and collaboration across Temple's schools and colleges on Main Campus, the Health Sciences Center and beyond."

Amini is a molecular virologist whose research concentrates on HIV-1-induced neurological dysfunctions. She has served as principal investigator or co-investigator on numerous NIH-funded projects, including multiple grants that support graduate and undergraduate training and mentorship. She has been recognized with the Great Teacher Award, the Lindback Award for Distinguished Teaching, the Paul W. Eberman Faculty Research Award and the Faculty Senate Outstanding Faculty Service Award.

During her time at CST, Amini has served as chair of the Department of Biology, associate dean for research and graduate programs, and associate dean for Professional Science Master's programs. She serves on multiple editorial boards, including the *Journal of NeuroVirology*, and is a member of six national and international academic and professional organizations. She has served continuously as a reviewer on NIH study sections, including research, training and center grants. She has also served as president of Temple's Faculty Senate.

"I am honored to serve as interim dean at a time when scientific discovery and innovation are more important than ever," said Amini. "CST's strength lies in the extraordinary dedication of our faculty and staff whose work advances knowledge and improves lives in our community and around the world. I'm most excited about meeting and interacting with more CST students—beyond my area of the biological sciences—and supporting their efforts in the classroom, the lab and in the field."

Amini succeeds Miguel Mostafá, who joined CST in the fall of 2023 and stepped down as dean at the end of the spring 2026 semester.











PHOTOS: KELLY & MASSA







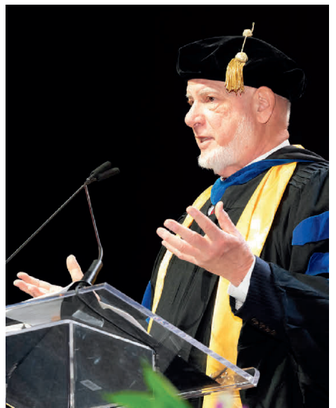










Celebrating the Class of 2026

by Greg Fornia

On May 7, the College of Science and Technology hosted a graduation ceremony for more than 500 undergraduates at The Liacouras Center.

The keynote speaker was Michael Gealt, CST '70, chair of the CST Board of Visitors and accomplished academic and higher education leader, most recently at Central Michigan University. "Mentors are important. They help train you and direct you," said Gealt, who, during his career, was recognized as a champion of student success, teaching excellence and nationally recognized research. "Try to find one for each step of your career. Try to be one."

The student speaker was Egi Rama, CST '26, who graduated with a bachelor's in computer science. Throughout her time at Temple, Rama built an impressive portfolio of technical and leadership experience. She served as vice president and then president of the Temple chapter of the Association for Computing Machinery-Women, helped organize Temple's OwlHacks hackathon and completed two internships as a software engineer with JPMorganChase. She now has a full-time position with the company in New York City.

Learn more about the Class of 2026 at cst.temple.edu/Classof2026.

For details on CST's separate graduation ceremony for doctoral, master's and Professional Science Master's graduates, go to page 28 of *Outlook*.



Researchers help uncover and restore massive cold-water coral reef in Argentina

by Jonny Hart

PHOTO: SCHMIDT OCEAN INSTITUTE

Erik Cordes, professor and Biology Department chair, and PhD candidate Morgan Will are part of a deep-sea research project in Argentina focused on discovering and restoring largely unknown cold-water coral reefs. Little is known about these reefs, and the deep-sea research community only recently gained the tools to properly explore them.

"We now think Argentina is home to one of the largest reef systems on earth," said Cordes. "Something that we didn't really know existed a year ago now turns out to be one of the largest cold-water coral ecosystems on the planet."

Cordes and Will are part of a $1.5 million research project by the G20 Coral Research and Development Accelerator Platform (CORDAP) to locate, characterize and restore cold-water coral reefs off the coast of Argentina. They're conducting the project in collaboration with the University of Buenos Aires and the Argentine Museum of Natural Sciences.

As part of the CORDAP project, Will participated in a research cruise to Argentina's deep sea. "We wanted to create a baseline, so that if we come back and see effects of human impacts, we know how to measure that against what a healthy reef should look like," said Cordes.

The Argentina cruise's main feature was the remotely operated vehicle (ROV) SuBastian used by researchers to dive to the ocean floor and search for ecosystems like coral reefs. Until recently, the scale and prevalence of cold-water reefs remained largely unknown, but cruises outfitted with ROVs and advanced mapping tools are revealing how expansive and important the ecosystems are.

Hotspots of biodiversity, these reefs play an important role in sequestering carbon from the environment and cycling nutrients from the deep sea to the ocean's surface, which plays a role in food production.

Beyond exploration, the researchers are tackling an even greater challenge: restoring damaged cold-water reefs. "The issue in the deep sea is that reef restoration hasn't really ever been done before," Cordes said. "We have to create the methods for restoring these communities while we're in the middle of exploring the deep ocean to find them."





PHOTO: RYAN S. BRANDENBERG

EE&B MAJOR EARNS MOST PRESTIGIOUS HONOR FOR STEM UNDERGRADUATES

by Khalil Bullock

Jack Brownfield, a senior majoring in evolution, ecology and biodiversity, earned a 2026-27 Goldwater Scholarship, the most prestigious award for undergraduates in STEM fields.

For Brownfield, the path to becoming a Goldwater Scholar started with a simple goal: get into research as early as possible. "I knew coming out of high school that the main thing I wanted to do in college was research," said Brownfield, who has participated in CST's Research Scholars Program. "Seeing that I could start as a first-year at Temple was a huge factor for me."

Brownfield has immersed himself in field-based ecological research at Temple's Ambler Campus, where he studies how ecosystems respond to environmental disruption. His Goldwater-recognized project focuses on a forest impacted by a rare tornado in 2021, an event that created new, temporary freshwater habitats known as ephemeral pools.

By tracking these pools over time, Brownfield gains insight into how species interact, compete and coexist in rapidly changing environments—questions that are becoming increasingly urgent as extreme weather events become more common.

"It's like watching an ecosystem form in real time," he said. "You don't usually get to see that process, especially in response to a disaster."

BRAIN DEVELOPMENT RESEARCH EARNS BLUE SKY INITIATIVE AWARD

Assistant Professor David Chen earned a $100,000 Blue Sky Initiative grant from Temple's Office of the Vice President for Research to support the development of innovative tools for studying how the brain is built.

The one-year award—intended for high-risk, high-reward research—will fund a project focused on creating an RNA-based split-GAL4 system designed to precisely target specific cell types as they form during development.

Understanding how the brain develops requires the ability to identify and experimentally access individual cell types. While advances in gene expression profiling have made it possible to catalog diverse brain cells, linking those molecular identities to function during development remains a major challenge.

Chen's lab is addressing this gap by adapting a recently developed RNA-sensing technology known as CellREADR for use in the model organism Drosophila. This approach enables researchers to detect which genes are active within a cell and use that information to activate genetic tools selectively.

"This work builds on recent innovations in RNA sensing while expanding what we can do in established model systems," Chen said. "Ultimately, it will allow us to better understand how neural circuits are assembled and how developmental disruptions may lead to neurological disorders."

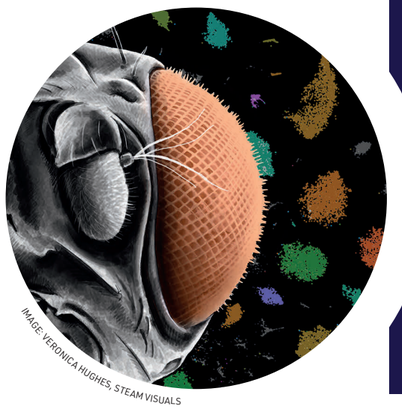


IMAGE: VERONICA HUGHES, STEAM VISUALS



PHOTO: RYAN S. BRANDENBERG

RESEARCH MAY HELP SCIENTISTS BETTER PREPARE FOR FUTURE PANDEMICS

by Jonny Hart

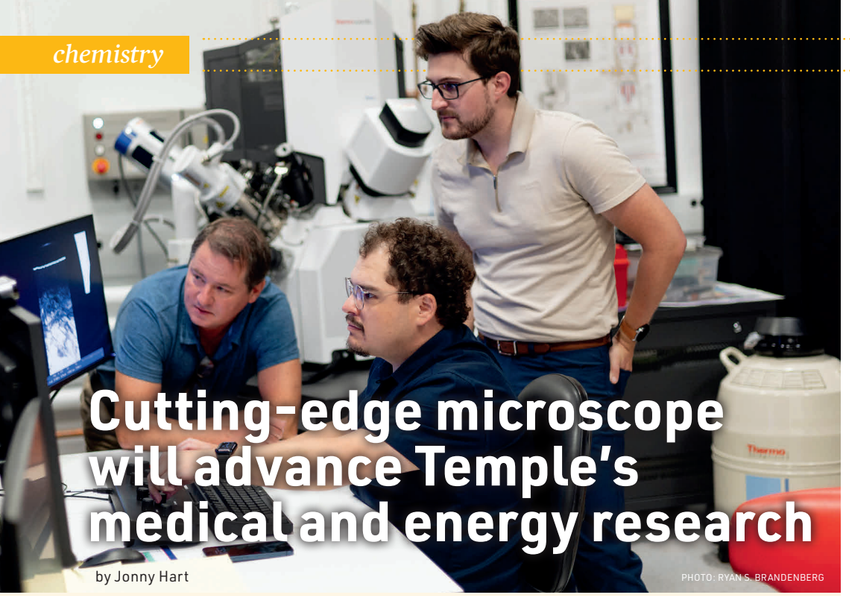
In the aftermath of COVID-19, there was speculation over how the virus called SARS-CoV-2 came to infect humans. Some suggested it evolved normally, originating in animals and then jumping to humans after a period of mutating. Others believed humans manipulated the virus in a lab.

