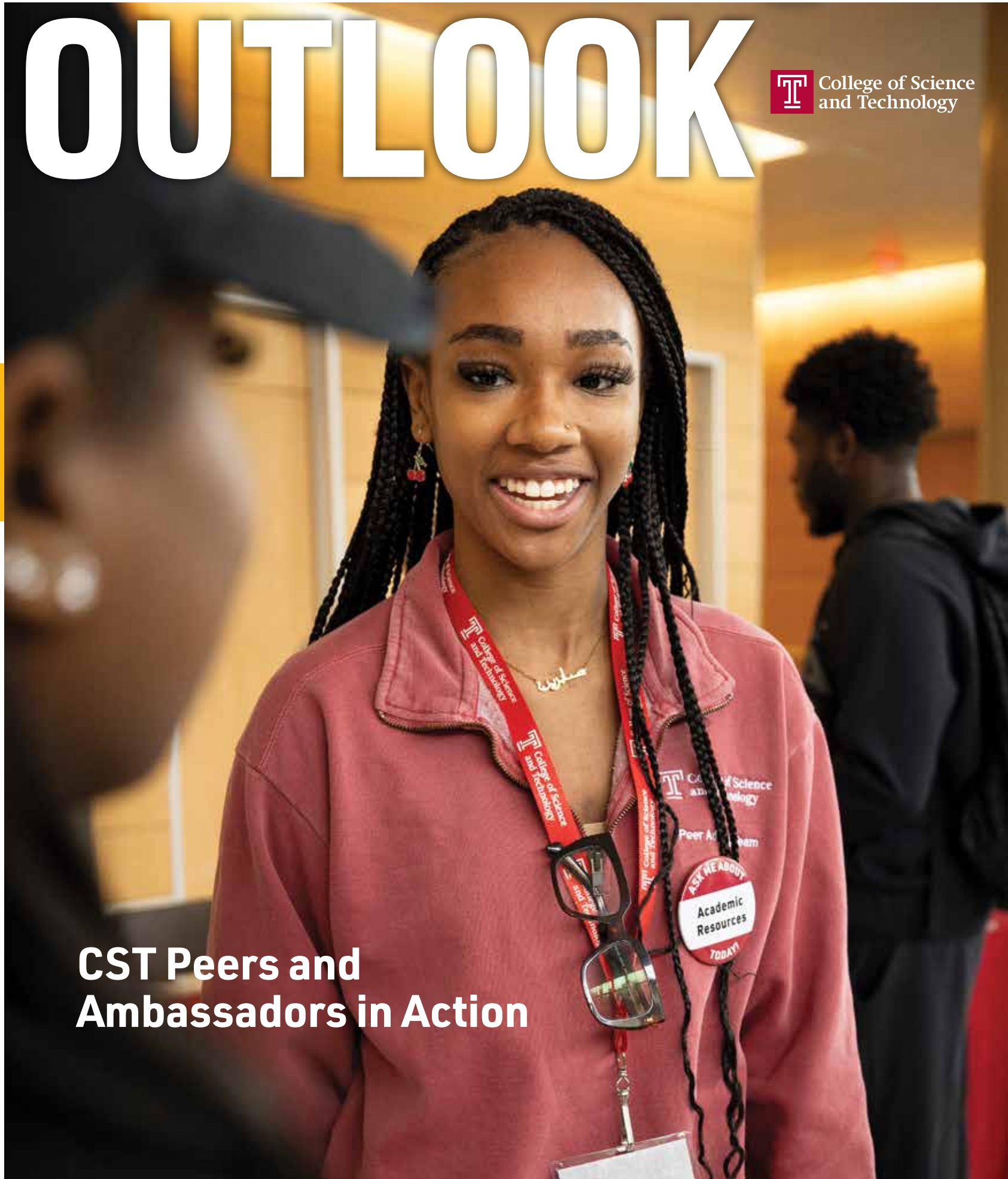
OUTLOOK

College of Science and Technology

FALL 2025



CST Peers and Ambassadors in Action

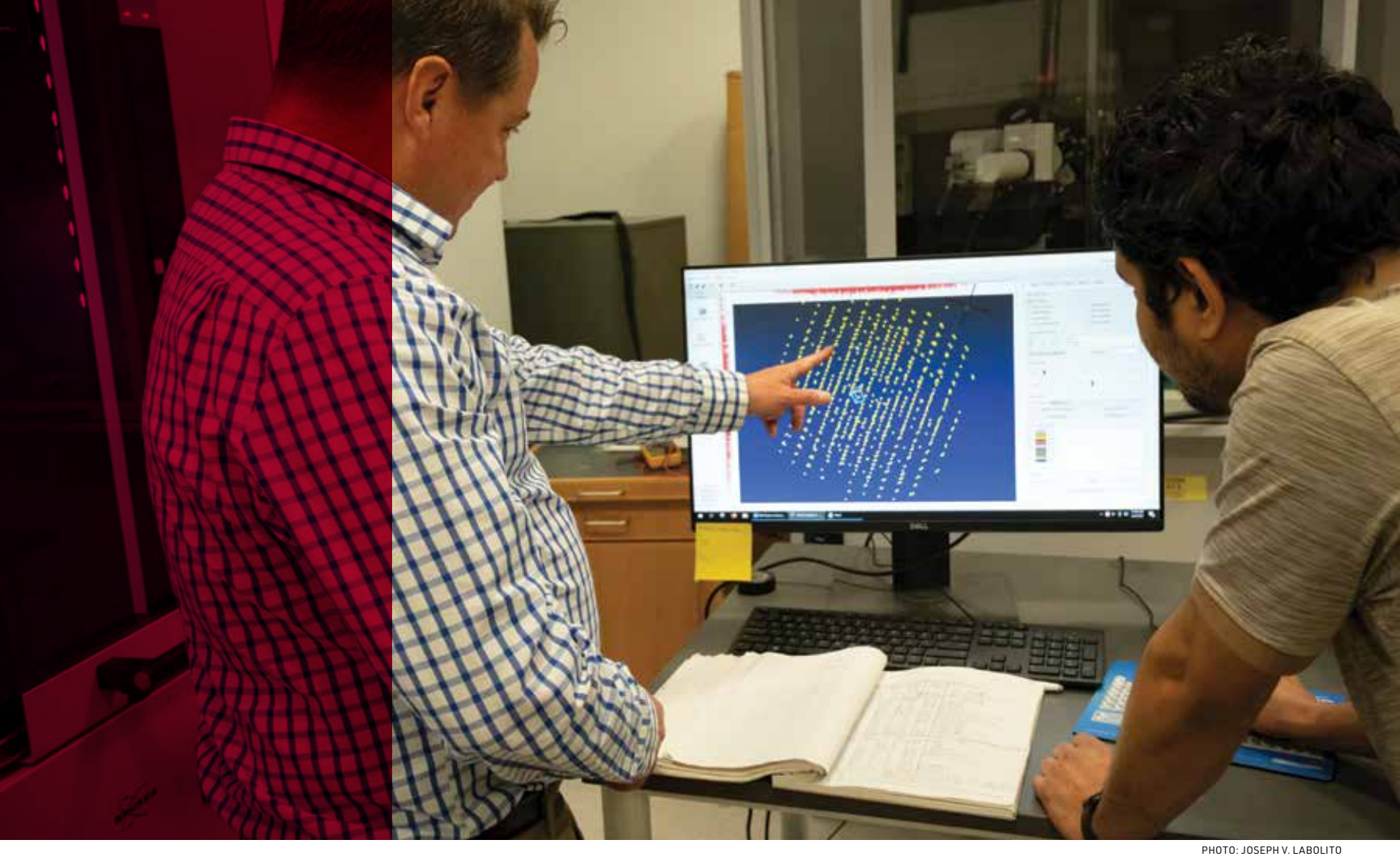


PHOTO: JOSEPH V. LABOLITO

Real-world research with world-class researchers

Means CST students have an edge in graduate school and the job market

The Research Scholars Program (RSP) offers top students the opportunity to work alongside experienced researchers from CST and across Temple University.

Out in the field, in a lab or at a powerful computer, students in RSP learn what it takes to do advanced research: theoretical knowledge, technical skill, critical thinking and how to persevere through setback and build upon success.

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.

College of Science and Technology

Make your gift today.

OUTLOOK
Fall 2025

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Greg Fornia
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Follow the College of Science and Technology:

On the cover: Sabrine Semper, a senior majoring in genomic medicine, chats with prospective families at an undergraduate recruitment event

Cover photo by Dan Z. Johnson

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PHOTO: DAN Z. JOHNSON

Message from Miguel A. Mostafá

A year of growth and momentum, CST continues to expand opportunities for students, increase research impact and strengthen partnerships on campus and around the world.

RISING ENROLLMENT, FUNDRAISING AND RESEARCH

Our post-baccalaureate and graduate enrollments are climbing. On the fundraising front, we surpassed our goal by 20 percent and set next year's target more than 40 percent higher. Research activity was also at an all-time high, topping $30 million in expenditures for the first time in FY24, with major new grants awarded to faculty including Kallie Willets, Ross Wang and Stephen MacNeil.

NEW PATHWAYS FOR STUDENTS

We are launching new undergraduate programs like forensic chemistry and integrative genetics and genomics, while creating accelerated pathways to professional degrees in medicine, dentistry, pharmacy, podiatry and chiropractic. New partnerships with the Lewis Katz School of Medicine, Kornberg School of Dentistry, Fox Chase Cancer Center and others ensure that CST students can move seamlessly into advanced training and careers.

CELEBRATING EXCELLENCE

CST faculty are earning international recognition, including the George W. Beadle Award, a career award from the American Chemical Society and the Sheikh Saud International Prize for Materials Science. Students are excelling as well: two of Temple's three Goldwater Scholars for 2025 are from CST. Others earned the Department of Defense SMART Scholarship, an invitation to the Lindau Nobel Laureate Meeting and recognition from the American Chemical Society for DEI leadership.