But new research published in the journal *Cell* and co-authored by Sergei Pond, professor of biology, found that SARS-CoV-2 evolved normally and showed no signs of human manipulation. At least, not the kind of human manipulation that scientists have seen before.

"There was nothing remarkable about SARS-CoV-2's evolution from what we could tell," said Pond, who has spent two decades researching viral evolution.

Pond and the article's co-authors analyzed seven viruses, including SARS-CoV-2, Ebola and influenza A, looking for clues about how they evolved. The findings suggests many viruses can spread to humans with less adaptation than was previously thought, a conclusion that can help scientists better prepare for viral threats.

"SARS-CoV-2 demonstrated pretty dramatically that whatever mechanisms we had in place for predicting and managing pandemics were inadequate," Pond said. "Our research suggests we don't necessarily have to wait for a virus to do something extraordinary for it to be a threat."



Cutting-edge microscope will advance Temple's medical and energy research

by Jonny Hart

PHOTO: RYAN S. BRANDENBERG

Scanning electron microscopes, and their ability to help researchers visualize matter at the nanoscale, regularly contribute to groundbreaking innovations. Semiconductor and quantum technologies for computing, drug and cancer treatments, battery technology, and photovoltaic solar panels have all advanced through the use of electron microscopy.

Now, thanks to a $3.3 million NSF award, Temple owns a brand new, state-of-the-art SEM-based platform. The instrument configuration will be one of just a few in the country, and only the second at a university.

CST faculty, led by Michael Zdilla, professor of chemistry; Dmitriy Dikin, technical manager of Temple's Nano Instrumentation Center; and Bernd Surrow, professor of physics, began meeting in 2024 to explore the acquisition of a new electron microscope.

"This system does things that no one else in the country can do, unless you live near UC Santa Barbara, so a ton of faculty leapt at the opportunity to be a part of this proposal," said Zdilla, principal investigator of the NSF award.

The system can use laser and ion beams to drill into or strip away layers of any material, providing a three-dimensional image of a sample. It also uses X-ray technology to detect a sample's elemental and structural composition, and it has an ion mass spectrometer, which can help researchers pinpoint where specific molecules are located in a sample.

"All of this information is condensed into a 3D, rotatable map showing where the elements and molecules are, down to the nanometer scale," Zdilla said. "And this is all done on a chunk the size of a centimeter. It is absolutely unheard of to get that level of information from a centimeter-sized object, including molecular and elemental mapping."

Because of its versatility, the instrument has attracted the attention of Temple researchers from a wide range of disciplines. Zdilla hopes to use the new instrument to make advancements in the replacement of flammable liquid electrolytes found in batteries, which are usually responsible for battery fires.

Temple's award includes funding for three years of training and support for the system, which will help researchers and students launch new research projects.

SETH HERZON, CST '02: GIVING BACK AND HONORING GRANT KROW

by Eddy Kosik

Seth Herzon, an organic chemist at Yale University, struggled so much in school that he nearly didn't attend college. It wasn't until one Temple professor took him under his wing that Herzon began to realize his own potential. Now, he's creating similar opportunities for future chemistry students.

"I was not a very good student," he said. "I didn't know how to go about learning. I would get piles of work, go home and just be overwhelmed."

It wasn't until sophomore year, when Herzon took an organic chemistry class with Professor Grant Krow that something finally clicked. Before the end of the semester, Herzon approached Krow about joining his lab. Krow said yes. "From there," Herzon said, "everything just kind of snowballed."

When Herzon decided to give back to Temple after finding success in his own career, he gifted $50,000 to endow the Grant Krow Memorial Scholarship, which provides financial support for undergraduate or graduate chemistry students, with preference for those conducting organic chemistry research.

"I just hope that it creates opportunities," Herzon said. "Maybe there's a faculty member considering taking an undergraduate into the lab for the summer, and that student needs a stipend to make it possible. Maybe this fund can help make that happen."

PHOTO: SETH HERZON



PHOTO: RYAN S. BRANDENBERG



FIRST-GEN CHEMISTRY STUDENT AIMS TO INSPIRE OTHERS

by Khalil Bullock

For many Temple CST students, being the first in their family to attend college is more than a personal milestone—it's a turning point for generations to come.

For Juan Diego Cervantes Ramirez, a senior chemistry major with a minor in Spanish from Warminster, Pennsylvania, being a first-generation college student is about proving what's possible. Born in Abington, Pennsylvania, and raised between Warminster, Pa. and Mexico, Ramirez returned to the U.S. his senior year of high school determined to pursue higher education.

"Coming back and choosing Temple felt right and it was close to home," he said. "But the transition wasn't easy." As a commuter student navigating language barriers and financial challenges, Ramirez leaned on Temple's Tri-Alpha Honor Society and CST's First-Gen Initiative for support.

Now a proud member of the Diamond Marching Band, Ramirez has found both community and confidence. He hopes to pursue a career in forensics or research and inspire his younger siblings with a simple message: "With dedication and effort, you can do it, too."

TEMPLE'S #YOUAREWELCOMEHERE SCHOLARSHIP HELPS LAUNCH CAREER

by Brent Baum

When Ayna Mammedova, CST '23, '24, first imagined studying at Temple, it initially seemed out of reach. Mammedova was coming from Turkmenistan—6,400 miles away—and facing the challenges of accessibility to a U.S. college education as an international student. That dream became a reality when she earned Temple's #YouAreWelcomeHere scholarship, a $20,000 renewable scholarship awarded each year to two first-year international students.

"Growing up in a small town in Turkmenistan, I never imagined I could study in the U.S. With Temple's idea to create the #YouAreWelcomeHere scholarship, it made that dream not feel so far away anymore," said Mammedova, a biochemistry major who also earned a PSM in bioinformatics at Temple.

Now an associate bioinformatics scientist at the Coriell Institute for Medical Research, Mammedova analyzes biological data contributing to groundbreaking research, exploring innovative approaches to understanding and treating cancer.

Mammedova credits associate professors Vladi Wilent and Carol Manhart of the Chemistry Department, and other CST faculty for providing guidance and support that made even the most challenging scientific concepts understandable.

"They were amazing professors in the way they explained very complex concepts in small, easy steps and ensured all students received any help they needed," she said.

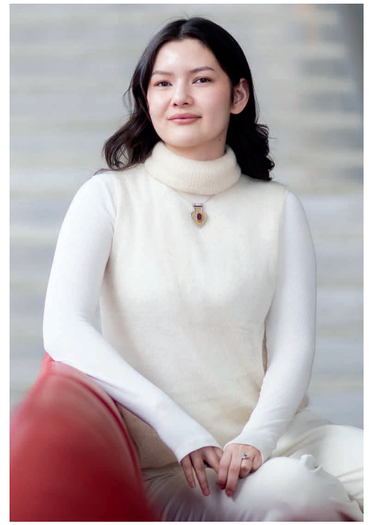


PHOTO: RYAN S. BRANDENBERG

CLIMBING TO THE TOP OF DRUG DISCOVERY

With Philadelphia emerging as a major hub for biotechnology, Ladder Bio sits at the cutting edge. Tackling difficult-to-treat targets in inflammation, autoimmune disease and oncology, the company is commercializing a unique platform to generate next generation therapeutics.

Founder Christian Schafmeister, professor of chemistry, and his innovative team have pioneered the development of spiroligomer molecules–synthetic, ladder-shaped compounds engineered to be small enough to penetrate cells and selectively target proteins. Ladder Bio plans to use these molecules to create an oral drug as an alternative to treatments that require injections. Ultimately, the spinout is opening a new chemical space and therapeutic modality for drug discovery.



CIS research brings new voice to people with communication limitations

by Jonny Hart

PHOTO: RYAN S. BRANDENBERG

Alternative and augmentative communication (AAC) technologies are an essential part of day-to-day life for people with conditions that limit communication, such as autism, cerebral palsy or aphasia, but the technology has struggled to keep up with the needs of its users.