EXPANDING GLOBAL REACH

CST signed new agreements with the University of Belgrade, the University of Napoli Federico II and the Federal University of São Carlos to expand student and faculty exchanges and research collaboration. These partnerships create new opportunities for students to engage globally and bring fresh perspectives back to CST.

BUILDING ON STRATEGIC STRENGTHS

Looking ahead, CST is focused on its core strengths: cybersecurity and artificial intelligence, environmental science and sustainability, quantum information science and bio-life health. To address global challenges, we are investing in faculty, curriculum and partnerships to expand our leadership.

CST VISION 2030

Finally, we are shaping *CST Vision 2030*—a strategic plan to integrate artificial intelligence across disciplines and ensure every CST student graduates with AI literacy, ethical grounding and the tools to thrive in a data-driven world. From new AI-infused courses to industry partnerships and experiential learning, CST will prepare the next generation of leaders in science and technology.

Thank you for being part of CST's journey. Your support makes it possible for us to keep growing, innovating and competing at the very highest levels.

With gratitude and excitement for the year ahead,

Professor Miguel A. Mostafá
Dean, College of Science and Technology

PHOTOS: KELLY & MASSA

Celebrating the Class of 2025

by Greg Fornia

On May 9, the College of Science and Technology held a graduation ceremony for more than 500 undergraduates inside The Liacouras Center.

The ceremony began with a welcome from Dean Miguel Mostafá, who urged the graduates to "go forward with confidence. Go forward knowing that your work matters—maybe more now than it ever has before."

The keynote speaker was Jennifer Gresh, CST '98, an accomplished environmental consultant and former president of the CST Alumni Board. The student speaker was Yumna Ejaz, CST '25, who graduated with a bachelor's in biology with a minor in clinical and health psychology. With an impressive research background, Ejaz plans on applying to medical school. Michael Remaker, CST '06, current Alumni Board president, welcomed the graduates into the Temple alumni community.

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

Learn more about the Class of 2025 at cst.temple.edu/Classof2025.

CST's Goldwater Scholars for 2025

by Jonny Hart

PHOTO: RYAN S. BRANDENBERG

The Goldwater Scholarship is one of the oldest and most prestigious national scholarships in the natural sciences, engineering and mathematics in the United States. It is awarded to college sophomores and juniors based on their research merit and potential as a future researcher. Since 2018, 10 Temple University students have earned a Goldwater, with eight having a CST major or minor.

ELLIE HAN

Ellie Han's road to a computer science and physics major was a winding one. She tried biology, then bioengineering, then biophysics, then physics, and along the way she dove into various research projects that helped her find her path.

She started in an experimental biology lab and later moved to a theoretical physics project, but it was a quantum computing algorithms project she conducted at the University of Notre Dame that really clicked for her. "That really changed the trajectory of my research interests, because it gave me the time and the space to delve into work that I hadn't really thought of before," she said.

Han explained that in the general field of quantum computing there's a specific subsection called neutral atom quantum computing, and the team she joined at Notre Dame was trying to benchmark those systems. She contributed to their work by creating an algorithm that would solve an optimization problem to see what parameters are most important, how well the system can solve the problem and at what size.

"It's important because we're entering this new era of technology," Han said. "There are many applications for quantum computing, so it's exciting to see and work with some of their developmental roots."

Han presented her research at the Physics Department's inaugural research symposium in 2024, where she met Maria Iavarone, Physics Department chair. Iavarone was so impressed that she invited Han to join her experimental physics lab. "In my years of mentoring undergraduate students, I have rarely encountered someone with her drive and potential," Iavarone said.

Han is aiming for a PhD in either applied physics or quantum science and engineering. Further down the road, she's interested in doing quantum hardware-software codesign. "I've seen bits and pieces of it. I've done algorithm work, on the software end, and that introduced me to hardware more conceptually," she said. "But being able to piece it all together and do something that combines hardware and software for some kind of hardware development would be really cool for me."

DAVID PALOMINO

It didn't take long for David Palomino, a computer science and physics and mathematics major, to begin carving out his own research path at Temple. By spring of his first year, Palomino was working in a lab with Jim Napolitano, professor of physics, conducting real-time simulations and visualizations of black holes.

"It was a very interesting experience for me because it wasn't an existing project on a list of research groups at Temple," Palomino said. "This was something that Professor Napolitano and I decided to do."

Since then, Palomino continues to home in on the work he'd like to do. "I'm very much interested in the intersection of topology, geometry and physics," he said. "That is a fascinating area, but it's also a very niche area."

Palomino crossed paths with Jie Wang, assistant professor of physics, who is leading research in that niche area. Palomino worked with Wang on a project focused on topological Chern band systems, a set of insulating materials that are effective against natural elements.

"These are important at the industrial level, especially with regards to computer manufacturing, where you need materials that are really good insulators under high stress and high heat," Palomino said. "As energy inputs get higher and higher, or as we keep trying to fit more and more onto tiny computer chips, it's important that we have good insulating materials."

Palomino leveraged his computer science background to code an application that could verify some of the theoretical results. "He has a strong background in mathematics and theoretical physics, and in many cases, it was me who consulted him for mathematics-related questions," Wang said. "I learned a lot from him."

Palomino has continued to work alongside Wang, and he's even been credited on one of Wang's published research papers.

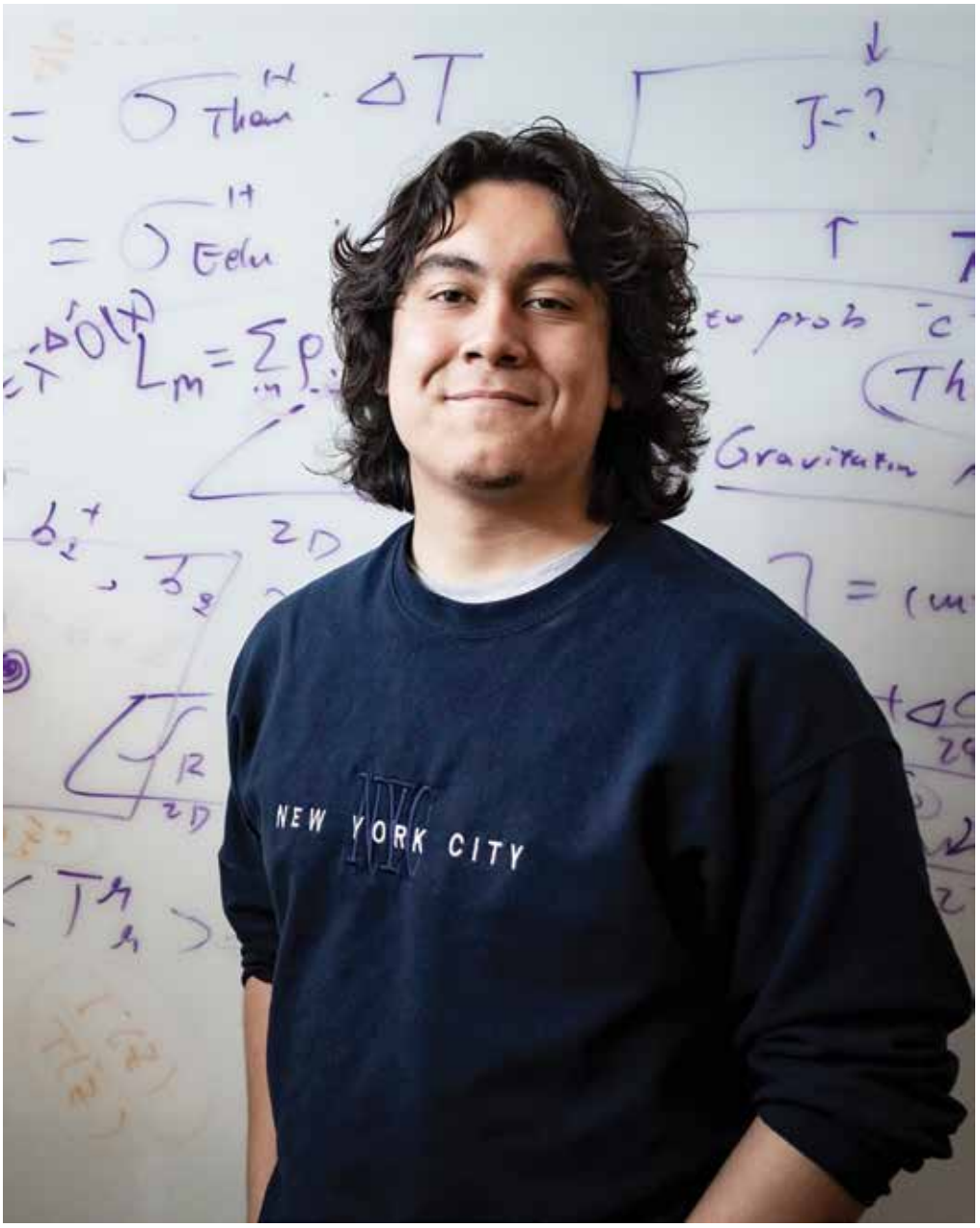


PHOTO: RYAN S. BRANDENBERG

After graduation, Palomino intends to pursue a graduate degree in mathematical physics. "I would love to teach at the upper level and do research," he said. "If that's what I end up doing in the foreseeable future, I would be very happy there."

Transforming the treatment of autoimmune disorders, cancer and more

by Jonny Hart

PHOTO: JOSEPH V. LABOLITO

Mark Feitelson and Alla Arzumanyan are developing drugs that use molecules harvested from the human body to safely and effectively treat a long list of diseases.