"Existing AAC devices are really primitive," said Stephen MacNeil, assistant professor and director of the Human-Computer Interaction Lab. "You might have a device that looks like a keyboard where each key represents a word, and you press those words to communicate. But users have to sift through all of these words, and some of them are nested away in folders. It's just really inconvenient."

MacNeil is leading the technology and engineering development efforts for a new Rehabilitation Engineering Research Center (RERC), a multisite center based out of the University of Arkansas. RERC received $5 million from the National Institute on Disability, Independent Living and Rehabilitation Research to advance AAC technologies by making them more intuitive, personalized and accessible.

A portion of the funding—$1.5 million—will directly support the work of MacNeil and his co-primary investigators, Slobodan Vucetic, professor and director of Temple's Center for Hybrid Intelligence, and Eduard Dragut, professor.

AAC devices range from low-tech, such as picture boards, to high-tech, such as speech generating devices, or iPads and other devices that offer communication options that a user might need. The technology often has limitations, including that device capabilities don't evolve as a user grows and develops.

MacNeil and his team are working to make AAC devices more aware of a user's environment and use that context to provide relevant communication options, since a user may need different options when they're in the bathroom than they do in the kitchen, or when playing with a sibling, for example.

The researchers regularly consult with an advisory committee made up of people who use AAC devices, which helps the researchers better understand the challenges and potential use cases for the technology. "There needs to be more participation from people with disabilities in accessibility research, and right now that just doesn't happen enough," MacNeil said.

CIS LAUNCHES NEW UNDERGRADUATE AI MAJOR

The CIS Department has launched a new undergraduate major in artificial intelligence, preparing students to design, evaluate and deploy intelligent systems for a rapidly evolving range of industries.

Grounded in computer science, the new major combines specialized coursework in machine learning, cloud infrastructure, databases and human-AI interaction. "Students will also explore the ethical and practical considerations involved in developing intelligent systems that are interpretable, responsible and impactful," explained Yu Wang, professor and chair of the department.

Students will learn from computer and information science faculty with expertise in artificial intelligence and experience teaching AI-focused courses at Temple. Sample courses include Knowledge Discovery and Data Mining, Analysis and Modeling of Social and Information Networks and Development of Multitier Client/Server Systems.

The major also provides opportunities to engage in research through the department's Center for Hybrid Intelligence and Human-Computer Interaction Lab, as well as with other research centers across CST departments.

"Philadelphia and the Northeast corridor are a growing center of applied AI innovation," said Wang. "Working with our experienced faculty, graduates will be prepared to apply AI to challenges in healthcare, education, sustainability, finance and creative industries."

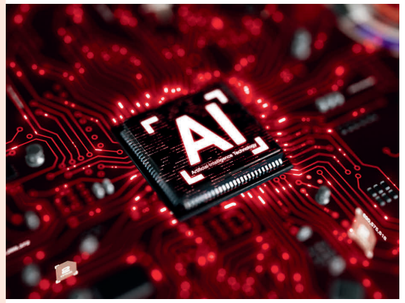




PHOTO: RYAN S. BRANDENBERG

CIS STUDENT EARNS PRESTIGIOUS GOLDWATER SCHOLARSHIP

by Khalil Bullock

For Kush Patel, a senior computer science major named a 2026-27 Goldwater Scholar, his path has been defined by curiosity and a passion for research.

Patel began exploring research early, joining the Human-Computer Interaction Lab the summer after his first year, where he worked under the guidance of Stephen MacNeil, director of the lab and an assistant professor. What started as an introduction to research quickly evolved into a focused interest in how students interact with emerging technologies, particularly artificial intelligence.

His Goldwater-recognized work examines how large language models—AI systems that can understand and generate human language—shape learning in computer science education, exploring how different types of AI-generated explanations impact student understanding. Patel's research tackles timely questions about AI's role in students' skill development and long-term learning.

"With so many students using AI tools now, I wanted to understand how they actually impact learning," Patel said. "It made me realize that this research matters now more than ever."

Patel serves as president of Temple's chapter of the Association for Computing Machinery and director of OwlHacks, while also mentoring students and working within the Honors Program.

TURNING INTERDISCIPLINARY COLLABORATION INTO A VISION FOR EDUCATION

by Khalil Bullock

A new interdisciplinary project led by faculty from CST and the College of Education and Human Development will bring together expertise in teacher education and AI to enhance how future educators are prepared for the classroom.

A $1.88 million grant from the U.S. Department of Education's Fund for the Improvement of Postsecondary Education Special Projects will support the work of several education faculty members in collaboration with CIS Professor Longin Jan Latecki.

At its core, the project is driven by a shared goal: expanding access to meaningful, high-quality instructional rehearsal opportunities for preservice teachers.

The team is exploring how emerging technologies can transform mathematics teacher preparation. Their project will develop an AI-driven virtual classroom system that uses "student agents" to recreate realistic instructional scenarios, allowing preservice elementary teachers to practice instructional strategies, classroom management and decision-making. By integrating educational theory with generative AI systems, the platform provides structured opportunities for preservice teachers to apply theory in realistic instructional settings and receive feedback.

The project draws on faculty expertise spanning education and computer science, creating an interdisciplinary team that mirrors the collaborative learning environments they hope to foster for future educators.



PHOTO: RYAN S. BRANDENBERG

NEXT-GEN COMPUTING POWERS DEMENTIA-FOCUSED AI RESEARCH

by Lina Duffy

Professor Mindy Shi is tackling one of healthcare's most difficult challenges: predicting and managing dementia progression over time.

While computing power has had a limiting effect on her research, that is shifting through Pennsylvania's new Keystone AI + Quantum Factory, which Temple helped launch. The consortium brings together universities, industry and public-sector leaders to expand access to advanced computing needed for research.

"This kind of computing infrastructure dramatically accelerates our research," explained Shi. "Some of the large-scale AI training and simulations that might previously have taken us weeks can now potentially be scaled down to a couple of days or even several hours."

The challenge in dementia and Alzheimer's care is that the disease develops gradually, producing changing signals that make it difficult to anticipate how a patient's condition may evolve. Her work aims to develop an agentic AI system capable of continuously modeling a patient's condition over time, accounting for uncertainty and guiding more personalized care decisions.

Shi's team is training AI models using large-scale simulations and augmented datasets to replicate how dementia progresses across different patient populations. Those efforts will allow her team to test interventions before they can be applied in clinical settings.



Beadling helps launch framework to evaluate climate models

by Greg Fornia

Assistant Professor Rebecca Beadling is a member of the Climate Model Benchmarking Task Team that designed and delivered the Rapid Evaluation Framework (REF), an open-access tool that dramatically speeds up the evaluation of climate models. Launched by an international team of scientists in 2026, the tool allows researchers to compare model results with real-world observations, providing immediate insight into model performance.

REF was developed by scientists working on the Coupled Model Intercomparison Project (CMIP), a global collaboration that provides the framework for large-scale climate model comparison by coordinating a common set of experiments for modeling centers to run, defining standards for data requirements, and providing the technical infrastructure for the public release of model results. CMIP results provide the backbone for the assessment of future climate change in the Intergovernmental Panel on Climate Change Assessment Reports (IPCC).

"Over the past two years, I've contributed to the design of the dashboard and the ocean metrics," explained Beadling. "There is still much further to go, but the community release of the first version of the REF, designed to aid model assessment for the upcoming IPCC-AR7, represents a significant advancement toward the ability to rapidly assess how well the new generation of climate models perform relative to the observed world. The tool is open and freely available, broadening access to evaluation tools and model results."

The REF makes it much faster and easier to assess how well these climate models perform by automatically comparing their outputs against real-world observations. Until now, evaluating climate models could take months and require downloading terabytes of data. For specific climate variables relevant for policy makers, the REF automates much of the process, running checks across a wide range of measurements and producing results that are available online for anyone to access.

"The faster we can assess the strengths and weaknesses of climate simulations," said Beadling, "the faster we can improve models and provide reliable projections of future climate change for the public and decision makers."

EES WELCOMES DAVID LITWIN

With expertise in hydrology and landscape dynamics, David Litwin has joined the EES Department as assistant professor.

Prior to Temple, Litwin served as a postdoctoral researcher at the GFZ Helmholtz Centre for Geosciences in Germany, where he investigated Earth surface processes and landscape evolution. His research focuses on landscape hydrology, examining how topography and water flow interact to shape landscapes over time. He earned his PhD in Geography and Environmental Engineering from Johns Hopkins University, concentrating on landscape hydrology.

Litwin studies how water moves through and affects Earth's critical zone (CZ), which extends from the bottom of the circulating groundwater to the top of the vegetation canopy. His work combines theory, numerical simulations, and field measurements to improve our understanding of fundamental processes and management of the CZ, considering both modern environmental change and long-term evolution.

BUYNEVICH NAMED GSA FELLOW

by Greg Fornia

Associate Professor Ilya Buynevich has been elected a Fellow of the Geological Society of America (GSA), a distinction that recognizes scientists who have demonstrated a sustained record of distinguished contributions to the geosciences through research, teaching, leadership, public engagement and professional service.

Buynevich's research spans coastal and marine geology, including barrier systems, aeolian environments, trace fossils and estuarine processes. He has authored more than 100 peer-reviewed journal articles and book chapters and recently served as a Fulbright Scholar. His work has taken him across four continents, where he has collaborated with colleagues on research cruises, field investigations and interdisciplinary studies that have expanded understanding of coastal evolution and environmental change.



"It is an honor to join prominent geoscientists from around the world as a Geological Society of America Fellow. This accomplishment is shared with many colleagues and students who divided long hours in the field, from the deserts of New Mexico to recently glaciated islands of the Baltic States, and the deep-sea shipwrecks offshore Ukraine."

– ILYA BUYNEVICH



GRADUATION SPEAKER CONTINUES AGRIVOLTAICS RESEARCH IN CANADA

by Greg Fornia

Graduating with a doctoral degree in geoscience, Caroline Merheb, CST '27, was a featured speaker at CST's 2026 graduation ceremony for master's and doctoral students.

"If there's one thing graduate school teaches you, it's how to survive on little sleep and a lot of uncertainty," said Merheb. "And if you're lucky, like I was, you might even get to do your research outside under solar panels, enjoying shade and growing your own food."

Merheb's research focus is agrivoltaics, and she is lead author of "Synergies and trade-offs of multi-use solar landscapes," published in the influential journal *Nature Sustainability*. Combing through years of data from previous agrivoltaics/solar photovoltaics research, Merheb searched for trends, such as increases in energy/food productivity; highlighted the benefits agrivoltaics have over separate systems for solar and food production, particularly in urban and small-scale farming contexts; and identified challenges to collocation scenarios and what could be done to improve the integration of these systems.

Supported by a Canada Impact+Reseach Award that recognizes outstanding international researchers, Merheb continues her work at the University of Calgary as a postdoctoral fellow. She will expand her work in agrivoltaics by developing a decision-support tool for farmers, solar developers and policymakers to improve system design and siting.



PHOTO: RYAN S. BRANDENBERG

LAURA TORAN LEAVES LASTING LEGACY

by Greg Fornia

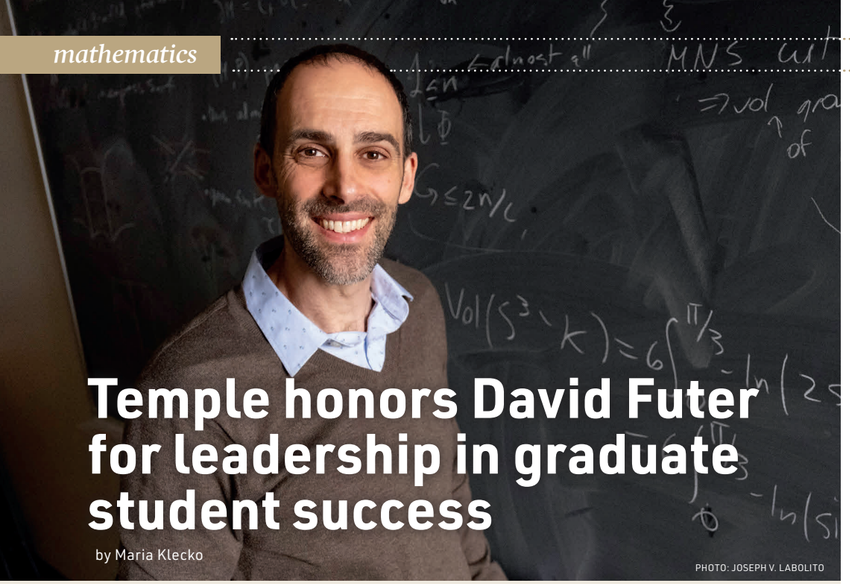
Laura Toran, Weeks Chair in Environmental Geology and EES professor, retired in early 2026 following a career marked by excellence in research, teaching and service.

Toran joined Temple in 1997 after research appointments at Oak Ridge National Laboratory and the U.S. Geological Survey. She became a leading scholar in hydrology, groundwater and watershed science, while mentoring generations of students and helping shape the department's growth.

Her contributions were recognized with numerous honors, including the Dean's Distinguished Teaching Award, Dean's Distinguished Research Award and University Service Award. She was also named a Fellow of the Geological Society of America and served as executive editor of the journal *Groundwater* from 2021 to 2023.

Toran led and collaborated on major research initiatives focused on urban watersheds, stormwater management, critical zone science and environmental sustainability. Her work attracted significant support from organizations including NSF, William Penn Foundation, EPA and Pennsylvania Department of Transportation.

Toran remains with EES part time, wrapping up funded projects and continuing with research on urban hydrology, evaluating stormwater control measures and groundwater contamination.



Temple honors David Futer for leadership in graduate student success

by Maria Klecko

PHOTO: JOSEPH V. LABOLITO

Mathematics professor David Futer has been named a recipient of the university's inaugural Excellence in Graduate Stewardship Award, one of two new graduate faculty awards created to recognize faculty members who have made exceptional contributions to graduate education and student success. The award honors faculty members who go beyond traditional teaching and advising responsibilities to develop and strengthen graduate training programs.

Futer has spent 18 years at Temple building a career that combines internationally recognized research with a commitment to student mentorship and graduate education.

Futer's research focuses on low-dimensional topology and geometry, fields that explore the possible shapes and structures of three-dimensional spaces. Futer studies questions related to the geometry of the universe, including how space might connect back to itself and how geometric properties such as area and curvature are influenced by topology.

"My research in geometry and topology is driven by the quest to understand the geometry of potential mathematical shapes of our physical universe," Futer said. While his research has earned recognition in the mathematical community, Futer said he is equally inspired by teaching and mentoring students.

"Temple students persevere through obstacles to master challenging ideas," he said. "I have also really loved working with graduate students to explore three-dimensional geometry and discover beautiful new forms of symmetry."

As graduate chair of the Mathematics Department, Futer led a series of reforms designed to strengthen the department's graduate programs. Those efforts included launching a professional development seminar to better prepare students for doctoral study and expanding mentoring opportunities through both faculty and peer support networks.

The initiatives contributed to significant improvements in student retention and degree completion, while also increasing the proportion of doctoral degrees earned by women.

Futer said the changes helped create a more supportive and engaging graduate experience for students across the department. "In the end, the reforms to our program made it a better experience for everyone," he said.

CELEBRATING OUTSTANDING TEACHING AND RESEARCH

Two students in mathematics earned CST awards for teaching and research.

"I think the best aspect of teaching is the opportunity to experience the sparks of learning something new vicariously through the students," said Aditya Sarma Phukon, who earned the Outstanding Teaching Assistant Award. "Witnessing their subsequent growth inspires me to do better not only as a teacher but in my own learning journey as a graduate student."

Afrina Asad Meghla earned the Outstanding Research Assistant Award. "What I enjoyed most about my RA position was working at the intersection of mathematics, computation and neuroscience," said Meghla. "I particularly enjoyed building and refining computational models of neuronal dynamics, connecting theory with prior research, and seeing how small modeling choices could lead to different outcomes."

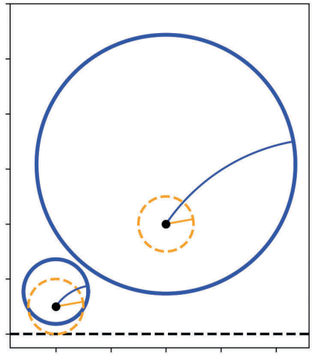
INAUGURAL INTEGRAL BEE

The Department of Mathematics hosted its Inaugural Integral Bee featuring participants from Calculus 2 (math 1042 and 1942). Confronted with 10 exceedingly hard integrals, Jose Rodrigo Burgos Trujillo came out on top with 86% of the possible points. Other top finishers were Bailey Barrett, Iskender Nusupov and Matteo Crespi.

MATH FACULTY AND STUDENTS HOST EXHIBIT AT ICM'S MATH FESTIVAL

With sponsorship from the Simons Foundation, Professors Jaclyn Lang and Beca Lufi led a team of undergraduates, graduate students and faculty in creating an exhibit for the Math Festival at the International Congress for Mathematicians (ICM), at the Pennsylvania Convention Center in Philadelphia.

The exhibit, titled *Are we there yet? An exploration of distance*, used the concept of distance along with hands-on activities to showcase the process of mathematical development and exploration. Activities included a hyperbolic virtual reality video





game, p-adic cornhole, tessellation puzzles, origami, straightedge and compass constructions and more.