"If someone is diagnosed with diabetes, what do you do? You give them insulin," said Arzumanyan, associate professor of research. "The idea behind our company is these patients can't make these metabolites, so what can we do? Give it to them in the form of a drug."

Arzumanyan co-founded SFA Therapeutics Inc. in 2017 alongside Mark Feitelson, professor of biology, and Ira Spector, an experienced drug developer.

Metabolites are small molecules produced during metabolism that play crucial roles in maintaining the body's normal functions.

The researchers are developing a set of metabolites that, when given to patients in drug form, can treat many diseases that do not presently have safe and effective drugs, including more than 40 autoimmune disorders, certain types of cancers and other illnesses.

In 2013, Feitelson and Arzumanyan saw a scientific article that discussed using gut metabolites as a treatment in mice for colitis, a disease affecting the colon.

"I thought, well that's really interesting that these gut metabolites work in the colon," said Feitelson, who had been studying chronic liver disease for 30 years. "Can you extend this concept of using gut metabolites to regulate the immune system in other parts of the body?"

He applied the concept to a study of liver disease and found that the gut metabolites successfully treated inflammation in the liver, and they also slowed down the progression from liver disease to liver cancer.

In addition, many drugs for autoimmune disorders cause unwanted side effects because they use compounds not found in the body. "We're using molecules that have evolved with humans. We don't have to optimize them; evolution already has," Feitelson said.

Another breakthrough came when the researchers found that patients taking their treatment for long enough periods could sometimes regain the ability to make these metabolites themselves.

"We have come such a long way since Mark and I read that article more than 10 years ago," Arzumanyan said. "Since then, we've solved problem after problem, and we are continuing to solve more."

GENOMICS SOFTWARE ARTICLE AMONG MOST-CITED SCIENTIFIC WORKS IN HISTORY

by Sarah Chung

The scientific journal *Nature* has named a software developed at Temple among the top-100 most-cited scientific works in history.

Sudhir Kumar's 2016 article describing Molecular Evolutionary Genetics Analysis version 7 (MEGA7) is recognized alongside seminal works in biochemistry and quantum physics. Since its release, MEGA7 has earned more than 45,000 citations, making it one of the youngest and fastest-climbing articles ever to break into *Nature's* top-100 list.

"This achievement is a testament to the foundational role evolutionary analysis plays in understanding everything from species origins to biodiversity and diseases," said Kumar, Laura H. Carnell Professor of Biology and director of the Institute for Genomics and Evolutionary Medicine, where his team developed MEGA7 to meet the demands of analyzing large-scale genomic data.

Downloaded over three million times, MEGA provides tools for constructing evolutionary trees and performing statistical analyses of molecular data. The seventh version delivers performance optimizations enabling large-scale evolutionary analyses in an era of big data, making it an indispensable tool for biologists worldwide.

BIOLOGY WELCOMES TWO NEW RESEARCHERS

The Department of Biology welcomes two tenure track faculty members, Samira Abdulai-Saiku and Yu-Chieh David Chen.

Abdulai-Saiku, a neuroscientist with an interest in sex differences and behavior, earned her doctorate in biological sciences at Nanyang Technological University in Singapore. Before joining Temple, she was a postdoctoral scholar in the Neurology Department at the University of California, San Francisco.

"I employ skills in molecular biology, behavior and neurobiology to understand how the X chromosome regulates different phenotypes in male and female brains with the aim of identifying putative therapeutic targets to improve cognitive performance in aging individuals," said Abdulai-Saiku.

Chen earned his PhD in neuroscience at the University of California, Riverside and his bachelor's and master's degrees at National Taiwan University. Before coming to CST, Chen was a postdoctoral researcher at New York University. At NYU, his research, which was published in *PNAS* and *STAR Protocols*, leveraged single-cell genomics to create genetic tools that target specific cell types during development. This work laid the groundwork for his lab at Temple to investigate the molecular regulators governing neuronal circuit assembly.

Sudhir Kumar

PHOTO: JOSEPH V. LABOLITO

Samira Abdulai-Saiku

PHOTO: CONNOR McVAIL

BRENT SEWALL APPOINTED DIRECTOR OF FIELD STATION

by James Duffy

Brent Sewall, whose research focuses on understanding critical and emerging threats to biodiversity and developing effective strategies for its conservation, is the new director of the Temple Ambler Field Station.

"The position offers me the chance to work with our extraordinary Field Station staff to provide exceptional training opportunities for our wonderful student research interns," said Sewall, an associate professor.

"One of the things that the Field Station has done a great job with," Sewall said, "is the development of resources that support research, allowing researchers to undertake larger, more integrated and more detailed investigations than would be possible by any one researcher or research group alone."

Sewall credits his predecessor Amy Freestone and Mariana Bonfim, who continues as Field Station managing director, for a strong research foundation. "New researchers at Temple Ambler are not starting from scratch but building on an existing foundation of data and resources. It is fertile ground for new questions dreamed up by undergraduate students, graduate students, postdoctoral researchers and faculty and we're here to support them in their research initiatives."

Spano earns Faculty Research Award

PHOTO: JOSEPH V. LABOLITO

Professor Frank Spano received the 2024-2025 Temple University Faculty Research Award. Spano's research focuses on the theory of excitons, polarons and polaritons in organic materials such as molecular aggregates, crystals and thin films. Spano is driven by the "desire for discovery—the thrill of being the first to appreciate even the smallest fragment of nature's grand design.

"I strive to develop theoretical models that neatly account for experimental observations involving electronic excitations in organic materials. This also has practical utility for the design of devices such as solar cells and flat panel displays," explained Spano. "To me it is deeply inspiring that mathematics precisely describes so many natural phenomena, from the structures of single atoms and molecules to the properties of macroscopic materials like molecular crystals."

Spano's most memorable moment occurred in 2010, while he and a graduate student were conducting numerical simulations on the fluorescence spectra of molecular aggregates. "We had compiled a great many spectra under a wide array of conditions and were amazed to discover what seemed to be an invariant quantity—a property of the spectrum that persists even though the conditions varied widely," he said. "For theoreticians, discovering invariants is like discovering gold. The transformational moment came when we derived, using old-fashioned paper and pencil, an exact expression for the invariant quantity."

His proudest accomplishment? "After several years of intense investigation, we finally succeeded in developing a set of simple rules—the 'ratio rules'—which allow one to determine important material properties, for example, the strength and nature of intermolecular interactions, directly from the absorption and photoluminescence spectra," said Spano. "The rules are applicable to a wide range of materials, from a simple pair of molecules to a molecular crystal, and have been used by many experimentalists to interpret their observations."

NSF GRANT FOR EXPLORING POTENTIAL NANO-SIZED SOLUTIONS

by Stephen Orbanek

Professor Kallie Willets will lead Temple's efforts in The Center for Single-Entity Nanochemistry and Nanocrystal Design (CSENND), which received $20 million in Phase 2 funding through the National Science Foundation's (NSF) Centers for Chemical Innovation program.

CSENND is a collaborative effort between nine universities. Collectively, they will work to explore how individual nanocrystals behave. For the past three years, Willets and her colleagues have worked through phase one of the project.

"We have been working with Phase 1 support, which is similar to an incubator stage," Willets said. "Now we are bringing in more universities and more expertise, so we can really expand our concept. This allows us to push towards innovations in nanoscience that can ultimately be translated into applications for the benefit of humanity."

Over the next several years, CSENND will work to develop high-throughput, artificial intelligence-based technologies that will be able to quickly reveal each nanocrystal's composition and crystalline shape and how these influence their properties and function. The group's findings will then be used to inform other researchers and industry partners, so they can design nanocrystals with applications in biomedicine, electronics, fuel production, chemical manufacturing and other areas.

"There's a lot of different materials, there's a lot of different shapes that we can make and there's even different size scales that we can explore," Willets said. "Our goal is to explore the parameter space of nanocrystal synthesis and function in a more efficient way to get towards those applications that will really have a positive impact on this world."

GRAD STUDENT ATTENDS LINDAU

Zachary O'Dell, a physical chemistry doctoral student, was selected to participate in the 2025 Lindau Nobel Laureate Meetings in Germany.

At Lindau, approximately 35 Nobel Laureates convene to meet the next generation of leading scientists: 600 undergraduates, graduate students and postdocs from around the world.

"It was an amazing opportunity to speak with past laureates, but also meet students, postdocs and junior faculty to share our different research and experiences," said O'Dell. "A highlight was dinner with Stefan Hell, who received the Noble Prize in Chemistry in 2014 for an optical microscopy technique that I became familiar with here at Temple."

Lindau "young scientists" are selected, in part, on their "excellent research" based on publications, presentations and grants. With interests in polarization analysis of plasmonic nanoparticles, CLocK microscopy, O'Dell has been awarded a National Science Foundation Graduate Research Fellowship.

KIM EARNS 'EARLY CAREER' AWARD

by Greg Fornia

Assistant Professor Daniel Kim was awarded the Early Career Investigator honor by the Philadelphia Organic Chemists' Club.

After earning his doctorate at the University of California Irvine and serving as a postdoctoral research fellow at Princeton University, Kim joined Temple in 2020 where he initiated a research program developing new reagents to solve challenges in organic synthesis.

One of the oldest independent chemistry clubs in the United States, the Philadelphia Organic Chemists' Club's central purpose is to facilitate dialogue and interaction among scientists, particularly between those in academia and at chemical and pharmaceutical companies. Each awardee presents a lecture. Kim spoke on investigating new light-driven reactions to develop rapid synthesis to a variety of important bioisostere building blocks.

"Currently, we are especially interested in acyl and acetal radicals and their use in organic synthesis and their potential applications to new materials and pharmaceuticals," explained Kim. "Specifically, we've developed new reagents for the nucleophilic installation of TFMKs (trifluoromethyl ketones). Recently, we've been investigating new opportunities and avenues for acetals as C2 fragments as complementary synthons for the accessing vicinal functional groups."