"Distance is a great concept because it is both something everyone is familiar with and very visual," explained Lang. "We can illustrate our ideas with pictures rather than with formulae and calculations. People have an intuition for how distance behaves, and we can surprise that intuition when we change the definition of distance and see new phenomena."

CST students created many of the exhibit activities, such as web apps, crocheted hyperbolic planes and a model of the streets of Philadelphia.

"The students honed their technical communication skills, from creating posters, presenting them in Math Club and preparing to guide the general public in the activities at the festival," said Lang.

SK DAY OFFERS INSTRUCTION AND MENTORSHIP

Thirty-one middle school girls attended the Mathematics Department's Sonia Kovalevsky Day (SK Day) 2026. Led by current area high school students and Temple undergraduate and graduate students, as well as Temple professors, students learned about knot theory, quantum computing, permutations and abstract notions of distance.

SK Day, named for a trailblazing Russian mathematician and the first woman to earn a doctorate in mathematics, brings middle school girls to campus to learn about mathematics and careers. The program focuses on providing participants with competent and engaging mathematical instruction intertwined with strong mentorship by Temple undergraduate and graduate women students in STEM disciplines, who are in a position of scientific leadership at the college level.



PHOTO: CONNOR MCVAIL

JESSICA BABCOCK EARNS CST TEACHING AWARD

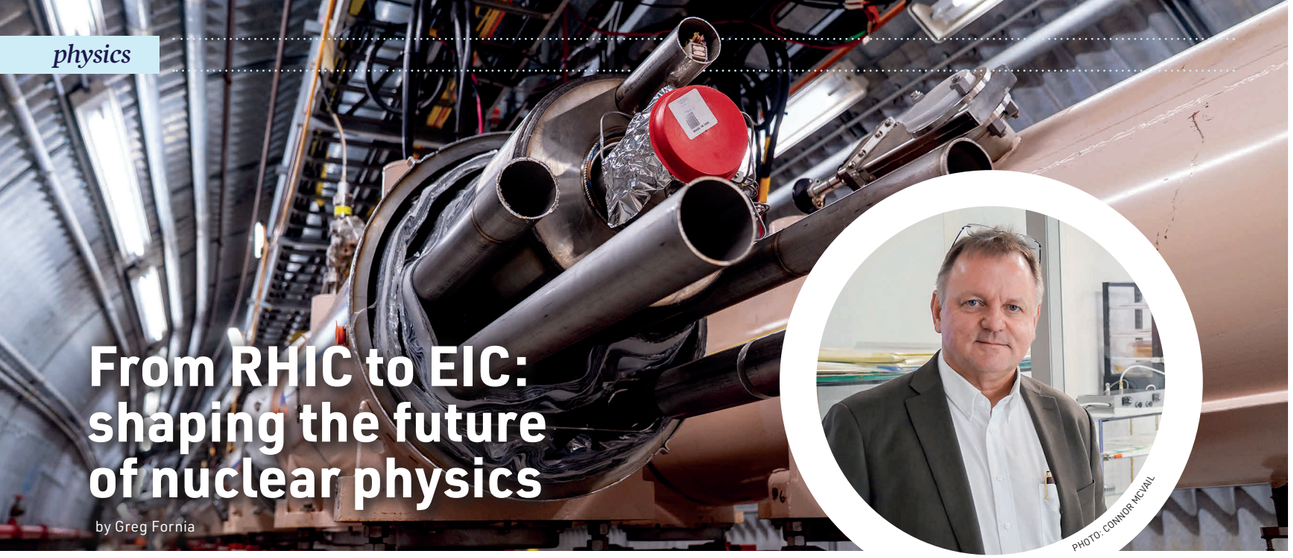
by Greg Fornia

Jessica Babcock, assistant professor of instruction, was awarded the Italia-Eire Foundation Distinguished Teacher of the Year. The honor was presented during a 2026 ceremony that recognized outstanding teaching, mentoring, research and service within the College of Science and Technology.

Babcock, who earned both her undergraduate and graduate degrees at Temple, joined the department in 2008.

"Professor Babcock has consistently demonstrated excellence in making students feel comfortable and being an engaging professor," said one of her students. "What sets her apart is not only her passion for her students and Mathematics, but also her personalized teaching style. I cannot express my gratitude to Professor Babcock for guiding me, giving me advice and encouraging me to not only be better in school, but also as a person."

The Italia-Eire Foundation Distinguished Teacher of the Year Award is funded by Joseph Allegra, CST '70. Allegra is a past chair and current member of the college's Board of Visitors.



From RHIC to EIC: shaping the future of nuclear physics

by Greg Fornia

PHOTO: CONNOR MCVAIL

After 25 years, the Relativistic Heavy Ion Collider (RHIC) at Brookhaven National Laboratory (BNL) is approaching the end of its historic research mission. Its successor, the Electron-Ion Collider (EIC)—a next-generation research facility with an estimated cost of approximately $3 billion—will usher in a new era of discovery and help secure U.S. leadership in nuclear physics.

Bernd Surrow, Laura H. Carnell Professor of Physics, has played a central role in the development and realization of the EIC, which will be built at BNL and will be the only collider of its kind planned in the world.

For more than two decades, Surrow conducted internationally recognized experimental research at RHIC, making important contributions to understanding the spin structure of the proton while helping develop advanced detector technologies that will play a central role at the EIC.

"The new collider represents a once-in-a-generation opportunity to answer some of the most fundamental questions about matter," said Surrow. "It will allow us to explore how quarks and gluons build the visible universe, revealing how they generate the mass, spin and structure of visible matter."

In 2014, Surrow organized a major American Physical Society meeting at Temple, where the U.S. nuclear physics community endorsed the EIC as its highest-priority new facility. That recommendation ultimately led to a National Academy of Sciences review and the U.S. Department of Energy's 2019 decision selecting BNL as the site for the EIC.

Surrow later served as chair of the worldwide EIC User Organization, representing approximately 1,300 scientists during the project's approval and site selection. He played a leading role in bringing together competing detector concepts in the unified ePIC Collaboration, now the flagship experiment being developed for the EIC.

Temple faculty, postdoctoral researchers and students are contributing to detector development, instrumentation and software. Many of these young scientists will be among the first generation to carry out experiments at the new facility.

"Few scientists have the opportunity to witness the conclusion of one world-leading collider while helping build its successor," Surrow said. "I feel incredibly fortunate to be part of both journeys, and I am especially excited that Temple students will help shape the discoveries that lie ahead."

ENHANCING PATIENT SAFETY DURING SURGERY

When surgical needles or sharp objects are lost inside the body, the consequences can be serious and costly. To address this problem, John Noel, professor of instruction, and urologic oncologist Daniel Eun developed the Melzi Sharps Finder, now the flagship product of Melzi Surgical, which the duo co-founded.

The device allows surgeons to search directly inside a patient's body for metallic objects, such as surgical needles, instruments, broken fragments and guidewires, many of which may not be detectable on X-rays. In doing so, the technology enhances patient safety while reducing hospital costs. In April 2022, the company secured a $4 million investment; an expanded marketing and sales effort to hospital systems nationwide is currently underway.



MEDICAL DOSIMETRY PSM EARNS JRCERT ACCREDITATION

by Greg Fornia

Launched last year, CST's Professional Science Master's in medical dosimetry earned accreditation by the Joint Review Committee on Education in Radiologic Technology (JRCERT). Medical dosimetrists collaborate with radiation therapists, medical physicists and radiation oncologists to design and generate radiation dose distributions while providing oversight to high-level treatment procedures.

"JRCERT accreditation is a major milestone for the program, the Physics Department and Temple," said Mulualem Kefene, program director and assistant professor. "For students, it is especially important because graduation from a JRCERT-accredited medical dosimetry program is required for eligibility through the standard pathway to take the Medical Dosimetrist Certification Board certification exam. Most employers require or strongly prefer MDCB certification."

Temple's program is the only JRCERT-accredited medical dosimetry master's program in Pennsylvania and one of a small number of JRCERT-accredited medical dosimetry master's programs in the United States.

RESEARCHERS UNLOCK A LONG-STANDING MYSTERY OF WATER

by Greg Fornia

Why does water behave differently from almost every other liquid on Earth?

Using a combination of AI and advanced quantum mechanical simulations, the Temple researchers developed a highly accurate model that explains why water reaches its maximum density at about 4 degrees Celsius before expanding again as it freezes. Rather than being caused by a simple structural transition, the researchers found that water's behavior emerges from competition between order and disorder occurring at different length scales simultaneously. The findings were published in *Science Advances*.

Scientists have struggled to fully explain water's strange density behavior because doing so requires understanding interactions occurring simultaneously across vastly different scales. The Temple team overcame that challenge by training an AI-based model on highly accurate quantum calculations, allowing them to simulate water at much larger scales while preserving quantum-level precision.

"Our work demonstrates how artificial intelligence can help bridge the gap between microscopic quantum mechanics and large-scale physical behavior," said Xifan Wu, professor and member of the team that also included Yizhi Song, a postdoctoral researcher and first author. "This combination allowed us to study water at experimentally relevant scales in a way that was previously not feasible."