FACULTY NEWS BRIEFS

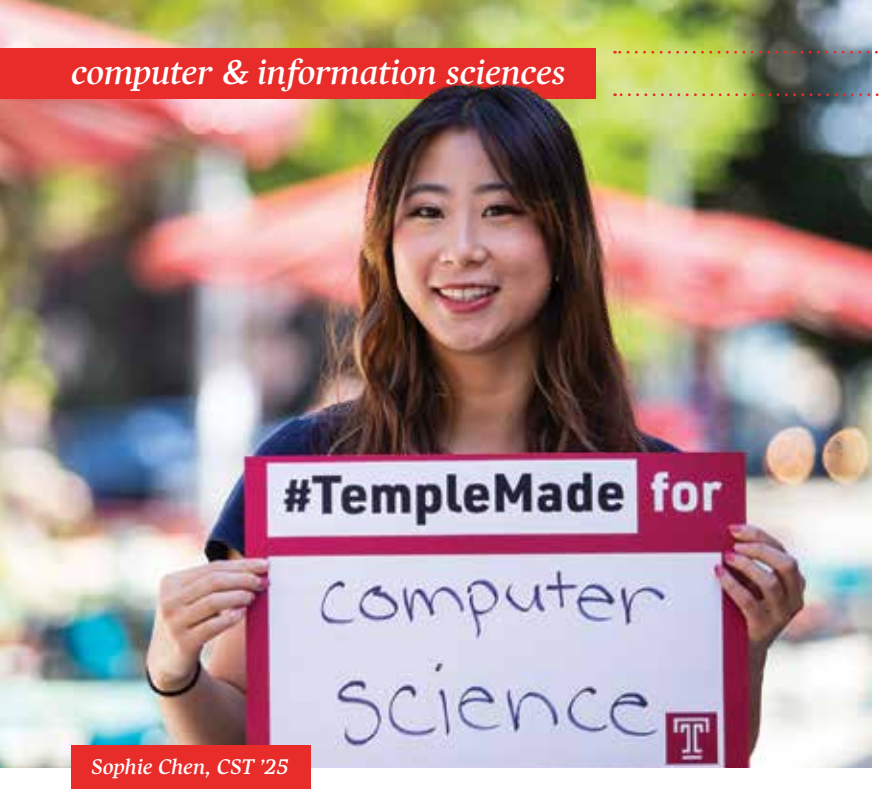
Professor **Christopher Beaudry** joined the department in 2024. His research group works in the area of synthetic chemistry, natural products, biology and catalysis. With graduate work centered around the biomimetic total synthesis of the polyketide natural products, Beaudry earned his PhD from the University of California, Berkeley. He also conducted postdoctoral research at the University of California, Irvine. Before joining Temple, Beaudry was at Oregon State University.

Steven Fleming, professor of instruction, was selected for the very first group of Honors-Affiliated Faculty at Temple University. Selected from across the university, he is the only CST faculty honored. During his three-year term, Fleming will improve his already-strong connection to the Honors Program and develop new organic chemistry courses.

Carol Manhart has been promoted to associate professor. By understanding DNA repair using biochemistry, biophysics, chemistry, molecular biology and genetics, her lab's work contributes to models of human disease, particularly cancers associated with Lynch syndrome and neurological diseases associated with trinucleotide repeat instability. The research seeks to understand fundamental cellular pathways and develop new diagnostic tools, identify new therapeutic targets, and create technology to improve nucleases used in clinical and biotech applications.

Carol Manhart

PHOTO: DAN Z. JOHNSON



Sophie Chen, CST '25

Andrew Tran, CST '25

PHOTOS: RYAN S. BRANDENBERG

CIS GRAD STUDENTS EARN SECOND PLACE AT AAAI HACKATHON

Shelly Gupta and Hardik Sharma, CST '25, both CIS graduate students working in Professor Zoran Obradovic's Center for Data Analytics and Biomedical Informatics lab, won Second Place at the 39th Annual AAAI Conference on Artificial Intelligence Hackathon. Designed to inspire innovation and collaboration among AI enthusiasts, hackathon participants work together to develop cutting-edge AI solutions and showcase their projects at the prestigious AAAI conference.

Gupta's and Sharma's team focused on detecting rain-induced landslides using multisensory inputs, developing a spatio-temporal prediction model to enhance early warning systems. "Their achievement at this prestigious competition shows the expertise, innovation and dedication of our graduate students in AI research," said Yu Wang, CIS chair. "Congratulations to Shelly, Hardik and Zoran on this outstanding achievement!"

Top internships lead to top tech jobs

by Lindsay Hargrave and Ayana Jones

Sophie Chen, CST '25, is an associate product manager at Google in the Bay Area and Andrew Tran, CST '25, is a software engineer at Amazon in New York City.

Chen landed a role as an associate product management intern at Google in California—a highly coveted position in tech—her junior year. "There weren't any Temple students who had done this program before and a lot of the students come from schools like Stanford and Harvard," said Chen. "It was definitely a new experience and bit of a challenge for me to navigate, but I knew that I had gotten into the program for a reason and that I was just as capable as those other students."

That intensive summer internship prepared Chen for her next role with Google. "It's a two-year rotational program focused on launching impactful projects by leading efforts across engineering, design, marketing and beyond," said Chen. "Essentially, bridging the connection between software engineers, technical people and the nontechnical parts of building a product. I'll be moving across the country, and while I am nervous to be starting over, I'm excited for what's to come."

"When I was applying for internships, I was able to get an internship at Amazon Web Services," said Tran. "I learned from a ton of people who are really good at what they do. The internship got me a full-time offer for a job as a software engineer."

A recipient of a prestigious Goldwater Scholarship in 2024, Tran is a big Temple fan. "When I was researching Temple, I saw that it had tons of opportunities for me to really explore the many different things I'm interested in," said Tran.

Tran always wanted to go to Japan, "so one of the main opportunities that drew me into Temple was the study abroad program at Temple University Japan." "On top of that, I saw that Temple provides a lot of resources for computer science students," said Tran. "The computer science professors here are involved in many different research areas, and I knew that was something I wanted to look into and pursue."

FAN BRINGS HPC EXPERTISE TO CIS

by Greg Fornia

Bringing deep expertise in high-performance computing, large data processing, scalable algorithms and scientific visualization, Ke Fan is a new CIS assistant professor.

Fan recently completed her PhD in computer science at the University of Illinois Chicago. Her academic journey spans several countries, with degrees from University of Tongji and University of Hankou in China and the University of Pavia in Italy.

Fan has held prestigious research internships at Berkeley National Lab, Argonne National Laboratory and Japan's RIKEN Research Center, where she contributed to advanced computing projects on the Fugaku supercomputer.

Fan is a 2024 recipient of the ACM/IEEE-CS George Michael Memorial High Performance Computing Fellowship, one of the field's top honors. She was also a finalist for Best Research Poster at Supercomputing 2023.

"My research lies in high-performance computing, emphasizing three key areas: optimizing the performance of MPI collectives, enhancing the performance of irregular parallel I/O operations and improving the scalability of performance introspection frameworks," said Fan. "I am also exploring new research areas, including GPU-aware collectives, auto performance tuning for collectives using ML, and ensemble performance visualization tools."

AI COPILOT PROJECT EARNS 'BOOST FUNDS'

by Greg Fornia

Stephen MacNeil, assistant professor, earned "boost funds" for his project titled "Pedagogical Tools to Teach Students to Use AI Copilots." Initiated by the CST Office of the Dean, the funding provides support for faculty to demonstrate proof of concept, collect preliminary data and establish the high potential impact of the proposed idea for future proposal submissions.

"AI technology is everywhere. As people grow more reliant on these systems, they often trust them instinctively, sometimes without critical judgment," explained MacNeil. "Our research seeks to address this by exploring new ways to help users make thoughtful decisions when using AI, creating tools that encourage active engagement and critical thinking rather than passive dependence. This represents a new paradigm, where AI systems intentionally challenge users in the short term to cultivate long-term benefits."

PHOTO: DAN Z. JOHNSON

"Dr. MacNeil's research aligns directly with CST's mission and has the potential to make significant contributions to artificial intelligence, human-computer interaction and computing education," said Miguel Mostafá, CST dean. "I am confident that this seed funding will not only propel his individual research but also enhance CIS initiatives."

CIS/ACM AWARDEES FOR 2025

The Department of Computer and Information Sciences presented their annual CIS/ACM Awards for CIS students earning departmental, ACM/ACM-W, and other awards.

CIS Outstanding Achievement
Emmanuel Kourtakis and Elle Nguyen

CIS Outstanding Undergraduate Course Assistant
Victoria Dao and Caleb Hageman

CIS Outstanding Student Leadership
Kush Patel and David Loder

CIS Outstanding Graduate Teaching Assistant
Sanobar Rustamova

CIS Outstanding Graduate Research Assistant
Rafaa Aljurbua

Outstanding ACM Student Service Award
Kush Patel and Sharron Tum

The promise of agrivoltaics

by Bruce E. Beans

When the Philadelphia region baked in high heat last July, lettuce and spinach growing in an open field at Temple Ambler withered away. However, the same plants grown nearby, underneath the shade of solar energy panels, thrived—with just half the water.

Such is the potential for agrivoltaics—an emerging field that Sujith Ravi is pioneering. "It doesn't work well with every climate and crop," said Ravi, an associate professor. "But where it's either too hot or there's too much sunlight, we're experimenting to determine if growing plants underneath solar panels can expand both growing seasons and the range of agriculture."

Since joining CST in 2014, Ravi and his team of researchers and students have explored co-locating solar energy devices with crops and/or biofuels, grazing and/or pollinator-friendly native plants in the United States, India, Indonesia and Nepal. The team has produced more than 10 influential publications, including some of the earliest U.S. studies and collaborated with the National Renewable Energy Laboratory to write the first U.S. Department of Energy agrivoltaics technical report.

Caroline Merheb, a doctoral student in geoscience, is the lead author of a recent paper on the global state of agrivoltaics in the highly prestigious *Nature Sustainability* journal. Pralad Phuyal, another doctoral students, conducts research related to agrivoltaics in Nepal.

Ongoing studies at eight 40- to 100-acre solar power plants in Minnesota are yielding good results when sheep periodically graze on dozens of deep-rooted pollinator-friendly plants. Underneath the solar arrays, the plants are storing more carbon and nutrients, microbial activity has improved and less water is needed.

Since 2023, Ravi's team at Temple Ambler has been analyzing two 50-meter-square test plots—Pennsylvania's only such dedicated site for crop production.

"Our study presents the first evaluation of agrivoltaics in an urban context, demonstrating that while early-season yields may decline due to light reduction in temperate climates, productivity rebounds during periods of extreme heat, extending harvest windows and enhancing crop resilience," said Ravi. "As cities seek climate-adaptive infrastructure, converting just a fraction of vacant land and rooftops to urban agrivoltaics can yield significant co-benefits, generating renewable energy for thousands of households while supplying fresh produce across multiple growing seasons."

The site is a focus of education and outreach. High school students, undergrads and Philadelphia STEM teachers have been trained there. A non-governmental organization group from Kenya, researchers from Indonesia and many horticultural groups have also toured the site.

Ravi soon hopes to test newer solar panels that transmit only red and blue light wavelengths, which particularly affect plants' photosynthesis. His team plans to research agrivoltaics in open areas in South Philadelphia. "We can design community gardens," he said, "that produce both food and electricity in areas that coincide with food deserts, where people don't have access to fresh produce."

BEADLING WILL BE A LEAD AUTHOR FOR IPCC REPORT

by Greg Fornia

Assistant Professor Rebecca Beadling has been selected as a lead author for a chapter of the Intergovernmental Panel on Climate Change's Seventh Assessment Report (IPCC-AR7). Beadling will author Chapter 6, "Global projects on Earth system responses across time scales."

Considered the most authoritative source on climate science, "Assessment Reports," produced by the IPCC every five to eight years, evaluate the current state of knowledge on climate systems, climate change and associated impacts.

"My role will be to work with the chapter team to synthesize material from peer-reviewed research, providing a comprehensive expert assessment of the relevant literature," explained Beadling.

Chapter 6's review of Earth system responses is wide ranging. "For example, how ocean circulation patterns are projected to evolve under various potential future emission scenarios, how global carbon sinks will evolve, and how the cryosphere—sea ice, glaciers and ice sheets—will respond as the climate warms," explained Beadling.

"Being a lead author on a report that will serve as the authoritative source on climate science and climate change to governments around the world is a huge responsibility," said Beadling. "I'm looking forward to diving into the science and collaborating with an international team of experts."

RECENT GRADS EARN NSF FELLOWSHIPS

Maxwell Finnegan, CST '25, and Sean Becker, CST '25, both received a National Science Foundation Graduate Research Fellowship.

NSF's graduate fellowship program recognizes and supports outstanding graduate students who are pursuing full-time research-based master's and doctoral degrees in STEM fields. The five-year Fellowship "provides three years of financial support, including an annual stipend of $37,000."

Finnegan is earning a PhD in environmental engineering at the University of California, Los Angeles (UCLA). An environmental science major with a concentration in hydrology, Finnegan said the fellowship "has completely changed the trajectory of my career."

At UCLA, Finnegan will study the effect of salinity on PFAS (Per- and Polyfluoroalkyl Substances) transport within green stormwater infrastructure.

Sean Becker, who earned both a bachelor's and master's in geology at Temple, will pursue his doctorate in geoscience here at CST.

"I've had a great time at Temple," said Becker, "but more importantly I am really excited about the research I've been doing here."

Working with his faculty advisor Associate Professor Alix Davatzes, Becker conducts research on impact events that occurred during the Archean Eon, and the ejecta deposits associated with those events.

For Becker, the NSF fellowship is life changing. "The fellowship has provided me with a lot of opportunities to continue doing the research I care about, while also giving me the resources to really focus on that work," he said.

PhD STUDENT LEAD AUTHOR IN NATURE SUSTAINABILITY PAPER

by Greg Fornia

Caroline Merheb, a doctoral student in geoscience, is the lead author of a paper on the global state of agrivoltaics, which combines solar and agriculture, in the prestigious *Nature Sustainability* journal.

With years of quantitative and qualitative data from previous agrivoltaics research, the goal of "Synergies and trade-offs of multi-use solar landscapes" was to search for trends, such as increases in energy/food productivity; highlight the benefits agrivoltaics have over separate systems for solar and food production; and identify challenges to collocation scenarios and what could be done to improve the integration of these systems.

"*Nature Sustainability* is one of the most influential platforms for interdisciplinary work that advances understanding of the complex interactions between natural, social and technological systems, with a focus on addressing global sustainability challenges and informing policy," said Sujith Ravi, associate professor and Merheb's faculty advisor. "Publishing a data synthesis review paper there is relatively rare and extremely difficult."

"It's a great honor," said Merheb, "there is an exceptional satisfaction for the hard work invested during the first year of my PhD progress to make this research paper happen."

Charles Osborne, CST '10, earns Lindback Award

PHOTO: JOSEPH V. LABOLITO

Charles Osborne, associate professor of instruction, received the Temple University Lindback Distinguished Teaching Award for 2024-2025. The award recognizes and honors faculty members who epitomize the highest levels of sustained teaching excellence in a classroom, laboratory or clinical setting.

"Winning the Lindback Award is my proudest accomplishment to date," said Osborne, who joined the department after earning his doctorate at Temple. "I am grateful and indebted to those who set up the opportunities I have had over my career. I'm glad I was able to justify their belief in me."

Osborne is inspired by seeing the intellectual development of his students. "Seeing them progress from being new to a concept to being able to solve related problems and then to being able to learn more about the topic independently is greatly rewarding," said Osborne, whose areas of interest include calculus and the theory of numbers. "In addition to the mathematical content of a course, it is my hope that their time in my classes helps students gain understanding of how to reason logically and more generally how to learn."

What most stands out for Osborne are those times when students tell him about their acceptance to graduate school or their new job starting after graduation. "I also remember looking over scholarship applications and seeing that a student had said my class set up a strong foundation for further study of mathematics," he said. "This one really stands out for me since the impact described is more immediate (within the student's time at Temple). These are the things that reassure me that I chose the right career."

MATH ALUMNA EARNS BABUŠKA THESIS PRIZE

by Greg Fornia

Nour Khoudari, CST '24, received the 2025 Ivo and Renata Babuška Thesis Prize in recognition of the outstanding contributions in her PhD thesis, titled "From Microscopic to Macroscopic Scales: Traffic Waves and Sparse Control." Khoudari is currently a Golomb Visiting Assistant Professor at Purdue University.

The annual prize is awarded to the author of "an outstanding PhD thesis in mathematics, interdisciplinary in nature, possibly with applications in other fields." Khoudari works in the area of vehicular traffic modeling and control, with emphasis on bridging the gap between the dynamics of models at microscopic vehicle-scale and macroscopic city-scale flow patterns in unstable traffic regimes. This rapidly growing research area uses ideas and tools from modeling, data science, kinetics, transportation engineering and other fields to provide novel mathematical foundations for understanding nonlinear traveling traffic waves.

"I am truly honored to receive the Babuška Thesis Prize," said Khoudari. "I want to extend my sincere appreciation to my advisor, Benjamin Seibold, for his invaluable guidance and support that helped shape both my thesis and my mathematical maturity. I also want to thank the Temple Mathematics Department for providing a stimulating research environment and for nominating me."

SEIBOLD PART OF IEEE WINNING PROJECT

by Greg Fornia

The multi-institution CIRCLES (Congestion Impacts Reduction via CAV-in-the-loop Lagrangian Energy Smoothing) consortium, on which Professor Benjamin Seibold leads the Temple team, has received the IEEE ITS Institutional Lead Award.

The award is presented for significant contributions to the research and applications of intelligent transportation systems (ITS)-related technologies. CIRCLES was cited for "conducting the largest open-road traffic control experiment and data capture to date, enabling insight on the effects of high penetration of connected and automated vehicles on safety, traffic flow and energy consumption."

CIRCLES aims to reduce instabilities in traffic flow, called "phantom jams," that cause congestion and wasted energy. When a driver encounters a temporary traffic jam for no apparent reason, this might be a phantom jam occurring naturally because of collective human driving behavior.

Seibold's prior work on closed-course testing demonstrated that phantom jams can be reduced using autonomous vehicle technologies and specially designed algorithms. CIRCLES extends this technology to real-world traffic, exploring how assisted driving technology can be leveraged to provide energy savings for all vehicles on the road.

The CIRCLES project was also extensively featured throughout a special issue of IEEE Control Systems magazine, which covered the project from its mathematical foundations to its impacts on transportation science and engineering.

FACULTY NAMED SLMATH RESEARCH PROFESSORS

Professor Mathew Stover and Associate Professor Sam Taylor have been named SLMath Research Professors for the programs "Geometry and Dynamics for Discrete Subgroups of Higher Rank Lie Groups" and "Topological and Geometric Structures in Low Dimensions," respectively. The Simons Laufer Mathematical Sciences Institute (SLMath), formerly known as the Mathematical Sciences Research Institute (MSRI), is an independent non-profit that has served the mathematical sciences community for 40 years. Research professorship positions are reserved for researchers who can make key contributions to their programs including the mentoring of postdoctoral fellows.