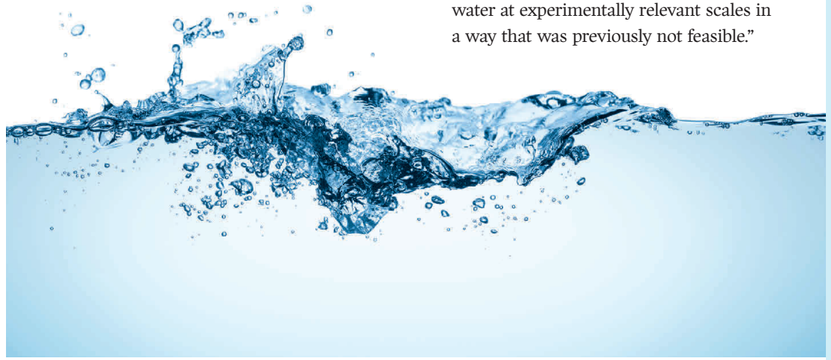


PHOTO: CONNOR MCVAIL



PHYSICS WELCOMES THEORIST ADARSH PATRI

by Greg Fornia

Adarsh Patri, a rising leader in theoretical condensed matters physics, joined the department as an assistant professor.

Patri's research focuses on understanding the behavior of strongly correlated quantum materials and two-dimensional quantum systems, with an emphasis on developing theoretical frameworks that connect fundamental physics to experimental discoveries. His work explores novel quantum phases of matter, unconventional superconductivity and the emergent properties of electrons in complex materials.

Before joining Temple, Patri served as a Moore Postdoctoral Research Fellow at the University of British Columbia's Stewart Blusson Quantum Matter Institute, and previously held a postdoctoral appointment at MIT.

Patri earned his doctorate from the University of Toronto, where his research examined exotic phenomena emerging from localized multipolar degrees of freedom. His publications include *Physical Review Letters*, *Physical Review X* and *Nature Communications*.

Most recently, Patri received first place in the poster session at the International Quantum Horizons Symposium and was awarded the Martin and Beate Block Award from the Aspen Center for Physics.

Discovery starts here



PHOTOS: DAN Z. JOHNSON

Hands-on research at CST

by Elisa Ludwig

Research and Leadership Symposium showcases student and faculty collaboration

Not so long ago, it was rare for undergraduate students to have hands-on research opportunities—not to mention the chance to author and present papers at national conferences. Today, College of Science and Technology undergraduates work alongside experienced faculty from CST as well as researchers from the Lewis Katz School of Medicine, Fox Chase Cancer Center, Temple Ambler Field Station and other schools and departments across the university.

"Students often throw the word 'research' around but until they have worked in a lab, they don't understand what it is," said Adam Stefanile, director of the Research Scholars Program (RSP). "When you see these experiences on a resume it demonstrates the proclivity to learn."

RSP, open to students who demonstrate interest via an application, augments the lab experience with a seminar that covers professional skills: presentation and public speaking; creating and formatting a poster; and responding to lines of questioning. Each semester, a Research and Leadership Symposium on campus gives students the chance to share both their findings and their newly acquired skillsets. Around 120 students presented at the 2026 spring symposium.

"It's gratifying to see the trajectory—they start out nervous but when they actually present, they shine," Stefanile said.

Students with a qualifying GPA can take it a step further and apply for the CST Summer Undergraduate Research Experience (SURE), a nine-week research fellowship and mentoring program supported by both the university and a faculty mentor. SURE participants attend a weekly seminar where they discuss ethics and career options. They are expected to work full time during the span of the program, present their research in the fall, and create a short research leadership video.

"We have had students who've been included on patents," said Susan Jansen Varnum, senior associate dean for undergraduate affairs, science education and community engagement. "It generally takes more than one semester, but by the time a student puts a year into a lab, they can be a published author."

The real power of the program, according to Varnum, is in the mentoring. "You're next to an MD, PhD, lab director and graduate students on the bench. They're investing in you and training you. It also gives older students an opportunity to mentor younger students. For a scientist, it puts you in all the right places to be successful."

FINDING A NICHE

Jack Brownfield knew before he even stepped foot on Temple's campus that he wanted to conduct research, and a serendipitous early encounter with Mariana Bonfim, managing director of the Ambler Field Station and assistant professor of biology, who would become his mentor, gave him the chance to jump in immediately.

"Research has always been one of my goals. I grew up in Santa Cruz, California, and as much as I looked forward to living in an East Coast city, I knew I needed a way to get out into the forest," said Brownfield, an ecology, evolution and biodiversity major.

At the Field Station, where a tornado created new ephemeral pools in place of uprooted trees, Brownfield has the unique opportunity to observe a new ecosystem evolving.

"We look at 'community assembly' and 'niche partitioning,'" Bonfim said. "Organisms in an ecosystem have their own role to fulfill—their own niche—but when two bird species go after the same bugs in the same tree they have to work out an agreement. They might choose a different part of the tree for each to hunt in. But this is difficult to research because you don't often get to see the process happening."

> **"We train our students to be independent and push their boundaries. The most rewarding thing is to see students succeed and go beyond us."** – MARIANA BONFIM

Brownfield remembers the moment he realized he had six months' worth of data and could visualize partitioning happening—a thrilling discovery. What started as a short-term project has lasted through his senior year and he now plans to continue focusing on freshwater ecology from a systems perspective.

Brownfield has since presented multiple times, including at CST's undergraduate symposium, the Creative Arts and Research Symposium, and the Field Station Symposium, and he has two publication credits. He brought his research to the Ecological Society of America last summer.

"We train our students to be independent and push their boundaries," Bonfim said. "The most rewarding thing is to see students succeed and go beyond us."

TEEING UP OPPORTUNITIES FOR STUDENTS

Like Brownfield, Mazen Rukhsar arrived at Temple with a well-defined idea of his career path. "I knew I wanted to study synthetic biology," he said, "but I thought that it would take until at least my junior year to get into research."

As an honors student, however, Rukhsar was invited to join a lab his freshman year. Through the SURE program, he worked with Kelly Whelan, a researcher with the Fels Cancer Institute for Personalized Medicine at the Lewis Katz School of Medicine, to help optimize a software tool for image analysis. By the fall of 2025, Whelan wanted to start a new project looking at organoids, and she tapped Rukhsar for the team.

"If you take an esophageal epithelial cell and you put it in specific culture conditions, it will generate a 3D structure that looks like the esophageal epithelium in your body," Rukhsar explained.

To support graduate work in the lab, Rukhsar is putting cells with a genetic modification into organoids to see how the depletion of mitochondria influences the ability of a cell to generate an organoid and what shape it will take. Rukhsar is also looking at the effects of the cytokine IL-13 on organoid formation and structure, and how the timing of the addition of IL-13 may influence phenotypes.

While this research is not in the synthetic biology space, it gives Rukhsar relevant experience to prepare him for what comes next. One particular hurdle he has encountered is with the materials and media he's using, requiring some problem-solving.

"Mazen learned that sometimes you have to work on optimizing materials and processes in a very systematic way. And sometimes something that's unexpected is actually incredibly interesting," Whelan said.

Giving undergraduates a chance to engage in hands-on research is a core value for Whelan as an educator. "I went to a small liberal arts school and didn't have the chance to conduct research," she said. "Luckily, someone did take a chance and gave me a job eventually, but I don't want students to have to be lucky."

WHEN LEARNERS LEAD

"In my lab, we believe research should be student-led," said Stephen MacNeil, assistant professor of computer science. "When students come in, they're free to choose the projects in the lab that interest them. We try to scaffold them towards leading their own research."

Data science major Jeni Sorathiya found a project in MacNeil's lab that piqued her interest: A PhD project investigating how students learn complex bioinformatics concepts using traditional tutorials versus a retrieval-augmented generation (RAG) AI tutor.

The goal was to understand how AI changes information-seeking behavior and learning.

"We created our own RAG AI system and compared it to a general AI model," Sorathiya said. "It retrieved information from a dedicated tutorial before generating responses, which helped reduce hallucinations and kept answers grounded in verified educational content."

The result was that users felt less overwhelmed with the new chatbot. Sorathiya shared her work—developing the AI tutorial, analyzing participant interactions and co-authoring the research paper—at the research symposium and she's hoping to collect more data with the aim of submitting it to a bigger academic conference.

MacNeil spends a lot of time with students trying to identify what their "blocks" are. "It's not just the skills that they need to complete the tasks, but training them and supporting them holistically as people," he said. The real magic happens, he explained, during the twice-weekly meetings where everyone in the lab shares their work and gives each other feedback, building a sense of camaraderie and support.