PHOTO: CONNOR McVAIL

NUMBER THEORIST JOINS MATHEMATICS FACULTY

by Greg Fornia

Ari Shnidman, associate professor, joined the Mathematics Department in summer 2025. He earned his doctorate in mathematics at the University of Michigan and then was a postdoc at Boston College for three years.

Shnidman's interests include arithmetic statistics, rational points on curves and abelian varieties, special values of L-functions and algebraic cycles. Before joining Temple, he was a senior lecturer and then an associate professor at Hebrew University of Jerusalem.

While at Hebrew University, Shnidman was founder and director of the research experience for undergraduates (REU) at the Einstein Institute of Mathematics, one of the world's leading research institutes where faculty and graduates include many leading mathematicians. During the 2024-2025 academic year, he was a member of the Institute for Advanced Study in Princeton, New Jersey, one of the world's leading centers for curiosity-driven basic research.

Shnidman's work has been published in *Duke Math Journal*, *Compositio Mathematica*, *Journal of the European Mathematical Society*, *Crelle's Journal*, *Mathematische Annalen*, *Algebra & Number Theory*, *Journal of the London Mathematical Society* and *Research in Number Theory*, among others. He has earned research funding from the Israel Science Foundation and the European Research Council.

Mostafá research group awarded NSF grant to advance multi-messenger particle astrophysics

by Greg Fornia

Miguel Mostafá, CST dean and professor of physics, and his research group have been awarded a $1 million grant from the National Science Foundation (NSF) to support pioneering work in high-energy astrophysics. The project, titled "Multi-TeV, Multi-Messenger, and Multi-Wavelength Particle Astrophysics with HAWC," will push the frontiers of our current understanding of the most energetic processes in the universe.

The award comes at a particularly meaningful time, as federal funding for fundamental science continues to face intense competition. "We are deeply grateful for this support from the NSF," said Mostafá. "In today's environment, where funding is increasingly difficult to secure, this award is both a recognition of the strength of our program and an investment in the future of discovery."

The research will leverage the High-Altitude Water Cherenkov Observatory (HAWC) in Mexico, a world-leading facility designed to detect cosmic rays and gamma rays at the highest energies. By combining observations across multiple channels—cosmic messengers such as neutrinos, photons and gravitational waves—Mostafá's team aims to answer fundamental questions about how nature accelerates particles to energies far beyond those achievable on Earth.

Beyond its scientific impact, the project has significant educational and societal benefits. The grant will provide training opportunities for graduate and undergraduate students, expanding pathways for students into the fields of physics, data science and astronomy. The group will also engage in outreach efforts to broaden participation in science, inspiring the next generation of researchers.

The $1 million NSF investment will support the group's work over three years, strengthening Temple's position as a hub for multi-messenger astrophysics and ensuring that its students remain at the forefront of discovery.

> *"This award underscores the role Temple plays in cutting-edge astrophysics. We are excited to continue building collaborations worldwide and to contribute to a deeper understanding of the universe."* – MIGUEL MOSTAFÁ

The Mostafá research group at Temple includes graduate students Surya Shankar Rajendra Kumar, Renée Kirk, Yubraj Niroula, and Seonghyeon Yu; postdoc Pauline Chambéry; faculty members Priyadarshini Bangale, research assistant professor, and Hugo Alberto Ayala Solares, research associate professor; and undergraduate students Aditiya Dhar and Sarah Hawley.

IMAGES: THE HAWC COLLABORATION

PHOTO: CONNOR McVAIL

SALAZAR JOINS PHYSICS DEPARTMENT

by Greg Fornia

A fellow of the RIKEN Brookhaven Research Center, Farid Salazar has joined the department as an assistant professor of physics.

Before Temple, Salazar was a junior fellow at the Institute for Nuclear Theory at the University of Washington and held a joint postdoctoral appointment at the University of California, Los Angeles, the University of California, Berkeley, and Lawrence Berkeley National Laboratory. He earned his PhD in physics from Stony Brook University.

Salazar's research centers on Quantum Chromodynamics (QCD), the theory describing the dynamics of strongly interacting matter inside atomic nuclei. His recent focus is developing effective field theories for QCD in extreme conditions, such as high energies and densities. His work provides essential theoretical input for interpreting data from major facilities like the Large Hadron Collider and for guiding future experiments at the Electron-Ion Collider.

His publications have appeared in leading journals including the *Journal of High Energy Physics*, *Physical Review C*, and *Physical Review Letters*. He has delivered numerous invited talks and seminars across the United States and in Finland, Italy, China and other countries.

In addition to research, Salazar is deeply committed to teaching and mentoring, working with students from high school through PhD programs, as well as with postdoctoral researchers.

MEDICAL DOSIMETRY PSM LAUNCHED

by Greg Fornia

CST now offers a Professional Science Master's in medical dosimetry. Led by Mulualem Kefene, program director and assistant professor, the degree has seen strong demand with 10 students currently enrolled.

Medical dosimetry is the science of calculating doses for patients who require radiation treatments. 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.

Temple's Medical Dosimetry PSM offers an interdisciplinary curriculum aligned with the curriculum adopted by the Joint Review Committee on Education in Radiologic Technology (JRCERT) and taught by Temple faculty and clinical experts. The program prepares students for the Medical Dosimetrist Certification Board Exam and provides hands-on treatment planning experience through laboratory exercises and clinical practicums at various affiliate radiation therapy facilities, including Fox Chase Cancer Center.

There is a nationwide shortage of medical dosimetrists, creating a critical need for professionals to provide skilled care for those battling cancer. According to Zippia, an online recruitment service and career information tool, the projected medical dosimetry job growth rate is 6 percent through 2028.

"CST introduced the medical dosimetry PSM to meet the high demand for medical dosimetrists," said Kefene, an experienced certified medical dosimetrist and medical physicist with a background as a certified radiation therapist. "Ours is the only medical dosimetry master's program in the entire state of Pennsylvania."

PHYSICS HOSTS FRANKLIN INSTITUTE AWARDS SYMPOSIUM

by Greg Fornia

The Department of Physics hosted the 2025 Franklin Institute Awards Symposium on density functional theory (DFT), honoring John Perdew, recipient of the 2025 Benjamin Franklin Medal in Physics.

The event gathered national experts to explore the latest advancements in DFT, a powerful computational tool in studying electronic structure, reactivity and material properties. Presentations covered new theoretical developments and emerging applications in physics, chemistry and materials science, providing insights into the future directions of DFT.

Opening remarks by Dean Miguel Mostafá and Michael L. Klein, former CST dean and Laura H. Carnell Professor of Science, honored Perdew, a former Temple physics faculty member. The Franklin Institute cited Perdew for "designing a method based on quantum mechanics that is widely used by researchers to computationally predict physical properties of atoms, molecules, fluids and solids."

Invited speakers included Kieron Burke, University of California, Irvine, Weitao Yang, Duke University, Roberto Car, Princeton University and Gustavo Scuseria, Rice University

Now at Tulane University, Perdew's remarks were titled "Self-Interaction and Strong Correlation in Density Functional Theory: Killing Two Birds with One Stone."

PHOTO: GREG FORNIA

FROM LEFT TO RIGHT: CST Dean Miguel Mostafá, Physics Chair Maria Iavaroni, John Perdew and Josh Gladden, Temple's Vice President for Research

Crystal Huang

Trisha Gullapudi

Oswayne Smith

PHOTOS: DAN Z. JOHNSON

Offering a helping hand and a warm welcome

by Bruce E. Beans

As peers and ambassadors for the college, CST undergraduates support current students and welcome new families

CST Peers: Supporting science and tech students

Established seven years ago, CST's peer advisor program this fall employs more than 20 students. Extensively trained, they can quickly answer academic questions from CST students. Peers staff the advising office's front desk and virtual front desk to answer basic questions from students. More experienced peer advisors help train new recruits, create social media content and mentor other peers.

Talha Chaudhry

"Obviously, succeeding is very important for Temple students," says Talha Chaudhry, a junior chemistry major. "That leads to a lot of anxiety, stress and emotions."

As it did for a biology major with dreams of becoming a dentist who, last spring, walked into the CST Center for Academic Advising and Professional Development. Upset about her academic performance, she spoke with Chaudhry—a CST peer advisor—about switching her major.

"Sometimes people just need encouragement," he says. "I told her what I've told myself when I had challenging moments in class: 'Believe in yourself. You got here for a reason; you didn't get here by accident.'"

That student left the office feeling better, says Chaudhry, and, after speaking with her academic advisor, decided to stick with biology.

"It's very rewarding to be able to help students on their college journeys," says Chaudhry. Planning to pursue a doctorate, he currently is an undergraduate researcher working in the Nathaniel W. Snyder Laboratory at the Lewis Katz School of Medicine (LKSOM) to better understand inner cellular metabolism.

"Our peers are really good role models for CST students," says Stephanie Ballard, director of advising and curriculum management. "Besides managing their own challenging science majors, they've also chosen this on-campus job that's all about helping others and giving back to their CST community."

Often, after meeting with a CST professional advisor to discuss which courses to take next, students turn to a peer to help figure out how to juggle their science, math and general education classes.

"A lot of students also come to our front desk stressed because they have multiple tests in the same week and other demands as science students," says Ballard. "Peers, who have been there themselves, can confidently tell a student 'This is what helped me when I was in that scenario and how I managed my time.'"

Cameryn Berry

Cameryn Berry, a senior biology major, was so impressed by how helpful an older student peer was in helping her register for classes that she became a peer advisor herself.

"It's very rewarding to be someone who CST students can trust," says Berry, who also is a peer leader for CST's First-Year Seminar. "It's a lot of pressure and responsibility, but we really do end up helping students."

When students come into the office stressed, Berry—who has undergone crisis volunteer training—tries to deescalate the situation. "My main goal is to assure them that their feelings are valid and that we're here to support them," she says. "I remind them I'm also a student and have probably felt the same way at some point. Once they let their feelings go, we can work out the logistics of their problem."