For Sorathiya, the project helped her hone her own career goals, as she has discovered a newfound passion for research. "In the lab I'm doing something new every day, gaining experience with AI development, user studies, qualitative analysis and scientific publication," she said. "I'm now thinking about going to grad school for a PhD or maybe going into the industry as a research analyst."

FINDING COMMUNITY AND OPPORTUNITY

As a first generation, pre-med student commuting to campus, Salina Zhang felt isolated, both socially and academically. During her first stint in the SURE program, however, she found her people in Assistant Professor Daniel Kim's organic chemistry lab.

"I connected with a community of graduate and other undergraduate students I could talk to. They have the same interests and they can mentor me in a lot of different ways," said Zhang.

Kim's research revolves around deploying light, or photoredox catalysis, to fashion molecules, a process which could be replicated in pharmaceutical drug or agrochemical development.

Zhang enjoyed it so much she continued on through the school year in the RSP, and the time spent has built up her knowledge, her confidence—and her publishing credits. Zhang was a key undergraduate author on a research paper she presented at the national American Chemical Society meeting as well as at two Temple symposia.

"Talking about chemistry at a high technical level is really a second language," Kim said. "Salina is now sounding like an organic chemist to me, and that's really gratifying to hear."

Zhang is now thinking beyond a career in medicine to potentially focus on organic chemistry research. "Before I came here, I thought pre-med was my only option. This program and this experience have really opened my eyes to what I can do."

> **"This program and this experience have really opened my eyes to what I can do."** – SALINA ZHANG















Message from Development and Alumni Affairs

Even in challenging times, the mission of Temple University remains the same: educating a talented student body, creating new knowledge through innovative teaching, research and other creative endeavors, and positively impacting communities close to campus and around the world.

That mission continues to guide the College of Science and Technology. While the landscape of higher education and science is changing, CST continues to invest in advanced research, innovative approaches to teaching, including the responsible use of artificial intelligence, and new academic programs that prepare our students for the ever-changing fields in science and technology.

Our methods may change, but our fundamental needs remain the same.

Scholarship resources help us attract and retain talented top students. Philanthropic support for student initiatives, such as our Research Scholars Program, provide students with opportunities to discover, create and learn beyond the classroom. We need to invest in faculty, first to attract and retain outstanding scholars, and then to provide the resources necessary for them to pursue tomorrow's scientific discoveries.

An engaged alumni community is critical to CST's success. Your time, talent and financial support make a meaningful difference. When you mentor a student, share your expertise, support a scholarship or make a gift to advance research, your involvement strengthens CST and expands what is possible for our students.

This will be my final letter in *Outlook* magazine. After more than 45 years in the workplace, I am retiring. My years at the College of Science and Technology have been among the best of my career. The alumni I have met, the students I have had the opportunity to help and the colleagues with whom I have worked have given me a lifetime of memories.

As I leave, I have one final request: Find a way to give back. Be a mentor. Fund a scholarship. Support undergraduate research. Consider documenting an estate gift. Whatever form your generosity takes, your support will have a lasting impact on the students, faculty and programs that make CST special.

Thank you for standing with CST, believing in our mission and helping shape our future.

Sincerely,

Kathy McGady
Assistant Dean for Development and Alumni Affairs

How can you help CST?

- Support scholarships for talented students
- Fund young researchers and experienced faculty
- Support initiatives on campus and in the community

Make your gift today.

Making an impact

TED AND CHRISTINE BROWNSTEIN: Legacy supports tomorrow's students

Ted and Christine Brownstein established the Dr. Muriel Apfelberg Brownstein Science and Math Education Endowed Scholarship Fund in 2015 in memory of Ted's mother, Dr. Apfelberg Brownstein.

The scholarship provides support for students enrolled full-time in CST's TUteach program. Muriel was a 1985 Temple graduate who worked for many years as an educator and leader in science education. She was aware that the cost of completing a high-quality education can be difficult for some students, and her family wished to honor her commitment to providing educational opportunities to qualified students.

Over the years, Ted and Christine have continued to donate generously to increase the fund. In the fall of 2026, the scholarship awarded two CST students $6,000 each.

SEVEN RESEARCH: Enabling advanced discovery

Seven Research, a quantitative research and technology company developing advanced systems for global markets, provided significant financial support to CST's Institute for Computational Molecular Science and water research activities led by Physics Professor Xifan Wu.

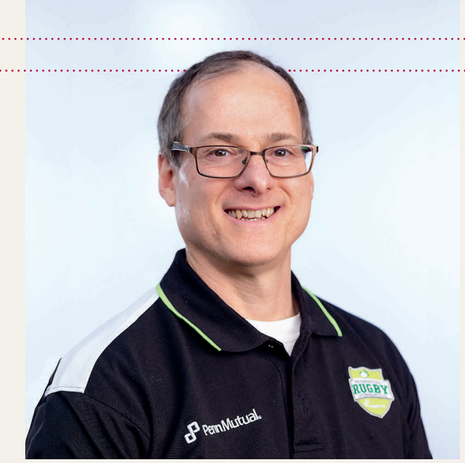
Wu's group uncovered new insight into one of science's most puzzling questions: why water behaves differently from almost every other liquid on Earth. Using a combination of artificial intelligence and advanced quantum mechanical simulations, the research team developed a highly accurate model that explains why water reaches its maximum density at about 4 degrees Celsius before expanding again as it freezes.

GEORGE MEHLER, EDU '80, '08: Empowering teachers

George Mehler, a former biology teacher and science curriculum leader for the Central Bucks (Pa.) School District and currently a faculty member in CST's TUteach program, never expected that a collection of science demonstrations for elementary teachers would attract an international audience. Today, the channel FunScienceDemos has more than 191,000 subscribers, a significant achievement given that less than .5 percent of YouTube channels ever reach 100,000 subscribers.

Mehler directs much of his financial support to TUteach, an alternative route to teacher training and certification. With TUteach, students combine STEM courses—and a CST major—with courses in the College of Education and Human Development and firsthand classroom experience.

Learn more about how you can support CST's students, faculty and programs at cst.temple.edu/supportCST.



Mark Dash, CST '84, named to Gallery of Success

Mark Dash has been named to Temple University's Gallery of Success, which celebrates outstanding professional achievement that inspires students toward their future. He is the past president of CST Alumni Board and currently serves as the board's treasurer.

Dash champions the use of technology to transform businesses with an emphasis on talent management. Dash earned his bachelor's degree in computer science from Temple, a master's in computer science from the New Jersey Institute of Technology and a certificate in corporate innovation from the Stanford University Graduate School of Business.

Dash has extensive experience in technological advancement across several industries, including computer engineering, financial services, publishing and insurance. He began his career at Burroughs Corporation, later renamed Unisys Corp., where he developed software and firmware. He joined The Vanguard Group in 1992 as part of its Advanced Technology group. In 1997, Dash joined Lippincott Williams & Wilkins, a medical publisher, as VP of electronic strategy for Wolters Kluwer Health.

After 16 years of service, Dash recently retired as chief technology officer for The Penn Mutual Life Insurance Company. While at Penn Mutual, Dash fostered a research funding partnership between Penn Mutual and CST's Center for Cognitive Computing.

PHOTO: RYAN S. BRANDENBERG



Julia Kaskey, CST '26

Fifth member of family to earn Temple degree

by Jonny Hart

Julia Kaskey graduated with a bachelor's degree in biochemistry and a certificate in gender, sexuality and women's studies, becoming the fifth member of her immediate family to earn a Temple degree.

She joins her older sisters Michaela, CPH '24; Laura, FOX '22; and Amanda, FOX '18, as recent Temple graduates. Their parents, Richard, EDU '92, and Kathleen, met at Temple in 1988, and Richard would later graduate with a bachelor's degree in secondary education.

For Julia, a formative Temple moment came during the *Intro to Gender, Sexuality and Women's Studies* course when her professor, Jennifer Pollitt, required students to attend the Gender, Sexuality and Women's Studies Research Symposium.

"You just will not find a place like Temple where there are so many students involved in a program like that, and where there is such a rich culture around gender, sexuality and women's studies," Julia said.

A biochemistry major, Julia has her sights set on medical school and a future career in obstetrics and gynecology or pediatrics. She plans to apply to medical school after a gap year. In Kaskey fashion, Temple's Lewis Katz School of Medicine is at the top of her list.

"One of the foundations Katz looks for is volunteer and community-oriented applicants," Julia said. "I really appreciate that, and I would love to stay in North Philadelphia and continue serving the community here."

BE A MENTOR. Learn more and complete the Owl to Owl Mentor Program application at **cst.temple.edu/owl2owl**.



PHOTO: KELLY & MASSA

Future Forward: CST Alumni Night

The College of Science and Technology hosted an alumni night in early 2026 featuring networking opportunities, updates on the college and a panel of experts discussing the advancement in artificial intelligence.