In part due to her interest in mental health, she wants to be a dentist. "Dental care is a very anxiety-ridden experience for a lot of people," says Berry, "so it's another area where I can de-escalate their anxiety."

Sabrine Semper

Peer advisor Sabrine Semper, a senior genomic medicine major, says the two-week period for dropping or adding courses without penalty at the beginning of each semester is a busy time. "Students come in thinking they can only get help from our professional advisors, who are often booked up," says Semper, "but we have all been in that situation before so we have the insight to help them navigate the process."

She particularly enjoys dealing with first-year or transfer students. "My favorite part is when they notice how accessible our office is and how easy it is for us to help them," she says.

A long-time dancer, she originally wanted to pursue a physical therapy career. However, after both her mother and her aunt were diagnosed with autoimmune diseases, Semper decided such disorders would be her professional focus. "After watching them continue to be pillars of strength as they navigate through life, I decided I wanted to be part of that journey for other patients as well," she says.

This past summer the Baltimore resident utilized her genomic major and information science & technology minor during an internship at Johns Hopkins University that combined bioinformatics and patient care to analyze protein levels of lupus patients.

CST Ambassadors: Welcoming prospective students

During fall 2025, approximately 15 CST ambassadors will meet and speak with prospective students and families and participate in Q&As with faculty members at information sessions, open houses and Experience Temple Days. They conduct casual tours of CST facilities and create content for CST ambassador's social media posts, including TikTok and Instagram.

CST's student ambassadors play a unique role in helping the college attract first-year and transfer students.

"So many new students say meeting our ambassadors was the reason they choose Temple," says Kristin DeLay, assistant director of enrollment management. "Our faculty can share what it's like to be in their classroom. But prospective students want to hear from our student ambassadors; what they're experiencing on a daily basis and what it's really like to be a CST student."

Jack Pudwill, CST '25

Jack Pudwill, who participated in the Honors Program, graduated with a BS in neuroscience: cellular and molecular. He is now pursuing a master's degree in public health at Boston University with the intention of eventually going to medical school.

For more than three years, he served as a student ambassador. "I like to think of us as points of information and inspiration sources to help prospective students and their families in the admissions and enrollment process," says Pudwill, "or to connect them with any faculty, staff or students who can do that on another level.

"I stress CST is a perfect fit for undergraduates because of the strong, highly accessible academic advising and tutoring services," he adds. He also touts his multiple personal experiences, including serving as an undergraduate researcher for two LKSOM professors who are conducting ALS/Alzheimer's disease research and shadowing hospital physicians at Temple, Johns Hopkins University and Nemours Children's Health in Delaware.

The Nemours physician was pediatric anesthesiologist Angela Snow, CST '12. "She helped me plan my gap year," he says, "and we bonded over my wanting to earn an MPH and address public health challenges outside of clinical care needs for a lot of patients."

Sarah Hawley

Even though she was always fascinated by physics, Sarah Hawley began her academic career at Temple as a psychology major. "I always wanted to do physics but I was too intimidated," says Hawley. "I thought it was just for crazy smart people and I had no place thinking I could do that."

But after several semesters, she found it harder to deny the pull of physics. Now she is majoring in physics with minors in astrophysics and mathematics. She also is an undergraduate astrophysics researcher working with CST Dean Miguel Mostafá to help identify unassociated ultra-high energy cosmic ray sources. The data is being collected by the High-Altitude Water Cherenkov Gamma Ray Observatory in Mexico.

As an ambassador, she highlights these kinds of experiences for prospective students. "Temple has an R-1 research classification—the same as Ivy League schools—and there's a lot of emphasis on getting students involved in research their first year," she says. "We all have the opportunity to graduate with years of hands-on research experience."

Egi Rama

A first-generation student, Egi Rama is a senior computer science major who aims to become a software engineer.

"I've been a research assistant with Temple's Human-Computer Interaction Lab; studied abroad at Temple's Tokyo campus; had this student ambassador job and have had excellent software engineering internship experiences with JPMorganChase for two summers," says Rama. "I feel like I have a lot to talk about with the students and parents."

She highlights how easy Temple makes it to study abroad and the fact that, thanks to both merit- and needs-based financial aid, her Temple costs are covered.

She also was an organizer of OwlHacks, Temple's annual student-run hackathon and is co-president of the TU Association for Computing Machinery–Women.

"I love seeing the faces of the students and their parents when I talk about all the things I've gotten involved in," she says. "I think that makes them feel pretty secure in their decision about coming to Temple."


Jack Pudwill


Sarah Hawley


Egi Rama

Message from Development and Alumni Affairs

This is a pivotal moment for the College of Science and Technology and for Temple University.

Higher education is facing shifting demographics, financial pressures and increased competition—all of which make it more critical than ever that we strengthen our foundation and invest in the future.

Yet, even in a time of challenge, CST continues to rise.

Our Open Houses and Experience Temple Days are drawing large crowds of students and families eager to join our community, leading to strong incoming classes over the past two recruitment cycles. CST students continue to excel, with this year's two Goldwater Scholars being just one example of academic excellence. CST's accomplished faculty from across our departments continue to innovate and pursue advanced research. Dean Mostafá, in partnership with President John Fry, is committed to identifying new strategies that will enable CST to thrive in a changing educational landscape.

In FY25, just as in the previous year, CST recorded one of its highest fundraising totals ever. That support is already expanding scholarships, advancing our Research Scholars Program and directly impacting the financial resilience of our departments. Last year, we saw renewed interest in CST's Owl to Owl Mentor Program as well as impressive growth in the number of people who follow CST on social media.

We are welcoming Erin McGinn, TFM '14, as the college's new director of development. A proud Temple alumna and experienced advancement professional, Erin brings energy, strategy and a deep commitment to strengthening donor engagement and expanding support for the college.

Today, the stakes are high. Philanthropic support is essential. Scholarships made possible by alumni donors, like the newly established Stephen and Rhoda Davis Scholarship, help attract and retain the most promising students. Legacy gifts shape our long-term future. Corporate and foundation funding fuels research that tackles society's biggest challenges.

The future of science, technology and innovation at Temple—and beyond—depends on the continued support of people like you. Thank you for standing with us, supporting our students and faculty and believing in what we do.

Sincerely,

Kathy McGady
Assistant Dean for Development and Alumni Affairs

Learn how you can be part of CST's success by contacting me at **215.204.4704** or **kathleen.mcgady@temple.edu**

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.

Foundation gift to support coral exploration and restoration

Erik Cordes, professor and chair of the Department of Biology, earned a $1.49 million grant to conduct exploration and coral restoration work in Argentina. Designed to fill in the research gaps and obtain missing baseline information, transfer new knowledge to policymakers and start a restoration program, the funding is supplied by the CORDAP Foundation, the financial arm of the G20 Coral Research & Development Accelerator Platform.

The research team from Temple, Lehigh University and CONICET, the main government agency that fosters the development of science and technology in Argentina, will utilize research vessels and submersible vehicles supported by a separate award from the Schmidt Ocean Institute to study the diversity and distribution of cold-water corals (CWCs) in a large and understudied area of the Southwestern Atlantic Ocean. This study will provide some of the first *in situ* observations of the CWCs for these areas and generate the data needed to understand the biodiversity, biogeography, habitat use and connectivity of CWC ecosystems across the South Atlantic.

Erin McGinn joins CST development and alumni affairs office

A proud Temple University alumna, Erin McGinn, TFM ’14, is CST’s new director of development. A member of Temple’s Institutional Advancement (IA) team since 2019, McGinn joined IA as a development coordinator and was later promoted to major gift officer at Klein College of Media and Communications. In 2024, she joined the Regional Giving team where she fostered partnerships across campus.

“Erin has played a vital role in strengthening alumni engagement and expanding philanthropic support,” said Kathy McGady, assistant dean for development and alumni affairs. “Her strategic approach to donor relations will be instrumental in CST’s efforts to continue growing our development and fundraising program.”

Alumni scholarship honors talented students

For 11 years the CST Alumni Board has recognized outstanding students from across the college’s six departments who demonstrate academic excellence through a board scholarship.

The 2025 recipients, who receive $1,500 each, are Ishan Aggarwal, CST ’25, Trevor Flick, CST ’25, Sarah Lampreich, An Nguyen, CST ’25, Jamie Nguyen, Adam Tseng and Isaac Wise.

To support CST students, make your gift to the CST Alumni Endowed Scholarship Fund at giving.temple.edu/givetocst.

Financial support for students in chemistry and nursing

Steve Davis, CST ’65, ’69, and his wife Rhoda have established the Stephen and Rhoda Davis Scholarship to provide financial support for a fourth-year student, alternating each year between a student majoring in chemistry and nursing.

A retired professor of chemistry at Florida’s Broward Community College, now Broward College, Davis cites the legendry Hazel M. Tomlinson, who taught chemistry at Temple for more than 40 years, as an enduring influence.

“She was a tough but fair professor who taught me discipline and the need for accuracy and commitment to work,” said Davis. “Temple was pivotal in taking a poor North Philly kid and making him a professional and successful chemist. Volunteering and gifting at Temple are important activities for all of us in passing on our experiences to the next generation of Temple Owls.”

Support Cherry Pantry

The CST Alumni Board supports Temple University’s Cherry Pantry, whose mission is to combat hunger in the Temple community by supplying nutritious emergency food while providing equal treatment to all who visit the pantry.

Make a gift at giving.temple.edu/cherrypantry.

Colleen Edwards, CST '80, named to Gallery of Success

A recently retired hematologist with more than 30 years of experience treating benign and malignant hematology as well as serving as an instructor in medical education, Colleen Edwards has been named to Temple University's Gallery of Success. Her expertise includes treating chronic leukemia and lymphoma, sickle cell disease and hemophilia.

A collaboration of Temple's Office of Alumni Relations and the Career Center, the honor recognizes outstanding alumni for their inspiring success and dedication to the university.

An excellent biology student, Edwards was awarded both the James A. Harrison Memorial Award in Biology as well as the Alumni Association Outstanding Achievement Award. She attended the University of Pennsylvania School of Medicine and completed a residency in internal medicine and a fellowship in hematology at Mount Sinai Medical Center in New York.

Edwards was a diplomate on the American Board of Internal Medicine for both medicine and hematology. She was also an assistant professor of medicine at Mount Sinai Hospital and at the Ichan School of Medicine in New York as well as the co-director of the Hematology Clinic at Mount Sinai.

In 2022 Edwards and her husband established a four-year, full-tuition merit scholarship to support a College of Science and Technology student.

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

MESSAGE FROM THE

CST Alumni Board

I had the honor of speaking at CST's two 2025 graduation ceremonies, one for our undergraduates and a new event just for graduate students held in the historic Temple Performing Arts Center. I spoke briefly about how I felt—almost 20 years earlier—sitting right where they were. I felt proud, maybe a little nervous, wondering what would come next.

I acknowledged their hard work and their drive and how that Temple resilience will carry them forward. Sure, the tests and papers may be behind them, but the real learning? It happens every day—in that first job, in conversations between mentors and mentees, in moments when things don't go as planned.

I also spoke about how they can continue to stay connected to our university. Whatever class you belong to—whether it's 2025, 2005 or 1975—you can continue to be a part of the CST community. You can be a mentor to a young student through our Owl to Owl Mentor Program. Support outstanding students with a gift to the CST Alumni Endowed Scholarship Fund. Help a student by reviewing a resume or by practicing interview questions. Give your time, your insight, your encouragement. Or just start by following CST on social media or coming back for Homecoming or another university or college event.

Temple and CST have been a big part of my career success but also of my personal journey in life. Part of my life story, so to speak.

The CST alumni community offers so many opportunities for you to use your knowledge and experience to give back to this great university. If you want to learn more about how you can join with us, contact me via jena.jefferson@temple.edu.

Sincerely,

Michael Remaker, CST '06
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.

Binh Le, CST '17, POD '21

PHOTO: RYAN S. BRANDENBERG

Best foot forward

Dreaming of becoming a superhero during his childhood, Binh Le now wears scrubs instead of a cape. But he still feels like he landed pretty close. Working as a professional podiatrist in eight hospitals and at Wound Care Experts center in Las Vegas, Le performs surgeries and provides other complex treatments that can save the lower limbs of patients and restore their livelihoods.

For a high school anatomy class, Le took a field trip to Philadelphia's Mütter Museum and by chance saw a Temple flag flying at the Center City campus. After his research revealed highly regarded medical programs, Le was "sold" and only applied to Temple for his undergraduate biology studies.

Le wasn't sure at first what medical field he wanted to pursue. But when a Temple Health advisor visited his undergraduate biology class and asked students to raise their hands for interests in various disciplines, none went up for podiatry. That's when he sensed an opportunity.

Le found a mentor in John Scanlon, POD '81, former chief medical officer of Temple Health's Chestnut Hill Hospital. While working as a medical scribe at Chestnut Hill as an undergraduate, Le met Scanlon and was able to learn more about the field of podiatry through shadowing. Later, Le completed a formative podiatric residency at the hospital.

"Not many people realize that there are only 11 accredited podiatry schools in the entire country," said Le. After getting my bachelor's, Philadelphia felt like my new home, and I had a lot of Temple pride, so the School of Podiatric Medicine was my number one choice."

Le has ambitions to create a better healthcare system. After sitting in on meetings during Temple Health's acquisition of Chestnut Hill Hospital in 2022, Le learned about some of the economics of the healthcare system and now plans to launch a healthcare consulting company focused on increasing patient access to care.

Harmonious healer

Cleaning up toxic pollutants from uranium mines and landfills is sometimes actually the easy part of her job, said Rebecca Feldman. As a remedial project manager for the U.S. Environmental Protection Agency's Superfund program, Feldman is responsible for overseeing the restoration of some of the most environmentally contaminated places in America. Many of her sites in the Pacific Northwest are on tribal lands where trust in the federal government is low, requiring collaboration and a dedication to environmental justice.

Temple's diverse community helped prepare her for interacting with people from all walks of life. As a member of Temple's Diamond Marching Band, Feldman immersed herself in life as an Owl. She enjoyed performing the university's alma mater and leading fans in cheers and, she says, the spirit behind the songs became intrinsic to her identity.

As a geology major, she credits the low student-teacher ratio within the Department of Earth and Environmental Science for providing a high level of attention to each student.

"EES has amazing staff who are very passionate about what they do," said Feldman. "They come from amazing, respected universities. If you have a question, they want to help you. If you want to be involved, they will involve you."

In the mountains of Nepal, Feldman studied groundwater contamination during her sophomore year. It was part of her fieldwork experience that pushed her out of her comfort zone. The following summer, she worked with the Spanish government as a field geologist studying volcanoes on the Canary Islands off Western Africa.

For a time, Feldman focused on volcanoes, studying them while earning a master's in geology in Iceland. But a career in environmental remediation ultimately seemed more practical, and she took a position studying water pollution with the Georgia Environmental Protection Division. After two years she landed with the EPA, and fell in love with the job.

Rebecca Feldman, CST '18

PHOTO: RYAN S. BRANDENBERG

30 UNDER 30

Stellar scientist

Where the sun meets the water is where you'll find Alex Cagle. At California-based startup Noria Energy, Cagle helped invent cutting-edge, floatable solar arrays designed to sit atop man-made bodies of water and collect energy from the sun. From late 2024 to mid 2025, he served on the company's business development team to begin deploying the technology across the country and aid the fight against climate change.

Cagle says that to successfully transition the United States to renewable energy sources, just under 1 percent of the country's land would be needed for solar and wind arrays, an area larger than Vermont and New Hampshire combined. Installing solar on water bodies helps alleviate that pressure while providing additional environmental benefits.

Cagle arrived at Temple University to pursue a very different passion: soccer. A standout goalkeeper from a small-town in Wisconsin, highlights from a successful career with the Owls include playing in front of thousands of spectators at American Athletic Conference games, being named assistant captain during his senior year and earning Temple's 2017 Male Scholar-athlete of the Year honor.

As an environmental science major working with Sujith Ravi, an associate professor in the Department of Earth and Environmental Science, Cagle blossomed into a scientist. "Working with Dr. Ravi and his laboratory provided me the grant funding and mentorship to conduct a two-week experiment at the leading renewable energy laboratory in the world," said Cagle of his research project with the National Renewable Energy Laboratory in Colorado.

Building on his education at Temple, Cagle earned a doctorate of energy systems at the University of California, Davis, where he studied floating solar arrays for his thesis. He immediately began applying knowledge he gathered throughout his studies at Noria Energy, researching the environmental impacts of its arrays and helping to develop motors that allow floating solar panels to rotate and track the sun.

Alex Cagle, CST '18

PHOTO: RYAN S. BRANDENBERG

Haley Lockstein, CST '19, DEN '23

PHOTO: JOSEPH V. LABOLITO

Charitable chief

As chief resident of a dental department at a major urban hospital, there's little that Haley Lockstein hasn't seen. Each day she's responsible for overseeing eight first-year dentistry residents at the Albert Einstein Medical Center in North Philadelphia, as they assist the practice with everything from routine cleanings for hospital employees to emergency surgeries to addressing trauma in victims of domestic assault. Often, they're coming up with creative solutions to deliver the best care possible, even if a patient is underinsured.

"Unfortunately, a lot of dental insurance is poor, and doesn't cover most things," explained Lockstein. "But at our residency, we do everything we can to try and get people what they need."

A Bucks County, Pa. native, Lockstein came to Temple to study biology for practical reasons. The school was close to home and offered her generous scholarship on top of already affordable tuition, she said.

Lockstein chose to stay with Temple for dental school because of the Kornberg School of Dentistry's reputation for high clinical requirements and robust alumni network in the region. After being elected president of the school's chapter of Alpha Omega, an international dental organization, she met Marc Rothman, DEN '88, an oral surgeon at Einstein. He invited Lockstein to shadow his office, helping lead to her residency at the hospital.

Kornberg alumni practice a multitude of specialties, such as periodontics or pediatric dentistry. Lockstein gravitated toward the lab, where she helped research potential links between mental and dental health. Now at Einstein, Lockstein is again engaged in research, investigating topical medications to prevent cavities for those wearing braces.

Now an orthodontic resident, Lockstein plans to pursue a career as an orthodontist, which requires three more years of residency at Einstein. The decision has roots in an evolutionary biology course that piqued her interest as an undergrad. "It's just so cool seeing cranial growth, and how children, over time, develop," she said.

PHOTOS: DAN Z. JOHNSON

CST celebrates graduate students at new ceremony

by Greg Fornia

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

"At a time when our world faces complex challenges—from climate change to technological disruption to global health—the role of science, discovery and innovation has never been more vital," said CST Dean Miguel Mostafá in his remarks. "Your work stands at the heart of progress."

The student speaker was Jordan Howe, CST '25, who earned a bioinformatics PSM, and will move on to a biomedical sciences PhD program at Temple University Lewis Katz School of Medicine.

The featured speaker was Jim Guare, CST '77, '83, whose 28-year career as a researcher with Merck & Co. led to several breakthroughs, including Crixivan, the first effective treatment for HIV.

"There are a lot of awards that come with a discovery like that. And I'm here to tell you that accolades are not a measure of success," said Guare, who helped launch CST's Owl to Owl Mentoring Program. "There is a higher calling here."

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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.

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