The panel included Sanchari Biswas, CST '25, adjunct instructor at Temple; Zafeer Lambe, CST '25, a master's student in AI at the University of Pennsylvania; Stephen MacNeil, assistant professor and director of Temple's Human-Computer Interaction Lab; and Slobodan Vucetic, professor and director of Temple's Center for Hybrid Intelligence.





Cameron Kerestus, CST '26

PHOTO: RYAN S. BRANDENBERG

Taking on the world

by Izzy Lopez

Cameron Kerestus, a computer science major, says that his experiences at Temple Japan made a lasting-impression.

"I studied at Temple Japan during my sophomore and senior years. It was actually a really big deciding factor for me to come to Temple, that we have campuses abroad in Japan and Rome," explained Kerestus. "I'm from a small town in the middle of nowhere. Coming to Temple in Philadelphia was a pretty big change. Going to Tokyo and living there for two semesters was even bigger. Through this experience, I learned that the world is a whole lot bigger than I thought and I'm so grateful for the experience."

Kerestus chose to study at Temple because it is a school in the heart of a big city with so many opportunities. "Since I was a kid, I knew I wanted to study computer science, and I learned programming at a young age," said Kerestus, who, during his sophomore year, did undergraduate research with physics professor Jeff Martoff. "He got me involved in a global research project focusing on qubit diagnostics, which was really interesting. I was also involved with the Human-Computer Interaction Lab with Assistant Professor Stephen MacNeil."

During the summer after his junior year, Kerestus interned with Walmart Global Tech and was placed on the payment processing team. "We wrote the code that handles credit card transactions across all Walmart stores globally, which is very extensive," said Kerestus, who is now living in Arkansas and working on payment processing at Walmart. "I really enjoyed my internship there and I got a return offer."

MESSAGE FROM THE

CST Alumni Board



PHOTO: KELLY & MASSA

As an undergraduate, I did not realize how impactful the work of our alumni community was in helping me and my fellow math and science majors. I was focused on studying for exams, juggling class and work study shifts at the library and experiencing a new city that I now call home for the past 18 years. But behind the scenes, CST alumni were partnering with staff to host job fairs, raising money for scholarships and even stepping up to teach courses and give guest lectures.

There are many ways CST alumni can give back, such as through financial contributions or donating their time and expertise. A gift to the CST Alumni Endowed Scholarship Fund honors outstanding students in each department. The Steven W. Szczepanski Memorial Student Support Fund provides resources to those experiencing a financial hardship. The Owl to Owl Mentor Program offers alumni the opportunity to share with students real-world advice about careers or life after Temple. I encourage you to explore the full list of giving opportunities on our website.

Personally, I know it may be challenging to give back to the university right after you graduate. But once you start, it makes it so fulfilling. I am proud of my fellow CST alums, a nerdy bunch that is important to the success of our university, the Philadelphia region and beyond.

Stay connected to CST by following the college on social media and reading our monthly email newsletters.

Sincerely,

Anne Beeman, CST '12
CST Alumni Board President

30 UNDER 30

The 30 Under 30 program recognizes trailblazing young alumni who have demonstrated professional success in any industry, significant community involvement or a commitment to maintaining a lifelong relationship with Temple University. 30 Under 30 highlights outstanding Owls from the more than 52,000 young Temple alumni who exemplify what it means to be Temple Made.



Kate Lyons, CST '20

PHOTO: PAMELA PALMA

Sustainability superstar

As an environmental planner with the Bay Area Metropolitan Transportation Commission, Kate Lyons plans on a regional level to help the nine-county Bay Area, including San Francisco and Oakland, prepare for impending environmental threats.

Lyons exercises many skill sets on the job, including conducting environmental analysis, performing geospatial analysis using geographic information systems (GIS) applications and deploying political savvy as she interfaces with community agencies. She majored in geology, minored in environmental studies and even obtained a GIS certificate. Particularly influential was work with Professor Emeritus Laura Toran, who coached her in how to research water quality and communicate findings in an accessible way.

As sustainability director for Temple Student Government, Lyons learned how to bring people together for a good cause. Also serving as a student member of the university's Sustainability Task Force, Lyons piloted a student-led compost collection program, advocated for better student access to public transit and led initiatives to address off-campus litter.

Lyons got her first job as an energy analyst for Philadelphia-area consulting company Spotts, Stevens and McCoy after meeting consultants through her work for Temple's Office of Sustainability. But her eyes drifted west, and she received a CivicSpark Fellowship and spent a year working on climate resiliency for the Bay Area Commission, where she now works full time.

"I have this visceral memory of being a kid and seeing a TV commercial talking about the future of the planet and global warming. And I asked my parents, 'Are we going to fix that?' And as I got older, I just couldn't unsee it."



Abdalaziz Sawwan, CST '23, '25

PHOTO: PAMELA PALMA

AI innovator

Every day, about 3.5 billion people, more than 40 percent of the world's population, access tech giant Meta's social media platforms. As a research scientist at the company, Abdalaziz Sawwan helps design and evaluate changes to the personalization systems behind products like Instagram and Facebook while also searching for innovations within the company's technological infrastructure.

Working out of Meta's headquarters in California, Sawwan focuses on how artificial intelligence (AI) systems perform in the real world. That means improving efficiency across a global fleet of data centers so that features ship smoothly and systems stay stable under massive demand. He spends a lot of time comparing alternatives and pressure-testing them at scale.

"We're living through an AI moment where the pace is incredibly steep," said Sawwan, who earned a master's in computer science and a doctorate in computer and information sciences at CST. "The models being deployed today can do things that weren't at all possible even a few months ago."

For his PhD, Sawwan focused on research across several areas, including wireless sensor networks and game theory, before narrowing his work to theoretical AI. During the program, he co-authored 17 papers. He was recognized as both an Outstanding Teaching Assistant and Outstanding Research Assistant.

While at CST, Meta invited him to a multistage interview process. He landed the internship and spent the summer running large-scale experiments and evaluating algorithm changes impacting millions of Instagram users. Meta extended a full-time offer for him to join after graduation.

Animating science for CST

As the main animator for the College of Science and Technology's FunScienceToons series, Nick Santangelo makes engaging cartoons explaining important and necessary concepts for students in elementary and middle school science.

Growing up, Santangelo was a self-described "nerd" who loved *Star Wars*, Nintendo games and Pixar films, and dreamed of one day creating such imaginative worlds himself. After starting at community college, Santangelo transferred to Temple to pursue animation, attracted by the School of Theater, Film and Media Arts' Los Angeles Study Away program, which places students in the heart of Hollywood for a full semester.

Santangelo made the most of his time in the City of Angels, cold-calling experienced freelance animator and YouTuber Sir Wade Neistadt, who took him under his wing. Santangelo interned for Neistadt, learning from the Animation Collaborative and Vancouver Film School to make animation education from Pixar, DreamWorks and ILM animators more accessible to the general public.

As a professional animator, Santangelo now has reached millions of viewers through the FunScienceToons series, which also counts nearly 200,000 subscribers on YouTube, rarefied air for the platform.

Nick Santangelo, TFM '19



PHOTO: RYAN S. BRANDENBERG









PHOTO: JOSEPH V. LABOLITO

Celebrating CST's graduate students

by Greg Fornia

On May 8, CST held a graduation ceremony for doctoral, master's and Professional Science Master's graduates in the historic Temple Performing Arts Center.

Anita Raja, CST '96, professor of computer science at Hunter College who earned her bachelor's in computer science at Temple, was the ceremony's keynote speaker. "The world doesn't just need better technology. It needs more human-centered technology. And that starts with how you work with people: how you listen, how you disagree, how you decide what's worth building in the first place," said Raja to the nearly 100 graduates attending. "Your ability to do that, to think critically, to hold complexity, to care about the effects of your work on others, that becomes more valuable over time, not less."

The student speaker was Caroline Merheb, CST '26, who graduated with a doctoral degree in geoscience. An accomplished researcher in the field of agrivoltaics, she is now a postdoctoral fellow at the University of Calgary.

Michael Remaker, CST '06, chair of the CST Alumni Board, encouraged the graduates to "be impactful. Make a difference. Embrace change. And when you're ready, help create it for someone else."

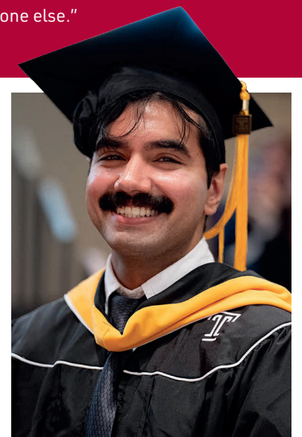
















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RSP is an extraordinary opportunity; one that gives CST students an advantage in their careers or graduate school applications. But the college needs continued support to offer RSP to more students.

Make a gift to the Research Scholars Program Fund at giving.temple.edu/urp. Or contact Erin McGinn, CST Director of Development, at erin.mcginn@temple.edu or 215.204.8192.

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Learn more and complete an application at cst.temple.edu/owl2owl